



National Transportation Safety Board Aviation Accident Factual Report

Location:	Ogden, UT	Accident Number:	DEN02FA076
Date & Time:	07/16/2002, 1815 MDT	Registration:	N2058T
Aircraft:	Wheeler Doug 2000	Aircraft Damage:	Destroyed
Defining Event:		Injuries:	2 Fatal
Flight Conducted Under:	Part 91: General Aviation - Personal		

HISTORY OF FLIGHT

On July 16, 2002, approximately 1815 mountain daylight time, a Wheeler Doug 2000 gyrocraft, N2058T, was destroyed when it broke up in-flight and impacted the runway during initial climb after taking off from Ogden-Hinckley Airport, Ogden, Utah. The commercial pilot and a passenger were fatally injured. Day visual meteorological conditions prevailed, and no flight plan had been filed for the personal flight being conducted under Title 14 CFR Part 91. The flight was originating when the accident occurred.

The operator built the gyroplane at the facilities of Industrial Supply, a company that he owned in Ogden. He planned to build additional gyroplanes from kits manufactured by Rotary Air Force, Inc., of Kindersley, Saskatchewan, Canada, and formed another company, High Country Air, Inc., to market them. He contracted with Great Western Aviation, an Ogden flight school, to provide flight instructors who would be trained to fly and give flight instruction in the gyroplane. According to the gyroplane operator, the accident pilot was one of those instructors, and he had given him permission the use the gyroplane for the purpose of flying to a nearby church and dropping candy on children in the parking lot below.

The pilot contacted the Ogden control tower and requested taxi clearance to runway 25 and advised that he had ATIS (Automatic Terminal Information Service) information "Whiskey." Information Whiskey, recorded at 1755, was as follows (in part): wind, 280 degrees at 13 knots, gusts to 23 knots; temperature 31 degrees C.; dew point, 11 degrees C.; altimeter 30.00." The pilot was cleared to taxi to runway 34, and he advised would be departing to the northwest. Takeoff clearance was momentarily withheld due to a landing airplane. Main rotor blade rpm was seen to slow as the pilot waited. After the airplane had landed and exited the runway, the pilot was cleared for takeoff, and was given the latest wind observation: 320 degrees at 16 knots. Main rotor rpm was seen to increase as the gyroplane began its takeoff roll. The tower controller said that shortly after it lifted off, when it was between 200 and 400 feet above the ground and 1,000 feet from the end of the runway, it "appeared to fall apart. Pieces and smoke flew in all directions." The gyroplane "fell straight down, did not appear to spin, just drop straight down." Another witness, standing beside a nearby hangar, saw something fall from the

gyrocraft, and then it nosed over and "tumbled" to the ground. There was an explosion and postimpact fire.

PERSONNEL INFORMATION

The 41-year-old pilot was employed as a part-time flight instructor at Great Western Aviation in Ogden. He held a commercial pilot certificate, dated March 2, 2000, with airplane single/multiengine land and instrument ratings. He also held a flight instructor certificate, dated April 20, 2001, with airplane single/multiengine and instrument ratings. His second class airman medical certificate, dated April 30, 2002, contained a restriction requiring the wearing of corrective lenses.

A portion of the pilot's logbook, containing entries from May 2 to July 15, 2002, was made available for examination. As of the latter date, the pilot had logged the following flight hours:

Total Time: 1,230.5

Pilot-in-Command: 1,059.7

Airplane, Single-Engine, Land: 906.3

Airplane, Multiengine, Land: 300.2

Gyroplane: 30.2

Tail Wheel Airplanes: 44.7

Turboprop: 48.2

Turbojet: 2.6

Actual Instruments: 38.2

Simulated Instruments: 71.3

Instruction Received: 192.3

Instruction Given: 466.8

Cross-Country: 483.6

Night: 60.7

The pilot started taking flight instruction in the RAF 2000 gyroplane on June 7, and soloed on July 3, 2002. On that date, his flight instructor made the following entry in his logbook: "I certify that I have given [the pilot] instruction in the operations in FAR 61.87, and find him competent for solo day flight in an RAF 2000 GTX, with winds less than 15 knots and crosswind component less than 8 knots." He was not rated in gyroplanes, and had not been endorsed to carry passengers. All of the pilot's 30.2 gyroplane hours were accrued in the RAF 2000, of which 13 hours were dual instruction and 17.2 hours were either solo or pilot-in-command. He had also received 9 hours of gyroplane ground instruction.

