Aviation Investigation Final Report

Location:	ORLANDO, Florida	**Accident Number:**	ATL01LA022
Date & Time:	January 16, 2001, 09:15 Local	**Registration:**	N12E
Aircraft:	Lake LA-4-200	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	2 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The pilot was attempting to start the engine when an explosion occurred. He stated that he did not detect any fumes prior to engine start. A crack was found on a fuel block drain assembly fitting and corrosion of the battery grounding strap was also discovered. Maintenance inspection procedures for the airplane requires a 30 day inspection of both the battery grounding strap for corrosion and the fuel lines for damage.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE OTHER MAINTENANCE PERSONNEL'S FAILURE TO COMPLETE PRESCRIBED INSPECTIONS THAT RESULTED IN THE FAILURE OF A FUEL BLOCK DRAIN ASSEMBLY FITTING , CORROSION OF THE BATTERY GROUNDING STRAP AND THE SUBSEQUENT FLASH EXPLOSION.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: STANDING - STARTING ENGINE(S)

Findings
1. (C) ELECTRICAL SYSTEM,BATTERY - CORRODED
2. (C) MAINTENANCE,INSPECTION - NOT FOLLOWED - PILOT IN COMMAND
3. (C) FUEL SYSTEM,LINE FITTING - CRACKED

Occurrence #2: EXPLOSION
Phase of Operation: STANDING - STARTING ENGINE(S)

Factual Information

On January 16, 2001, at 0915 eastern standard time, a Lake LA-4-200, N12E, experienced a flash explosion while the pilot attempted to start the engine at the Orlando Executive Airport in Orlando, Florida. The personal flight was operated by the pilot under the provisions of Title 14 CFR Part 91 with no flight plan filed. Visual weather conditions prevailed at the time of the explosion. The airplane sustained substantial structural damage. The private pilot and his passenger were not injured. The explosion occurred during the first engine start of the day at 0915.

The pilot stated he did not detect any fumes prior to engine start. He reported draining the hull as recommended to remove any accumulated water and fuel vapor after the previous flight. The engine turned over twice before the explosion occurred.

The examination of the airplane revealed the explosion occurred in the rear cabin area of the airframe. Blue fuel stains were found on fuel lines and fittings inside the enclosed fuel system compartments. A crack was found on a fuel block fitting of the fuel drain assembly. The main fuel tank and associated fuel components are in close proximity to the battery installation. During the post-accident examination of the airplane, corrosion was discovered on the battery grounding strap.

The annual inspection was completed on October 20, 2000, about three months before the accident. Section D, item 2, of the Lake-4-200 Maintenance Inspection Procedures states "Check battery , box and cable (check at least every 30 days). Section D, item 7, states, "check fuel lines, valves and gauges for damage and operation" of the airplane includes checking the battery and ground strap for corrosion and the fuel system and fittings for leaks. No record of the ground strap inspection was discovered.

Pilot Information

Certificate:	Private	**Age:**	61,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):		**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	March 18, 1999
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	May 11, 2001
Flight Time:	2478 hours (Total, all aircraft), 643 hours (Total, this make and model), 2284 hours (Pilot In Command, all aircraft), 41 hours (Last 90 days, all aircraft), 11 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Lake	**Registration:**	N12E
Model/Series:	LA-4-200	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	932
Landing Gear Type:	Retractable - Tricycle; Amphibian	**Seats:**	4
Date/Type of Last Inspection:	October 20, 2000 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:	30 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	2160 Hrs as of last inspection	**Engine Manufacturer:**	Lycoming
ELT:	Installed, activated, did not aid in locating accident	**Engine Model/Series:**	IO360 A1B6
Registered Owner:	LAKE 12E INC.	**Rated Power:**	200 Horsepower
Operator:	GEORGE KIRBY	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	ORL,113 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	08:50 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Few / 100 ft AGL	**Visibility**	3 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	3 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	90°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.15 inches Hg	**Temperature/Dew Point:**	17°C / 1°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	ORLANDO, FL (ORL)	**Type of Flight Plan Filed:**	None
Destination:	ORLANDO, FL (ORL)	**Type of Clearance:**	None
Departure Time:	09:15 Local	**Type of Airspace:**	Unknown

Airport Information

Airport:	ORLANDO EXECUTIVE ORL	**Runway Surface Type:**	
Airport Elevation:	113 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	Unknown
Runway Length/Width:		**VFR Approach/Landing:**	Unknown

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Minor	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	2 Minor	**Latitude, Longitude:**	28.4892,-81.290931(est)

Administrative Information

Investigator In Charge (IIC):	Powell, Phillip
Additional Participating Persons:	REGIS E LAUER; ORLANDO FSDO; ORLANDO, FL
Original Publish Date:	August 21, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=53232