

## Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:
*** Note: NTSB investigators may have traveled in support of this investigation and used data provided by various sources to prepare this aircraft accident report. ***

On June 21, 2001, at 1405 easterm daylight time, an amateur-built Masko Mustang MII, N24898, piloted by a commercial pilot, was destroyed when it impacted terrain following a loss of control while maneuvering in the traffic pattern at the Ann Arbor Municipal Airport (ARB), Ann Arbor, Michigan. The aircraft had just completed a touch and go and was turning from the upwind to the crosswind leg of the traffic patterm for runway 06 ( 3,500 feet by 75 feet, concrete). The local flight was being operated under the provisions of 14 CFR Part 91 and was not on a flight plan. Visual meteorological conditions prevailed at the time of the accident. The pilot and the pilot rated passenger received fatal injuries. The flight originated from ARB at 1353.

Witnesses to the accident saw the aimplane make a steep right turn prior to spiraling to the ground.
A postaccident examination of the airplane revealed no anomalies that could be associated with a pre-impact condition.

The pilot held commercial and certified flight instructor certificates with airplane single engine land and instrument airplane ratings. The pilot also held a ground instructor certificate with advanced and instrument ratings. According to Federal Aviation Administration records, the pilot reported having 398 hours of flight time as of March 15, 2001. The pilot's logbook was not recovered.

The pilot rated passenger held a commercial pilot certificate with airplane single engine land and instrument airplane ratings. He held a certified flight instructor certificate with an airplane single engine land rating. The pilot rated passenger also held a ground instructor certificate with an advanced rating. According to Federal Aviation Administration records, the pilot rated passenger reported having 307 hours of flight time as of May 10 , 2001. The pilot rated passenger's logbook was not recovered.

Toxicology tests performed on the pilot and pilot rated passenger were negative for all tests performed. Autopsies were performed on the pilot and pilot rated passenger by washtenaw County on June 22, 2001.

It was reported that the airplane was purchased on June 16, 2001. The pilot was the flight instructor of the new owner. The owner was not aboard the airplane when the accident occurred.




| TRANSP <br> National Transiortation Safety Board <br> FACTULAL REPÊRT <br> AVIATION | NTSB ID: CHI01LA181 |
| :---: | :---: |
|  | Occurrence Date: 06/21/2001 |
|  | Occurrence Type: Accident |

Administrative Information
Investigator-In-Charge (IIC)
John M. Brannen

Additional Persons Participating in This Accident/Incident Investigation:
Lorenzo Rodney
FAA-Detroit, Michigan - FSDO
Belleville, MI

| transp <br> National Transportation Safety Board <br> FACTITAL REP日RT <br> AnIATIQN <br> EETYBOA |  | NTSB ID: CHI95FA050 |  | Aircraft Registration Number: N1QF |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Occurrence Date: 12/01/1994 |  | Most Critical Injury: Fatal |  |
|  |  | Occurrence Type: Accident |  | Investigated By: NTSB |  |
| Location/Time |  |  |  |  |  |
| Nearest City/Place ANN ARBOR | State <br> MI | Zip Code $48105$ | $\begin{aligned} & \text { Local Time } \\ & 1007 \end{aligned}$ | Time Zone CST |  |
| Airport Proximity: Off Airport/Airstrip | Distance From Landing Facility: |  |  |  |  |
| Aircraft Information Summary |  |  |  |  |  |
| Aircraft Manufacturer <br> Agusta |  | Model/Seri <br> A109A II | /A109A II |  | Type of Aircraft Helicopter |

## Revenue Sightseeing Flight: No

## Air Medical Transport Flight:

## Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:
*** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. ***

## HISTORY OF FLIGHT

On December 1, 1994, about 1007 central standard time, an Agusta SPA A109A II, N1QF, operated by Metro Aviation, Inc., was destroyed when it collided with the terrain near Ann Arbor, Michigan. The commercial pilot and two passengers (medical evacuation crew members) were fatally injured. The 14 CFR Part 91 positioning flight departed the St. Joseph Hospital in visual meteorological conditions about 1003, en route to Howell, Michigan. The purpose of the flight was to pick up a patient at Howell, and return to St. Joseph's Hospital.

Prior to the morning of the accident N1QF was designated as the standby helicopter; however, the primary helicopter was scheduled for maintenance on the day of the accident, therefore essential equipment had to be moved from the primary craft to N1QF. Before the transfer could be accomplished, N1QF was required to prepare for dispatch on the accident flight. What was later described by a witness as a "hasty dispatch," necessitated a hurried departure to accomplish the transfer of equipment, complete a preflight, and other items necessary for a medical evacuation flight. The witness to the departure stated that a complete preflight was accomplished by the crew; although this witness did not actually have an opportunity to watch the entire preparation. The witness indicated that the start of the engines was "normal," with no delay in the engine start up. The flight departed at 1003.