In the Experimental Operating Limitations issued for the Doug 2000, dated June 26, 2002, limitation 15 required "the pilot in command of this aircraft hold an appropriate category/class rating and type rating per 14 CFR, part 61." The pilot did not hold a gyroplane class rating.

AIRCRAFT INFORMATION

N2058T, a Doug 2000 GTX-FI gyroplane (s/n H2-02-13-535) was assembled from a kit, manufactured by Rotary Air Force, Inc., Kindersley, Saskatchewan, Canada, by Doug Wheeler, Ogden, Utah. Construction was completed on June 25, 2002. It was powered by a 4 cam, 16 valve, Subaru EJ22 "Legacy" automotive engine, rated at 165 horsepower. When construction was completed, the engine had accrued 19.7 "break-in" hours. At the time of the accident, the airframe and engine had accrued 78 and 97.7 hours, respectively.

METEOROLOGICAL INFORMATION

The following METAR (aviation routine meteorological report) was recorded at Ogden-Hinkley Airport at 1753: sky condition, clear; visibility, (greater than) 10 statute miles; temperature, 32 degrees C.; dew point, 11 degrees C.; wind, 300 degrees at 13 knots, gusting to 23 knots; altimeter, 30.00.

AERODROME INFORMATION

Ogden-Hinckley Airport (OGD) is located 3 miles southwest of the city of Ogden. It is situated at an elevation of 4,470 feet msl and at a location of 41 degrees, 11.75' north latitude, and 112 degrees, 00.73' west longitude. It is served by three runways: 03-21, 07-25, and 16-34 (the accident runway). Runway 16-34 is 5,352 feet long and 150 feet wide, and is made of asphalt.

WRECKAGE AND IMPACT INFORMATION

A FAA aviation safety inspector conducted initial on-scene wreckage examination. Most of the wreckage was in a burnt area about 1,000 feet from the end of runway 34 (see Wreckage Diagram). Permission was given for him to remove the wreckage and transport it to a nearby hangar for storage. The runway was then reopened.

The following day, an exemplar gyroplane was placed next to the wreckage for comparison

during the wreckage layout. The rectangular boxed beam tail boom was twisted and severed about 2 feet in front of the vertical stabilizer. The vertical stabilizer leading edge bore chop marks. The rudder was shattered. A diagonal crease mark was noted on the left surface of the vertical stabilizer, running from the upper leading edge to the lower trailing, near the tail wheel. Both rudder cables were severed.

The outboard portions of the four propeller blades were recovered and examined. It was noted that all of the blades had been severed at the same angle. Using the exemplar gyroplane, it was determined that the breaks occurred approximately 10 inches from the blade tip, and 12 inches from the blade hub.

The main rotor blades were examined. Both blades were bent downward at the hub. One rotor blade was severed approximately 7 feet, 11 inches from its tip.

MEDICAL AND PATHOLOGICAL INFORMATION

The Utah State Medical Examiner's Officer performed an autopsy (case no. R200201040) and toxicology screen on the pilot. The screen bore no evidence of drugs. FAA's Civil Aeromedical Institute (CAMI) also performed a toxicology screen. According to CAMI's report, no ethanol was detected in vitreous, but 0.065 (ug/ml, ug/g) nordiazepam, 0.152 (ug/ml, ug/g) oxazepam, and 0.144 (ug/ml, ug/g) temazepam were detected in the urine. No benzodiazepines were detected in blood. A cyanide screen was not performed, and the carbon monoxide specimens were unsuitable for analysis.

A CAMI toxicologist said that nordiazepam, oxazepam, and temazepam are metabolites of benzodiazepine. The most common benzodiazepine, Valium, prescribed under the name of Restoril, is a tranquilizer used in the treatment of anxiety, and is contraindicated for flying.

TESTS AND RESEARCH

According to an information brochure, the gyroplane was 13.6 feet long, 5 feet wide, and 8.5 feet tall. The main rotor blade --- consisting of an aluminum spar, foam core, and composite skin --- had a span of 30 feet. Blade loading was 1.88 pounds per square foot. The pusher propeller had a diameter of 68 inches. According to the maintenance records, N2058T had a gross weight of 1,500 pounds, and an empty weight of 850 pounds. With two persons aboard, takeoff speed was between 40 and 50 mph. The takeoff roll was between 75 and 350 feet, and climb rate was 1,000 feet per minute.

