



Federal Aviation Administration (FAA)
Flight Standard District Office (FSDO)
Cincinnati, Ohio 4

NTSB accident # CEN18LA362 / FAA Accident # AGL0518010
N2305K Accident at New Carlisle, OH August 31, 2018
Report Written By Andrew Porter on September 26, 2018

REQUEST FOR ASSISTANCE

This investigation was performed as standard procedure in conjunction with the NTSB.

PARTICIPANTS

Randell Brewer (FAA MX) - Onsite
Federal Aviation Administration – FSDO
Cincinnati, Ohio

Ben Roller (FAA Ops IIC) - Onsite
Federal Aviation Administration – FSDO
Cincinnati, Ohio

Andrew C Porter (FAA MX) – Engine Teardown
Federal Aviation Administration – FSDO
Cincinnati, Ohio

Cincinnati, Ohio
Andrew Todd Fox (NTSB IIC) Not onsite
Air Safety Investigator
National Transportation Safety Board

Aircraft information

Tail Number	N2305K
Airframe MFG	LUSCOMBE
Airframe Model	8E
Airframe Serial No.	5032
Engine MFG	Continental Aircraft Engines
Engine Model	C85-12F
Engine Serial No.	26472-6-12
Propeller MFG	McCauley
Propeller Model	1A90/CF7051
Propeller Serial No.	5432



Stock photo

Pilot / Passenger Information

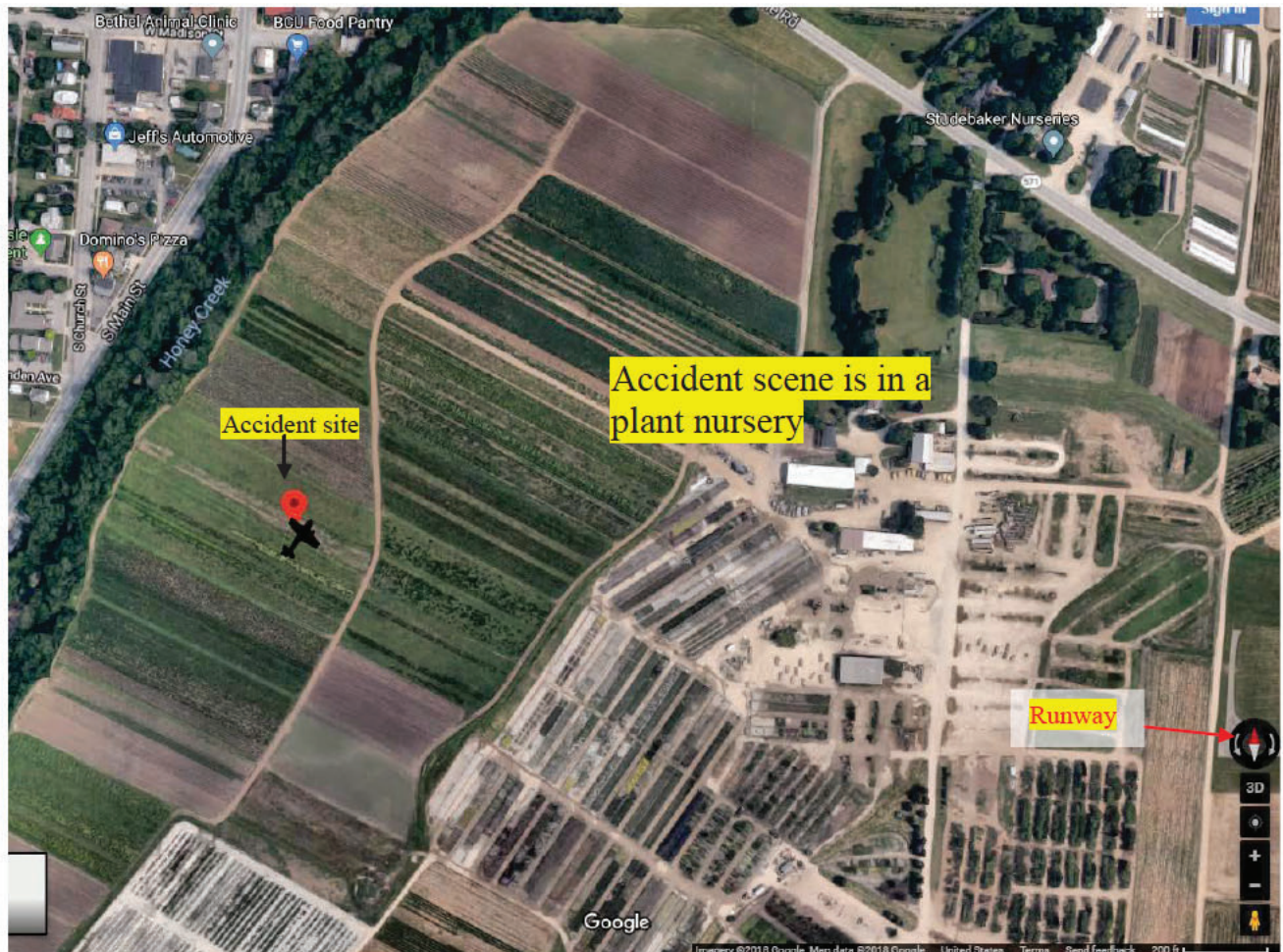
The pilot, John Studebaker received moderate injuries and was transported to the hospital. He was a certificated private pilot single engine land, certificate number [REDACTED]. Mr. Studebaker current certificate was issued 1/27/2006 and had approximately 498 flight hours. Mr. Studebaker had a class III medical dated 7/21/2017; this information was provided by FAA database.