At 1005 N1QF contacted the Ann Arbor, Federal Aviation Adrainistration (FAA) Control Tower (ATCT), giving its position as one and one half miles east of st. Joseph's Hospital and requesting landing permission stating, in part, "I'd like to proceed inbound. single engine landing, please." Six seconds later the flight was cleared into the class D surface area. Seven seconds later, N1QF responded stating, "Ah, disregard, I'm going down at this time." No additional information was transmitted, nor was the reason for the single engine landing stated. The pilot did not declare an emergency nor did he request assistance.

The pilot then contacted the dispatcher, at st. Joseph's Hospital and stated that he was going to land, "north of the university." The dispatcher requested the information be repeated and the pilot did so. There was no indication of any need for assistance, the nature of any emergency situation, nor was there any discussion of difficulties being experienced by the flight. Twenty-six seconds after the pilot's repeating the location to the dispatcher, he made a final transmission, indicating a crash was imminent.

Eyewitnesses observed the accident helicopter during the final few seconds of the flight. Two

| National Trangºrtation Safety Board <br> FACEUAL REPORT <br> AdiATION <br> ETYBO | NTSB ID: CHI95FA050 |  |
| :---: | :---: | :---: |
|  | Occurrence Date: 12/01/1994 |  |
|  | Occurrence Type: Accident |  |
| Narrative (Continued) |  |  |
| witnesses stated that the helicopter was trailing smoke from the area of the engines. One witness indicted that the helicopter was maneuvering just prior to the impact and that during the final descent which he described as "dropped like a stone," it appeared the rotor blades were "not turning hardly at all." Witnesses reported that the helicopter was nearly silent just prior to ground impact and that there was no engine noise at all after impact. <br> OTHER DAMAGE |  |  |

One small tree was damaged during the impact with the terrain.
PERSONAL INFORMATION
The pilot was born May 27, 1952, and was the holder of a commercial helicopter certificate number 2157108, with instrument helicopter privileges. At the time of the accident he had 5,000 hours flight time, with 3,500 hours of pilot in command time and 300 hours in the make and model of helicopter involved in the accident. He held a second class medical certificate issued June 9, 1994. His most recent biennial flight review was accomplished in an Agusta A109 on October 23, 1994.

## AIRCRAFT INFORMATION

The helicopter was an Agusta SPA A109A II, serial number 7311, N1QF. The helicopter was maintained on an Approved Inspection Program. The most recent inspection occurred on June 13, 1994, with a total time in service of 1,870 hours. The helicopter had accurnulated 57 hours since the inspection, at the time of the accident. The helicopter was last fueled on Novernber 22, 1994.

## WRECKAGE AND IMPACT INFORMATION

The helicopter impacted flat terrain in a commercial area, on a northeast heading. Ground scars and eyewitness reports indicated that the helicopter impacted in a near vertical direction with little forward motion. The landing gear was found in the extended (gear down) position. The helicopter was lying on its left side. The fuselage was crushed to about one-half the original height. The tail boom was partially separated from the fuselage from ground impact and impact with a small tree. Three of the main rotor blades were intact with little bending. The tail rotor assembly had impact damage only with no rotational damage evident. The main rotor head exhibited marks and damage consistent with blade coning impact.

The rotor system was inspected during the on scene phase of the investigation including the main and tail rotors, transmission and gearbox. No discrepancies were noted.

Both engines and the transmission exhibited little impact damage and were removed for further study. During the on-scene investigation both engines rotated and there was continuity throughout the gear train. No darnage was visible in the output drive shafts on either engine. The fuel control pointer on the number 1 engine was at 30 degrees with the throttle handle at idle. The fuel control pointer on the number 2 engine was at 85 degrees with the throttle handle about mid-range. Fuel vacuum checks were done with engine number 1 having no leaks and engine number 2 having a leak traced to the fuel purnp assembly.

## MEDICAL AND PATHOLOGICAL INFORMATION

A post mortern examination of the pilot was conducted by the Washtenaw County (Michigan) Medical Examiner, on December 2, 1994. No contributing pre-existing pathology was found.

A toxicological examination of specimens from the pilot proved negative for those drugs screen.


TESTS AND RESEARCH

Fuel samples from the fueling source were found to be free of water and within limits for Jet-A1.

Fuel and oil samples from the helicopter were tested at the Allison lab and were found to be within limits for Jet-A1 fuel and MIL-L-23699E oil.

An examination of light bulb filaments revealed stretched filaments in the "Master Warning," "Master Caution," "Engine \#1 Low RPM," "Engine \#2 Low RPM." and "Low Rotor RPM" panels.

