

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



ERA22FA354

NTSB IIC EXAMINATION

August 4, 2022

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A. ACCIDENT

Location: Cynthiana-Harrison County (018)
Date: August 3, 2022
Time: 1932(UTC)
1532 (EDT)
Airplane: N88550 1946 J3C

B. NTSB IIC EXAMINATION

NTSB IIC	Aaron McCarter NTSB Washington DC
Piper	Damien Galbraith Piper Vero Beach, Florida
FAA	Stephen Travis FAA Louisville, KY

C. SUMMARY

The airplane approached the airport at a low altitude, just over the trees from the north, then making a left turn to join the left downwind for runway 29; it then made a low base leg to final approach turn over the runway numbers when it suddenly descended in a left spin before impacting the ground adjacent to the runway. Almost immediately after impact, heavy rain and wind began at the airport.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The wreckage came to rest in the grass, about 20 ft to right of runway 29 @ . Cynthiana-Harrison County Airport (018) Cynthiana, Kentucky. The wreckage path was compact, oriented on a magnetic heading of 151° from the initial impact point, and all major components of the engine and airframe were accounted for at the scene. (figure 1)



Figure 1 Accident site with location/ direction details

2.0 Airframe Examination

2.1 Fuselage

Fuselage buckled and crumpled with severe deformation on the forward left side of the cockpit and engine compartment. The floor of the forward seat was deformed and pushed up into the bottom of the instrument panel displacing the front seat. Holes were cut in the fuselage to gain access to control cables.



2.2 Empennage

All tail control surfaces were intact and installed in their respective locations and moved manually with corresponding cable movement. A hole was cut into the fuselage to observe all cables and turnbuckles. No anomalies or other irregularities were discovered. Rudder continuity was established from the rudder-to-rudder pedals. Stabilator continuity was established from the stabilator to the main cabin area. The empennage was relatively intact from about 3 feet forward of the rudder and elevators.



Figure 2 View of empennage looking forward.

2.3 Wings

The left wing was broken mid span and severely deformed rearwards. The external wing struts remained attached to their respective locations but were bent and twisted. The aileron remained attached to their respective points and moved manually with corresponding cable movement being observed. The right wing was relatively intact and the external wing struts appeared undamaged. The aileron remained attached and moved manually with corresponding cable movement. All aileron control surfaces had control continuity.



2.4 Landing Gear

The fixed landing gear in a tailwheel formation were displaced by impact forces. The left gear was broken and displaced aft under the fuselage and the right gear was broken and "split" outwards from the fuselage.

2.5 Cockpit

The fore and aft seats exhibited impact damage and partially separated from their mounts; Their lap belts remained attached to their respective attach points and were determined to be functional during field test. No shoulder harnesses were installed.

The upper and lower cabin doors remained attached to their respective attach points with impact damage noted. The rear seat control stick torque tube was fractured. All flight control continuity was established from both for and aft controls to the respective flight control surface. The forward seat rudder pedals were deformed from impact forces. The instrument panel was impact damaged. The engine primer was stowed, the fuel control lever was in the "forward/on" position, and the throttle lever was in the "forward/open" position. It was reported by the FAA that the magneto switch was selected to "both/on" position. The airspeed indicator needle was static at 64mph. The oil pressure gage was static at 10psi.

2.6 Survivability

The cabin contained survivable/occupiable space, but there was significant deformation of the lower left front side of the cockpit where the passenger occupied the seat. There was severe deformation in the front seat area, rudder pedals and instrument panel. There were no shoulder harnesses installed.

2.7 Fuel/Fuel System

Impact damaged was noted to the fuel tank and about five gallons of gasoline was observed within. The fuel screens were removed and were free of any debris. The fuel inlet line was fractured from the carburetor and the inlet screen was clear of any debris. Partial disassembly of the carburetor revealed no irregularities to the unit or its internal components. A trace amount of blue liquid consistent in color and odor to that of aviation type gasoline was observed within the gascolator bowl. No debris was noted within the gascolator bowl or screen and the fuel was tested for water and none was observed. The brass carburetor float was removed and placed in a container of water to test for floatation/leaks; the float was intact.



2.8 Other Systems

3.0 Engine Examination

The powerplant is a four-cylinder, air cooled, direct drive, horizontally opposed, carbureted, naturally aspirated engine with a rating of 65HP. The engine was impact damaged, but all cylinders, spark plugs remained intact. There was no evidence of a post-crash fire.

The carburetor remained attached to the intake which was fractured. The throttle control cable remained attached to the carburetor and mid-travel position. The alternate air box was deformed upward, and the induction air filter was clear of obstruction. The alternate air control cable remained attached to its mounts and was noted in the "primary/filtered" air position.

Both left and right magnetos were removed and manually operated; both magnetos produced healthy spark at each of the posts.

All 4 top spark plugs displayed normal coloration and normal electrodes as compared to the Champion Aerospace AV-27 Check-A-Plug chart.

Impact damage was noted to the engine oil sump and oil was observed within the engine. The oil screen contained non-ferrous debris but was clear of obstruction. The oil appeared dark brown in color and all lubricated components appeared to be well lubricated.

The engine crankshaft was manually rotated 720° degrees of several rotation cycles time to check for crankshaft continuity and compression and suction. Continuity was confirmed and all pistons, valves springs and pushrods operated as

designed. There was adequate suction and compression on each of the four cylinders. Continuity of the crankshaft to the camshaft was confirmed throughout the engine.



Figure 3 View of left and right side of engine prior to examination.

4.0 Propeller Examination

The two-blade wood fixed pitched propeller remained attached to the engine with both blades fractured with their outboard areas separated at the erosion strips. The spinner was separated from its mounts and exhibited some torsional deformation. Pieces of the propeller blade were discovered in a uniform pattern of distribution

around the wreckage up to 40 feet away and there was a 3 inch deep rotational scalp marks in the grass and dirt at the primary impact side.



Figure 4 Propeller damage.

5.0 Pilot Information

The pilot, Jackson, Douglas Anthony, DOB [REDACTED], had a class 3 medical issued on September 27, 2017 and Basic Med on September 25, 2021. Based on his logbook that the pilot had about 986 hours of total flight time and 197 hours in tailwheel. His last documented flight review was on July 11, 2022 (Figure 3)

N-280 Totals: 716.6 Tailwheel 210.9 73-616 98.5												
DATE	AIRCRAFT MAKE & MODEL	AIRCRAFT IDENT	ROUTE OF FLIGHT		DURATION OF FLIGHT	AIRCRAFT CATEGORY & CLASS		INSTRUMENT				SIMULATED (SEE PT)
			FROM	TO		AIRPLANE SEL	FA/ELAP	ACTUAL	SIMULATED	INSTRUMENT APPROACHES	NO. TURNS	
6/3	53645	88550	Local		1.0		1.0					
✓ 6/11	PA-28-26	30546	Local		4.0							
✓ 6/12	PA-28	75546	Local		1.0							
✓ 6/14	75-25	30546	Local		1.0							
✓ 6/25	PA-28	75546	Local		1.0							
✓ 6/27	53645	88554	Local		1.5		1.5					
✓ 6/30	53645	88550	Local		1.5		1.5					
7/11	53645	88550	Local		1.0		1.0					
7/26	PA-28	75546	0185M - 018		2.0							
THIS RECORD IS CERTIFIED TRUE AND CORRECT			PAGE TOTALS									
PILOT'S SIGNATURE			PREVIOUS TOTALS		986.3		197.3					
			NEW TOTALS									
			7/11/22									

TYPE OF PILOT EXPERIENCE OR TRAINING									
DAY	THROT	GROUND TRNG RECD	FLIGHT TRNG RECD	CROSS COUNTRY	NOCT	Solo	PILOT IN COMMAND		
1						1.0	1.0	Scott Henderson G. J. Scott Co.	
6						4.0	4.0	Young, CARLES, CYPRIANA	
1			1.0			1.0	1.0	Randy RICHIE had 1 to 2 hours in And Base	
						1.0	1.0	Steady 2 yrs.	
				1.0		1.0	1.0	AT STEADY and about	
1				1.5		1.5	1.5	Glenite - had Williamsburg, Shaw Lake, etc. Bank	
2							1.5	Baker's 1st Annual Con. The World REMAINS a	
2							1.0	Baker's 1st Annual Con. The World REMAINS a	
2			2.0			2.0	2.0	Baker's 1st Annual Con. The World REMAINS a	
7/11/22 100.0 70.0									

Figure 5 Pilots most recent page from his logbook

6.0 Aircraft Information

N88550

1946 Piper J3C-65

SN: 16175

Tach Time at time of accident: 1,117.38

Continental Engine A-65-8 (figure 2)



7.0 Meteorological Information

Location.....: K27K

Day of month.....: 03

Time.....: 21:35 UTC

Report is fully automated, with no human intervention or oversight

Wind.....: true direction = 160 degrees; speed = 19 knots with gusts of 25 knots

Visibility.....: 10 Statute Miles

Cloud coverage.....: scattered (3 to 4 oktas) at 4500 feet above aerodrome level

Cloud coverage.....: broken (5 to 7 oktas) at 5500 feet above aerodrome level

Cloud coverage.....: broken (5 to 7 oktas) at 7000 feet above aerodrome level

Temperature.....: 28 degrees Celsius

Dewpoint.....: 20 degrees Celsius

QNH.....: 30.00 inHg

Note: About 10 minutes after departure, witnesses reported seeing an "intense" thunderstorm coming in from the north. The storm consisted of a "wall cloud," heavy rain that they could observe several miles out, as well as a rapid wind shift accompanied by an increase in wind speed. In addition, the temperature dropped about "fifteen degrees" over a short period of time.

8.0 Documentation and Additional Information

No maintenance logbooks were recovered during the on scene portion of the investigation, however, a photographic copy was provided by a family member to the IIC and FAA. The airframe log in (Figure 4) showed a tach time of 1,105.36 and TT of 3,319.36 hours; Annual Inspection was accomplished on December 15, 2021 with no anomalies or irregularities noted.

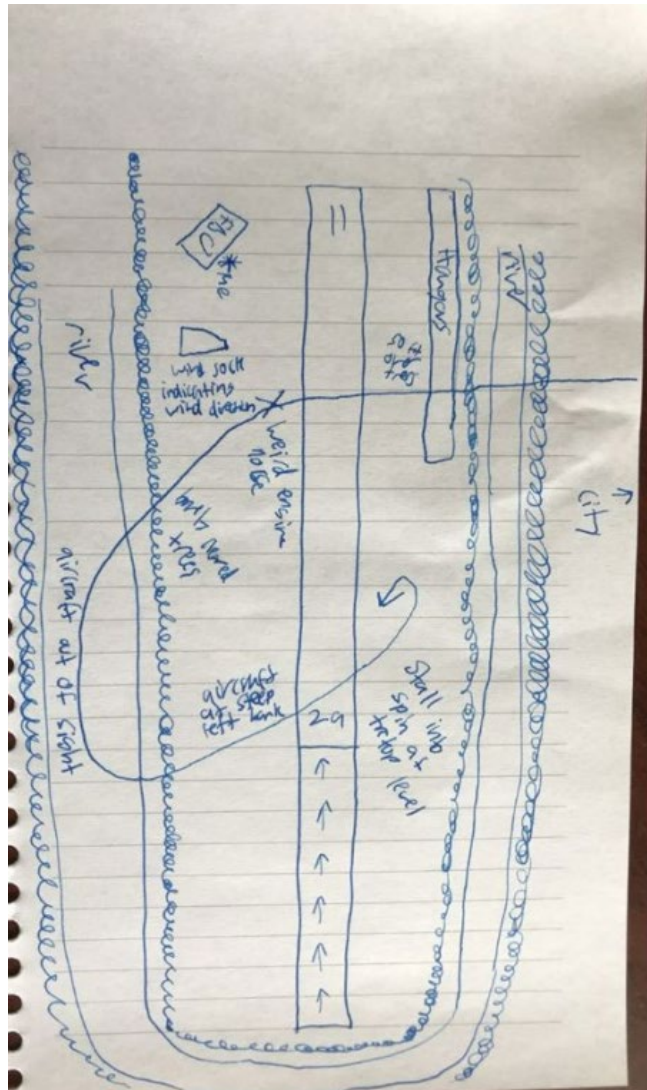
DATE 19__	RECORDING TACH TIME	TODAYS FLIGHT	TOTAL TIME IN SERVICE	DESCRIPTION OF INSPECTIONS, TESTS, REPAIRS AND ALTERATIONS ENTRIES MUST BE ENDORSED WITH NAME, RATING AND CERTIFICATE NUMBER OF MECHANIC OR REPAIR FACILITY. (SEE BACK PAGES FOR OTHER SPECIFIC ENTRIES.)
DEC 15 2021	1105.36		3319.36	Opened inspection panels, lubed Rod ends and controls. checked tires, brakes, complied with A.D. 47-05- 03 Canvas Seat inspection, A.D. 68-05-01 Exhaust muffler inspection, A.D. 99-01-05 A.I. strut inspection, I certify that this Aircraft has been inspected I/A/W. An Annual Inspection and has been found to be in Airworthy Condition. [Redacted Signature] [Redacted Name] [Redacted Address] [Redacted City] [Redacted State] [Redacted Zip]

Figure 6 Maintenance documentation

The engine logbook revealed that on December 15, 2021 an Annual Inspection was accomplished on the engine and propeller. SMOH 1,440.76 and TSOH was 909.46. No anomalies or irregularities were noted.

DATE 19__	RECORDING TACH TIME	TODAYS FLIGHT	TOTAL TIME IN SERVICE	DESCRIPTION OF INSPECTIONS, TESTS, REPAIRS AND ALTERATIONS ENTRIES MUST BE ENDORSED WITH NAME, RATING AND CERTIFICATE NUMBER OF MECHANIC OR REPAIR FACILITY. (SEE BACK PAGES FOR OTHER SPECIFIC ENTRIES.)
DEC 15 2021	1105.36	SMOH	STOH	changed oil, cleaned screen and serviced with 4 qts. Aero-shell 15W50, checked compressions #1 $7\frac{5}{8}$ / #2 $7\frac{5}{8}$ / #3 $6\frac{5}{8}$ / #4 $7\frac{5}{8}$ / checked airfilter, Total Time 33 19.36 cleaned spark plugs, Ran engine, No leaks, Performance check OK, I certify that this Engine and Propeller was inspected I/A/W An Annual Inspection And Has been found to be in Airworthy Condition. [Redacted Signature] [Redacted Name] [Redacted Address] [Redacted City] [Redacted State] [Redacted Zip]

Eyewitness drawing



Submitted by:

McCarter, Lawrence Aaron
Aviation Accident Investigator IIC