Weather Information

The weather from the Springfield Airport at the time of the accident was overcast with 8 mile visibility, winds out of the west at 8 mph, with heavy isolated thunderstorms in the area. We were unable to verify if the pilot checked any weather condition prior to taking off. The flight was conducted under VFR conditions.

Accident Site Information

The main wreckage was in a plant nursery (+39.931661 -084.024778) approximately 625 feet from South Main Street, 1675 feet from Milton Carlisle Road and 2300 feet from the end of the runway. The wreckage was contained in one area with no evidence of fire and the area was not considered bio-hazard.



Airframe Observations

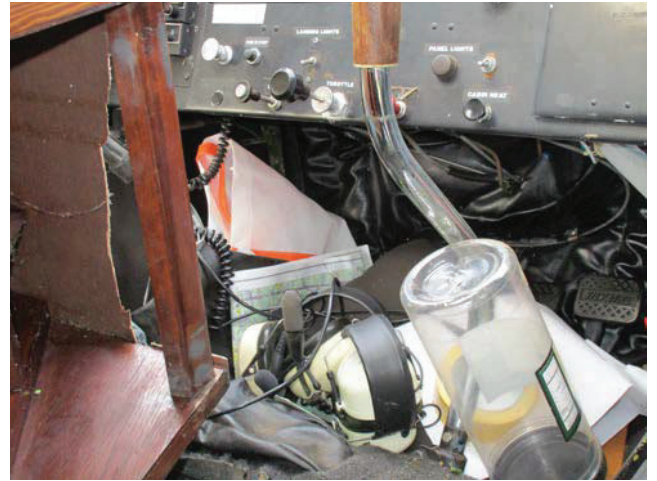
- Main wreckage

The aircraft impacted the ground at a moderate angle producing major damage to the aircraft. The main wreckage was located in one central location and there was no indication of fire or smoke damage in the wreckage. Eyewitnesses and police officers on scene reported a strong smell of fuel and witnessed fuel leaking from the engine compartment; an aircraft mechanic from the local airport turned the right main fuel selector to the off position on arrival. There was major damage to the nose and wings of the aircraft due to ground impact. The nose of the aircraft sustained substantial damage. All three landing gear were either bent or separated from the aircraft. The tail of the aircraft had little to no obvious damage



Fuselage

The fuselage sustained moderate damage to the nose and front of the aircraft, both Main gear were broken off. The cabin area sustained damage to the forward section, floor and control panel area.



Empennage

Only notable issue on the empennage was a binding issue on the left elevator to horizontal, binding did prevent elevator movement until elevator put back into position. No control issues noted by the pilot at the time of the accident.



Left Wing Sections

The left wing was found intact still attached to the fuselage, the left aileron was still attached to the wing and we confirmed cable continuity to the control column. The left wing leading edge and wing tip contacted the ground causing major damage to the wing. Fuel tanks were intact 6.75 gallons of 100LL was removed



Left wing Picture above

Right Wing Sections

The right wing attach area is either bent or broken the attach points, the wing strut failed. The right aileron was still attached to the wing and confirmed cable continuity to the control column.



Engine Investigation

The following list was observations from the engine investigation on 9/11/2018 at Andy Barnhart Memorial Airport New Carlisle, OH 45344

The engine was mainly intact, except the carburetor intake was broken and separated from the engine.

Fuel system

- Throttle cable moved freely from stop to stop.
- Mixture control cable moved freely from stop to stop.
- Carburetor heat control cable was bent 90 degrees from probable impact damage, however the linkage was intact. The heat box was packed full of dirt from impact and severely deformed preventing any movement.
- Carburetor bowl was intact and was about half full of fuel, the fuel had a blue tint. Upon movement of butterfly valve, fuel sprays out of the needle. Only slight varnish inside carburetor was noted. No noticeable sediment in the carb bowl.
- Aircraft was placarded for Auto Gas. But the previous owner stated they never used auto gas, only 100LL.
- The fuel gascolator glass bowl was found shattered inside nose cowl.
- Aircraft is placarded for 12.5 gallons of fuel per side. Drained 5 gallons of 100LL (clear and bright blue tint) from RH tank, small amount of sediment was detected. Drained 6.75 gallons (clear and bright) from LH tank small amount of sediment was detected.

Electrical System

- #4 lower cylinder spark plug lead was found slightly loose (finger tight). The lead could be move easily. There was no evidence of arcing on the lead or spark plug
- #4 lower cylinder spark plug was wet with oil, however no signs of burnt oil.
- #1 lower cylinder spark plug was wet with oil, however no signs of burnt oil.
- Both magnetos sparked normally.
- Each plug sparked to the case.
- Magneto timing checked good. Right mag 28 degrees BTDC, Left mag 30 degrees BTDC.
- Cylinder differential pressures were as follows:
 - #1: 74 psi.
 - #2: 72 psi.
 - #3: 74 psi.
 - #4 73 psi.
- Valve covers all removed, no issues found.
- the cylinders were boroscoped and some build up was seen was seen on the pistons and valves





Fuel manifold broke from apparent ground impact.



Carburetor heat linkage bent 90 degrees, unable to actuate due to damage.



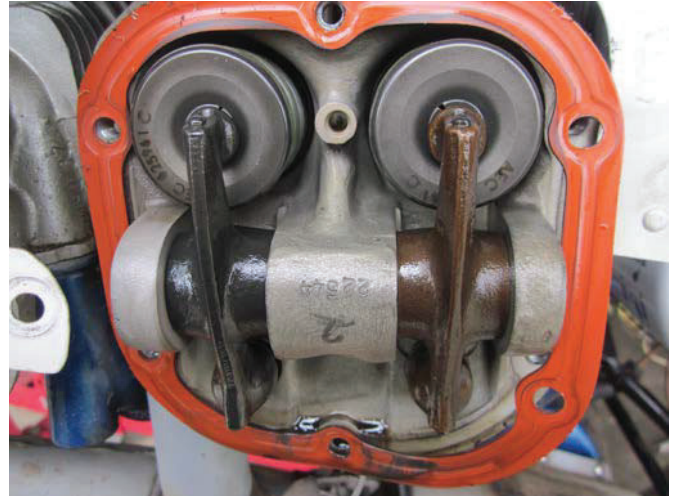
Reassembled gascolator, the wire clip, tightening nut, gasket, broken glass bowl and filter screen was found in the lower cowling on removal. The filter screen seen in the lower right is packed with dirt from the ground impact.



Fuel in right tank prior to draining, light blue tint indicates 100LL in the tank, removed approximately 5 gallons of fuel.