Both engines were test run at Allison on a production test stand on January 11, 1995. Number 1 engine was found to be within limits. Number 2 engine experienced excessive compressor vibration, therefore, the control components from that engine were tested on the number 1 engine which had been successfully run. The engine operation did not reach the limits falling about $2 \%$ below top limits.

The compressor for engine number 2 was disassembled and inspected. A visual inspection revealed unusual balance marks. The rotor was check balanced and it measured at 0.006 oz-in of unbalance. The limit should have been 0.001 oz-in. Although the exact mode of unbalance was not determined, experienced sources indicated that the unusual marks could not be associated with normal operation of the engine; however could be associated with impact artifact.

The individual components (originally) from engine number 2 were tested on October 11 , 1995 , and the fuel control was found to fall about $2 \%$ below the top limit. There was nothing found that would have prevented the engine from operating normally at the cruise setting.

Throughout the on-scene investigation and during the testing of components, nothing was found to indicate any reason that an engine should stop running inflight. Nothing was found in either engine to indicate an indication necessitating a need to manually shut down an engine inflight.

## ADDITIONAL DATA/ INFORMATION

Parties to the investigation were the FAA Flight Standards District Office, Belleville, Michigan; Agusta Aerospace Corporation, Philadelphia, Pennsylvania; Allison, Indianapolis, Indiana; Allied Signal Aerospace, South Bend, Indiana; and Metro Aviation Inc., Shreveport, Louisiana.

The helicopter wreckage was released to representatives of the owner on December 16 , and December 22, 1994 and January 9, 1996.
Updated on Feb 22009 2:42PM




Precip and/or Obscuration:
No Obscuration; No Precipitation

Accident Information

| Aircraft Damage: Destroyed |  | Aircraft Fire: None |  |  |  | Aircraft Explosion None |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Injury Summary Matrix | Fatal | Serious | Minor | None | TOTAL |  |
| First Pillot | 1 |  |  |  | 1 |  |
| Second Pilot |  |  |  |  |  |  |
| Student Pilot |  |  |  |  |  |  |
| Flight Instructor |  |  |  |  |  |  |
| Check Pilot |  |  |  |  |  |  |
| Flight Engineer |  |  |  |  |  |  |
| Cabin Atendants |  |  |  |  |  |  |
| Other Crew |  |  |  |  |  |  |
| Passengers | 2 |  |  |  | 2 |  |
| - TOTALABOARD - | 3 |  |  |  | 3 |  |
| Other Ground | 0 | 0 | 0 |  | 0 |  |
| - GRAND TOTAL - | 3 | 0 | 0 |  | 3 |  |


| National Transportation Safety Board <br> FACTUAL REPÉRT <br> AYJATIQN | NTSB ID: CHI95FA050 |
| :---: | :---: |
|  | Occurrence Date: 12/01/1994 |
|  | Occurrence Type: Accident |

Administrative Information
Investigator-In-Charge (IIC)
STEPHEN A. WILSON

Additional Persons Participating in This Accident/Incident Investigation:
RICHARD G GASTRICH
BELLEVILLE, MI

PAOLO FERRERI
PHILADELPHIA, PA
SCOTT S SCHEURICH
INDIANAPOLIS, IN
MILTON K GELTZ
SHREVEPORT, LA

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| irANsp <br> National Transportation Safety Board <br> FACTIUAL REP日RT <br> AniAtiqN <br> "ETYBOA" |  | NTSB ID: CHI90FA003 |  | Aircraft Registration Number: N9704J |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Occurrence Date: 10/07/1989 |  | Most Critical Injury: Fatal |  |
|  |  | Occurrence Type: Accident |  | Investigated By: NTSB |  |
| Location/Time |  |  |  |  |  |
| Nearest City/Place <br> ANN ARBOR | State <br> MI | Zip Code <br> 48108 | Local Time 1201 | Time Zone <br> EDT |  |
| Airport Proximity: On Airport/Airstrip | Distance From Landing Facility: 0 |  |  |  |  |
| Aircraft Information Summary |  |  |  |  |  |
| Aircraft Manufacturer |  | Model/Series |  |  | Type of Aircraft <br> Airplane |
| Revenue Sightseeing Flight: No |  | Air Medical Transport Flight: No |  |  |  |
| Narrative |  |  |  |  |  |
| Brief narrative statement of facts, conditions and circumstances pertinent to the accidentiincident: <br> *** Note: NTSB investigators either traveled in support of this investigation or conducted a significant arnount of investigative work without any travel, and used data obtained frorn various sources to prepare this aircraft accident report. *** |  |  |  |  |  |