The following operating limitations and normal procedures were taken from the RAF 2000 Flight Manual:

"ROTOR LIMITATIONS

"1. Minimum pre-rotation to 150 RPM before starting takeoff roll, monitor rotor tach RPM

"NOTE: ATTEMPTING TAKEOFF AT FULL ENGINE POWER WITH INITIAL ROTOR SPEED LESS THAN 150 RPM WILL LEAD TO ROTOR BLADE FLAPPING. IN THIS CONDITION THE ROTOR WILL CONTACT THE GROUND.

"WARNING: DO NOT OPEN TO FULL ENGINE POWER WITH ROTOR RPM BELOW 200 RPM.

"TAKEOFF

1. Face into wind - hold brakes.

2. Engine speed -1350-1700 RPM.

3. Engage rotor clutch. Control stick forward until 100 rotor RPM. Control stick aft 10 degrees (or halfway) to 125 rotor RPM. Control stick 20 degrees aft (full) until 150-200 rotor RPM.

4. Begin takeoff roll with rotor clutch engaged and 150 RPM or more (ROTOR TACHOMETER READINGS ARE VERY IMPORTANT) gradually roll on engine power with rotor clutch still engaged. Hold rudder to maintain heading.

5. WATCH ROTOR TACH at 18- or 200 RPM disengage rotor clutch and when rotor RPM is at 200 or more increase engine power to full power.

"MAXIMUM DEMONSTRATED CROSSWIND VELOCITY:

1. Takeoff or landing: 20 MPH/90 degrees"

ADDITIONAL INFORMATION

Other than the Federal Aviation Administration, there were no other parties to the investigation.

A written wreckage release was given to the owner on July 17, 2002. Despite repeated requests, the owner failed to sign and return the release or acknowledge receipt of the wreckage.

Pilot Information

Certificate:	Commercial	Age:	41, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Multi-engine; Airplane Single-engine; Instrument Airplane	Toxicology Performed:	Yes
Medical Certification:	Class 2 Valid Medical--w/ waivers/lim.	Last FAA Medical Exam:	04/30/2002
Occupational Pilot:		Last Flight Review or Equivalent:	04/20/2001
Flight Time:	1231 hours (Total, all aircraft), 30 hours (Total, this make and model), 1060 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Wheeler	Registration:	N2058T
Model/Series:	Doug 2000	Aircraft Category:	Gyroplane
Year of Manufacture:		Amateur Built:	Yes
Airworthiness Certificate:	Experimental	Serial Number:	H2-02-13-535
Landing Gear Type:	Tricycle	Seats:	2
Date/Type of Last Inspection:	06/26/2002, Condition	Certified Max Gross Wt.:	1500 lbs
Time Since Last Inspection:	78 Hours	Engines:	1 Reciprocating
Airframe Total Time:	80 Hours at time of accident	Engine Manufacturer:	Subaru
ELT:	Not installed	Engine Model/Series:	EJ25
Registered Owner:	Doug C. Wheeler	Rated Power:	165 hp
Operator:	Doug C. Wheeler	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Day
Observation Facility, Elevation:	OGD, 4470 ft msl	Distance from Accident Site:	
Observation Time:	1753 MDT	Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	10 Miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	13 knots / 23 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	300°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	32° C / 11° C
Precipitation and Obscuration:			
Departure Point:	Ogden, UT (OGD)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	VFR
Departure Time:	1815 MDT	Type of Airspace:	Class D

Airport Information

Airport:	Ogden-Hinckley (OGD)	Runway Surface Type:	Asphalt
Airport Elevation:	4470 ft	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	Unknown
Runway Length/Width:	5352 ft / 150 ft	VFR Approach/Landing:	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Fatal	Aircraft Damage:	Destroyed
Passenger Injuries:	1 Fatal	Aircraft Fire:	On-Ground
Ground Injuries:	N/A	Aircraft Explosion:	On-Ground
Total Injuries:	2 Fatal	Latitude, Longitude:	41.195833, -112.012222

Administrative Information

Investigator In Charge (IIC):	Arnold W Scott
Additional Participating Persons:	Les W DeNaughel; FAA Flight Standards District Office; Salt Lake City, UT
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .