



Aviation Investigation Final Report

Location:	DUPONT, Louisiana	Accident Number:	FTW94LA230
Date & Time:	July 12, 1994, 10:10 Local	Registration:	N8648H
Aircraft:	NORTH AMERICAN NAVION 4	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious, 2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

THE AIRPLANE WAS SUBSTANTIALLY DAMAGED DURING A FORCED LANDING FOLLOWING A TOTAL LOSS OF ENGINE POWER. DURING THE LANDING FLARE, THE PILOT INADVERTENTLY STALLED THE AIRPLANE IN AN EFFORT TO CLEAR TREES AND WIRE. TWO 1/4 INCH 20 BY 15/16 INCH HEX SCREWS WERE FOUND LOOSE DURING THE ENGINE EXAMINATION. THESE SCREWS HOLD THE STARTER GEAR PIVOT IN PLACE. ONE OF THE SCREWS WAS OUT 1 INCH AND THE STARTER GEAR WAS FOUND MISALIGNED AND ACCESSORY GEAR TEETH WERE GRINDING. METAL WAS SHAVED FROM THE STARTER GEAR AND METAL WAS FOUND IN THE OIL SCREEN. GEAR TEETH MISSING FROM THE AFT CRANKSHAFT GEAR DISENGAGED THE CRANKSHAFT FROM THE AFT CAMSHAFT GEAR BREAKING ENGINE CONTINUITY. THE ENGINE WAS ASSEMBLED ON JULY 14, 1992. RECORDS DID NOT INDICATE THAT A MANUFACTURER SERVICE LETTER DATED SEPTEMBER 13, 1993, WHICH CONTAINED INSTRUCTIONS FOR THE HEX SCREW TIGHTENING PROCEDURES AND TAB WASHER INSTALLATION HAD BEEN ACCOMPLISHED.

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 INADEQUATE MAINTENANCE ADJUSTMENT OF ACCESSORY DRIVE STARTER GEAR SCREWS WHICH DISENGAGED IN FLIGHT. FACTORS WERE THE LACK OF SUITABLE TERRAIN FOR THE FORCED LANDING AND NON COMPLIANCE WITH THE APPLICABLE SERVICE LETTER.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF

Phase of Operation: CRUISE - NORMAL

Findings

1. (C) ACCESSORY DRIVE ASSY - DISENGAGED
2. (C) MAINTENANCE,ADJUSTMENT - INADEQUATE - OTHER MAINTENANCE PERSONNEL
3. (F) MAINTENANCE,SERVICE BULLETIN/LETTER - NOT FOLLOWED - OTHER MAINTENANCE PERSONNEL

Occurrence #2: FORCED LANDING

Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: IN FLIGHT COLLISION WITH OBJECT

Phase of Operation: DESCENT - EMERGENCY

Findings

4. (F) TERRAIN CONDITION - NONE SUITABLE
5. OBJECT - TREE(S)
6. OBJECT - WIRE,TRANSMISSION

Occurrence #4: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

On July 12, 1994, at 1010 central daylight time, a North American Navion 4, N8648H, was substantially damaged during a forced landing near Dupont, Louisiana. The commercial pilot received serious injuries. A pilot rated passenger and the other passenger received minor injuries. Visual meteorological conditions prevailed for the personal cross country flight.

The pilot and pilot rated passenger stated the flight departed Baton Rouge, Louisiana, at 0930. The flight climbed to 2,500 feet MSL en route to Alexandria, Louisiana. After 25 minutes the flight descended to 1,500 feet MSL to maintain visual flight conditions. A total loss of engine power occurred and the smell of fuel filled the cockpit. The pilot initiated a descending turn at a rate of 1,000 feet per minute toward a service road. At about 75 to 100 feet above the ground, it was "obvious that the we were not going to clear the trees." The pilot leveled the wings and then "pulled back abruptly on the yoke." The airplane was "stalled completely."

Witnesses and local authorities reported hearing the airplane's engine backfiring, stopping, and restarting several times, before the total loss of power occurred. The airplane was then observed making a turn toward a field and descending for a forced landing. Upon arrival at the field, witnesses reported observing a highline wire shaking and the airplane on the ground bouncing up and down. As the airplane came to rest on it's nose, witnesses and local authorities assisted the occupants.

On July 26, 1994, the engine was examined (statements enclosed) at Baton Rouge, Louisiana. Two 1/4 inch 20 by 15/16 inch hex screws were loose. These screws hold the starter pivot in place. One screw was out 1 inch and the starter gear was misaligned. Metal was shaved from the starter gear and metal was found in the oil filter. Gear teeth were missing from the starter gear, crankshaft gear, and camshaft gear resulting in a loss of engine continuity. Tab locking washers were not bent against the pivot lug. Torque could not be determined.

The engine was assembled on July 14, 1992. A manufacturer service letter was issued on September 13, 1993, containing instructions to discard the old washer and install a new tab washer. The starter gear pivot screws require 180 to 220 inch pounds of torque and tab (PN-501868) locking washer. Maintenance records did not indicate utilization of the service letter.

The airplane was released to the owner's representative following the investigation.

Pilot Information

Certificate:	Commercial	Age:	67, 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:	Yes
Instructor Rating(s):	Airplane single-engine; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical-w/ waivers/lim	Last FAA Medical Exam:	August 26, 1993
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	
Flight Time:	7939 hours (Total, all aircraft), 1641 hours (Total, this make and model), 7706 hours (Pilot In Command, all aircraft), 39 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	NORTH AMERICAN	Registration:	N8648H
Model/Series:	NAVION 4 NAVION 4	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	NAV-4-648
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	November 7, 1993 Annual	Certified Max Gross Wt.:	2750 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:		Engine Manufacturer:	CONTINENTAL
ELT:	Installed, not activated	Engine Model/Series:	E185-9
Registered Owner:	FORETICH, JOSEPH J.	Rated Power:	205 Horsepower
Operator:		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:	Day
Observation Facility, Elevation:	BTR ,70 ft msl	Distance from Accident Site:	40 Nautical Miles
Observation Time:	09:58 Local	Direction from Accident Site:	305°
Lowest Cloud Condition:	Scattered / 2200 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	8 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	270°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	30 inches Hg	Temperature/Dew Point:	29°C / 26°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	BATON ROUGE , LA (BTR)	Type of Flight Plan Filed:	None
Destination:	ALEXANDRIA , LA (ESF)	Type of Clearance:	None
Departure Time:	09:30 Local	Type of Airspace:	Class E

Airport Information

Airport:		Runway Surface Type:	
Airport Elevation:		Runway Surface Condition:	
Runway Used:	0	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious	Aircraft Damage:	Substantial
Passenger Injuries:	2 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 2 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	Smith, Joyce
Additional Participating Persons:	JAVIER RODRIQUEZ; BATON ROUGE , LA
Original Publish Date:	January 26, 1995
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=19110

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).