Aviation Investigation Final Report

Location:	Blairstown, New Jersey	**Accident Number:**	ERA17LA042
Date & Time:	November 10, 2016, 09:15 Local	**Registration:**	N8849H
Aircraft:	North American Navion	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control on ground	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Ferry		

Analysis

The private pilot had not flown the accident airplane for almost 1 year while it underwent repairs following a gear-up landing. The purpose of the accident flight was to ferry the airplane to a nearby airport to receive an annual inspection after completion of the repairs. On the morning of the accident, a mechanic taxied the airplane and performed an engine run-up; he did not note any anomalies. The pilot fueled the airplane and started the engine for the flight. Upon starting, the engine went immediately to full power, where it remained as the airplane taxied at high speed about 1,000 ft into a tree. Witnesses reported that the pilot was awake and alert after the accident; thus, there was no evidence of pilot incapacitation. Examination of the wreckage did not reveal any preimpact mechanical malfunctions or anomalies. Based on the positions of the throttle and mixture control, and the high speed taxi after engine start, it is likely that the pilot started the engine with the throttle lever accidently in the full-forward position. After the engine started, the pilot could have reduced or ceased engine power by retracting the throttle, retracting the mixture, or turning the magnetos off.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper engine start procedure, which resulted in a loss of control on the ground and collision with a tree.

Findings

Personnel issues	Aircraft control - Pilot
Personnel issues	Use of equip/system - Pilot
Personnel issues	Incorrect action selection - Pilot
Aircraft	Powerplant parameters - Incorrect use/operation
Aircraft	Surface speed/braking - Not attained/maintained

Factual Information

History of Flight

Standing-engine(s) start-up	Loss of control on ground (Defining event)
Taxi	Collision with terr/obj (non-CFIT)

On November 10, 2016, about 0915 eastern standard time, a North American Navion, N8849H, was substantially damaged following a loss of control during engine startup at Blairstown Airport (1N7), Blairstown, New Jersey. The private pilot was fatally injured. The airplane was operated by the pilot under the provisions of Title 14 *Code of Federal Regulations* Part 91. Visual meteorological conditions prevailed and no flight plan was filed for the planned personal flight to Capital City Airport (CXY), Harrisburg, Pennsylvania.

According to a mechanic who witnessed the accident, the pilot, who was the owner of the airplane, last flew the accident airplane in December 2015; it was damaged during a gear-up landing at 1N7. The airplane remained at the airport while the mechanic repaired the damage. The repairs were completed, and another pilot had planned to ferry the airplane to CXY for an annual inspection the day before the accident, but the flight was postponed due to poor weather. The other pilot was not available on the day of the accident, and the owner elected to fly the airplane to CXY himself.

On the morning of the accident, the mechanic taxied the airplane from the hangar to the fuel pump. During the taxi, he performed an engine run-up and did not notice any anomalies. The mechanic added that he had performed several run-ups while the airplane was at 1N7 and never experienced any anomalies with the throttle control or brakes. After fueling the airplane and completing a preflight inspection, the pilot started the engine and it went immediately to full power. The engine remained at full power and the airplane taxied about 1,000 ft at high speed into a tree.

Pilot Information

Certificate:	Private	**Age:**	73,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Lap only
Instrument Rating(s):	None	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 With waivers/limitations	**Last FAA Medical Exam:**	January 30, 2016
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	July 16, 2015
Flight Time:	1478 hours (Total, all aircraft), 422 hours (Total, this make and model), 0 hours (Last 90 days, all aircraft), 0 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

The pilot, age 73, held a private pilot certificate with a rating for airplane single-engine land. His

most recent Federal Aviation Administration (FAA) third-class medical certificate was issued on January 30, 2016. At that time, he reported a total flight experience of 1,445 hours. The most recent entry in the pilot's logbook was dated February 1, 2016. According to the logbook, the pilot had accrued a total flight experience of about 1,478 hours. The pilot reported 422 hours in the accident airplane make and model on his most recent insurance application.