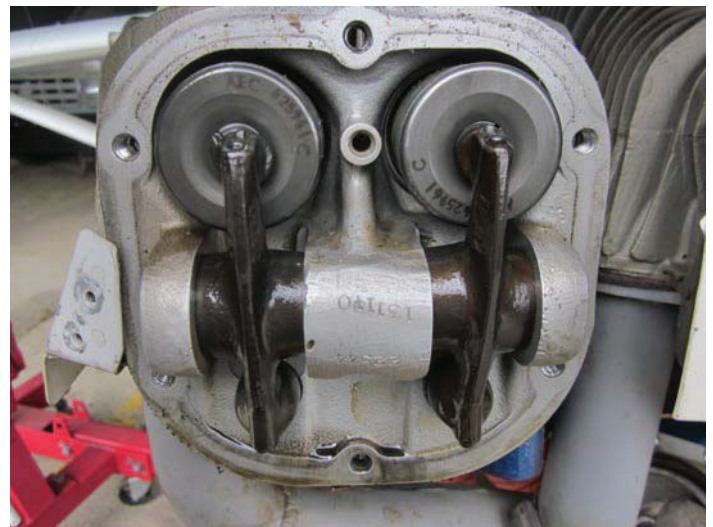
#1 cylinder valve cover removed



#2 cylinder valve cover removed

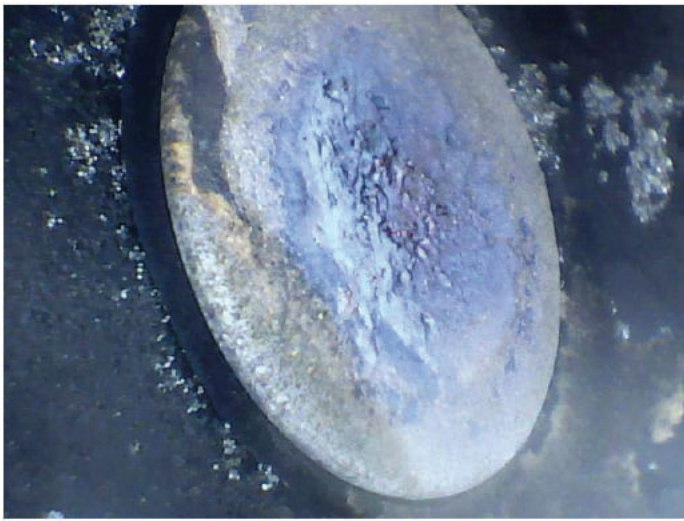


#3 cylinder valve cover removed



#4 cylinder valve cover removed

Number 1 cylinder ▲



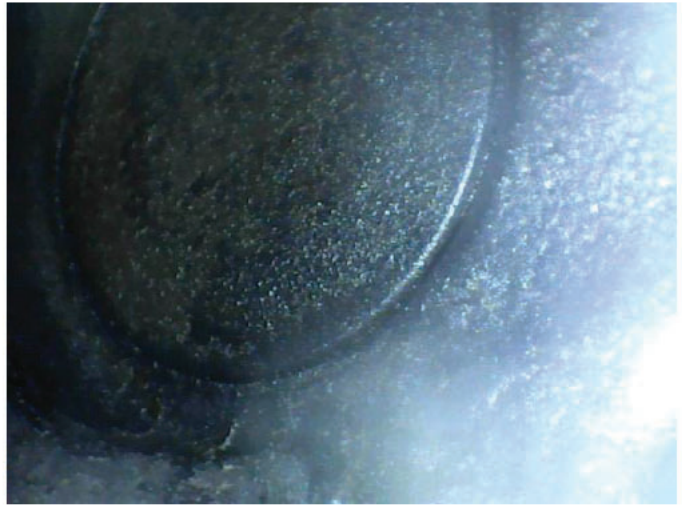
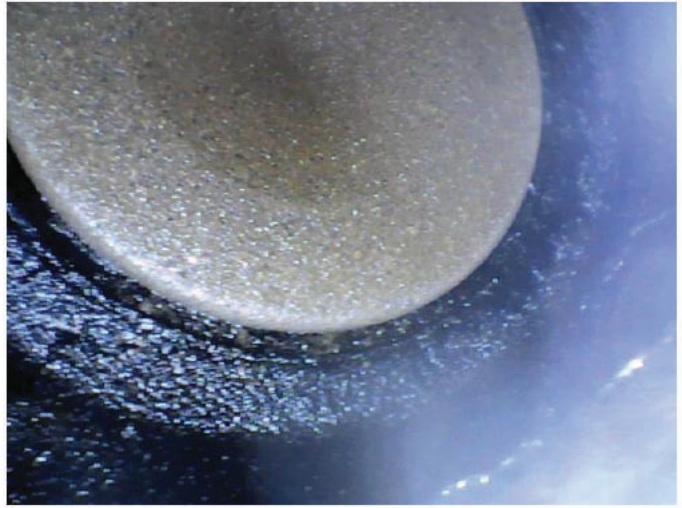
Number 2 cylinder ▲



Number 3 cylinder ▲



Number 4 cylinder ▲



Propeller

The propeller was damaged due to ground impact; only one blade was bent and there is no rotational scarring indicated



Prop hub was still attached to engine shaft.



Actions Taken

This report along with all pictures taken of the accident, Ohio Highway Patrol report and eye witness reports have been forwarded to the NTSB.

This report written by

Andrew Porter
Federal Aviation Administration
Cincinnati FSDO