| RRANSO <br> National Trangportation Safety Board <br> FACTUAL REPÖRT <br> AVIATIQN <br> ETYBO | NTSB ID: CHI90FA003 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Occurrence Date: 10/07/1989 |  |  |  |  |
|  | Occurrence Type: Accident |  |  |  |  |
| Landing Facility/Approach Information |  |  |  |  |  |
| Airport Name <br> ANN ARBOR | Airport ID: <br> ARB | Airport Elevation 839 Ft. MSL | Runway Used $24$ | Runway Length $3500$ | Runway Width 75 |
| Runway Surface Type: Asphalt |  |  |  |  |  |
| Runway Surface Condition: Dry |  |  |  |  |  |
| Approach/Arrival Flown: NONE |  |  |  |  |  |
| VFR Approach/Landing: Full Stop; Traffic Pattern |  |  |  |  |  |
| Aircraft Information |  |  |  |  |  |
| Aircraft Manufacturer PIPER | Model/Series <br> PA-28-180 /PA-2 |  |  | Serial Number28-3894 |  |
| Airworthiness Certificate(s): |  |  |  |  |  |
| Landing Gear Type: Tricycle |  |  |  |  |  |
| Amateur Built Acft? No Number of Seats: 4 | Certified Max Gross Wt. |  | 2400 LBS | Number of Engines: 1 |  |
| Engine Type: Reciprocating | $\begin{aligned} & \text { Engine Manufacturer: } \\ & \text { LYCOMING } \end{aligned}$ |  | $\begin{gathered} \text { Model/Series: } \\ \text { O-360-A4A } \end{gathered}$ |  | $\begin{aligned} & \text { Rated Power: } \\ & 180 \mathrm{HP} \end{aligned}$ |
| - Aircraft Inspection Information |  |  |  |  |  |
| Type of Last Inspection <br> Unknown | Date of Last Inspection |  | ime Since Last In | 0 Hours | Hours |
| - Emergency Locator Transmitter (ELT) Information |  |  |  |  |  |
| ELT Installed?/Type Yes / | ELT Operated? Yes |  | LT Aided in Locating Accident Site? |  |  |
| Owner/Operator Information |  |  |  |  |  |
| Registered Aircraft Owner DAVID B. ESTEP | Street Address 952 E. 163RD PLACE |  |  |  |  |
|  | City | SOUTH HOLLAND |  |  | Zip Code  <br>  60473 |
| Operator of Aircraft <br> DAVID B. ESTEP | $\begin{aligned} & \text { Street Address } \\ & \qquad 952 \text { E. } 163 \text { RD PLACE } \end{aligned}$ |  |  |  |  |
|  | City | SOUTH HOLL |  | IL | $\begin{array}{\|l\|} \hline \text { Zip Code } \\ 60473 \\ \hline \end{array}$ |
| Operator Does Business As: |  |  | Operator Designator Code: |  |  |
| - Type of U.S. Certificate(s) Held: None |  |  |  |  |  |
| Air Carrier Operating Certificate(s): |  |  |  |  |  |
| Operating Certificate: |  | Operator Certificate: |  |  |  |
| Regulation Flight Conducted Under: Part 91: General Aviation |  |  |  |  |  |
| Type of Flight Operation Conducted: Personal |  |  |  |  |  |
| FACTUAL REPORT - AVIATION Page 2 |  |  |  |  |  |




Precip and/or Obscuration:

Accident Information

| Aircraft Damage: Destroyed |  | Aircraft Fire: None |  |  |  | Aircraft Explosion None |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - Injury Summary Matrix | Fatal | Serious | Minor | None | TOTAL |  |
| First Pillot | 1 |  |  |  | 1 |  |
| Second Pilot |  |  |  |  |  |  |
| Studert Pilot |  |  |  |  |  |  |
| Flight Instructor |  |  |  |  |  |  |
| Check Pilot |  |  |  |  |  |  |
| Flight Engineer |  |  |  |  |  |  |
| Cabin Attendants |  |  |  |  |  |  |
| Other Crew |  |  |  |  |  |  |
| Passengers | 2 |  |  |  | 2 |  |
| - Totalaboard - | 3 |  |  |  | 3 |  |
| Other Ground | 0 | 0 | 0 |  | 0 |  |
| - GRAND TOTAL - | 3 | 0 | 0 |  | 3 |  |


| TRANSP <br> National Tranşortation Sufety Board <br> FACTUTAL REPERT <br> AYJATIQN | NTSB ID: CHI90FA003 |
| :---: | :---: |
|  | Occurrence Date: 10/07/1989 |
|  | Occurrence Type: Accident |

Administrative Information
Investigator-In-Charge (IIC)
WILLIAM C. BRUCE

Additional Persons Participating in This Accident/Incident Investigation:
G. ERIKSON

WILLIAMSPORT, PA
J. CHADWELL

VERO BEACH, FL
R. JOHNSON