Aircraft and Owner/Operator Information

Aircraft Make:	North American	**Registration:**	N8849H
Model/Series:	Navion UNDESIGNAT	**Aircraft Category:**	Airplane
Year of Manufacture:	1947	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	NAV-4-849
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	August 21, 2015 Annual	**Certified Max Gross Wt.:**	2850 lbs
Time Since Last Inspection:	14 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2066 Hrs at time of accident	**Engine Manufacturer:**	Continental
ELT:	C91A installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO-520-BB
Registered Owner:	On file	**Rated Power:**	285 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

The four-seat, low-wing, retractable tricycle-gear airplane was manufactured in 1947. It was powered by a Continental IO-520, 285-horsepower engine, equipped with a constant-speed Hartzell propeller. The pilot purchased the airplane in 2009. Its most recent annual inspection was completed on August 21, 2015. At that time, the airframe had accumulated about 2,052 total hours of operation and the engine had accumulated about 417 hours since major overhaul. The airplane had been operated for about 14 hours between the time of the last inspection and the accident.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	MPO,1915 ft msl	**Distance from Accident Site:**	15 Nautical Miles
Observation Time:	08:53 Local	**Direction from Accident Site:**	305°
Lowest Cloud Condition:	Few / 1200 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots /	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	310°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	30.02 inches Hg	**Temperature/Dew Point:**	3°C / -1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Blairstown, NJ (1N7)	**Type of Flight Plan Filed:**	None
Destination:	Harrisburg, PA (CXY)	**Type of Clearance:**	None
Departure Time:		**Type of Airspace:**	

Pocono Mountains Municipal Airport (MPO), Mount Pocono, Pennsylvania, was located about 15 miles northwest of the accident site. The 0853 recorded weather at MPO included wind from 310° at 10 knots; visibility 10 miles; few clouds at 1,200 ft; temperature 3°C; dew point -1°C; altimeter 30.02 inches Hg.

Airport Information

Airport:	Blairstown 1N7	**Runway Surface Type:**	
Airport Elevation:	371 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	40.971111,-74.997497(est)

Examination of the wreckage by an FAA inspector revealed substantial damage to the wings and fuselage. The inspector noted that the throttle, propeller, and mixture controls were all in the full-forward position. Additionally, the engine had separated forward of the airframe during the collision with the tree.

The wreckage was examined again by an NTSB investigator after recovery. The propeller remained attached to the crankshaft and all three blades exhibited rotational signatures, such as torn blade tips, chordwise scrapes, and leading edge gouges. The throttle body/fuel metering unit was separated from the engine and remained attached to the induction system inlet and wye plenum, which were also separated from the airplane. The throttle and mixture control levers were fractured and their respective shafts were bent. The fractured control lever ends remained attached to the control cable rod ends. Examination of the throttle body/fuel metering unit revealed that the throttle lever was loose on the throttle control shaft; however, it was displaced and bent. No preaccident anomalies were noted with the unit.

The airplane was equipped with push-button Vernier throttle, mixture, and propeller controls. The propeller control knob was fractured and its cable was cut. Examination of the throttle control knob in the cockpit revealed that it was stuck in the full forward position and could not be pulled aft by depressing the push-button release. Examination of the mixture control revealed that it was also in the full forward position. Manual manipulation of the mixture control (both the push-button rapid adjustment mode, and the rotational fine adjustment mode) resulted in normal movement of the control knob with no anomalies noted. The throttle and mixture control knobs and cables were removed from the airplane and forwarded to the NTSB Materials Laboratory, Washington, DC.

Computed Tomography (CT) scanning of the throttle and mixture controls revealed that the outer sleeve within the throttle control did not appear to be fully seated within the knob, consistent with the throttle cable being pulled forward during engine separation in the accident sequence (for more information, see Computed Tomography Specialist's Factual Report in the public docket for this investigation).

Medical and Pathological Information

The Morris County Medical Examiner, Morristown, New Jersey, performed an autopsy on the pilot. The autopsy report noted the cause of death as "multiple injuries."

Toxicological testing was performed on the pilot by the FAA Bioaeronautical Sciences Research Laboratory, Oklahoma City, Oklahoma. Review of the toxicology report revealed:

5.172 (ug/ml, ug/g) Ketamine detected in Urine
2.634 (ug/ml, ug/g) Ketamine detected in Blood (Cavity)
1.834 (ug/mL, ug/g) Norketamine detected in Urine
0.736 (ug/mL, ug/g) Norketamine detected in Blood (Cavity)
Midazolam detected in Blood (Cavity)
Naproxen detected in Urine

Katamine, Norketamin, and Midazolam were consistent with emergency medical treatment that the pilot received after the accident. Naproxen is a non-sedating analgesic and not considered impairing. Additionally, according to an ambulance report, the pilot was awake and alert after the accident.

Administrative Information

Investigator In Charge (IIC):	Gretz, Robert
Additional Participating Persons:	Joseph Brown; FAA/FSDO; Allentown, PA Nicole Charnon; Continental Motors; Mobile, AL
Original Publish Date:	April 23, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=94358