



MEMORANDUM FOR RECORD

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Date: 07/05/2023
Subject: Wreckage Examination
NTSB Case Number: ERA23FA274

The wreckage of N7240Y was examined on scene on 06/27/2023 and on 06/28/2023. The following information was gathered during the examinations:

Impact Information

Ground signatures indicated the aircraft struck the ground in a nose and left wing low attitude. The left wing tip was located at the initial ground impact point which was about 25' from where the main wreckage came to rest upright with the fuselage aligned on a magnetic heading of approximately 013°.

Propellers

The left propeller displayed power signatures with significant leading edge polishing, scarring, and S-bending. The right propeller did not display any significant signatures of power.

Instrument Panel

- Engine— Left approximately 3,100 RPM – Right approximately 890 RPM
- Manifold – Left approximately 29" - Right approximately 32-33"
- EGT – Left approximately 8 hash marks above low (between 175 and 200) - Right off scale low
- Oil temperature – Left and right were both off scale low
- Fuel flow – Left and Right both reading 0 GPH
- Fuel quantity – Left slightly below one quarter - Right - below empty
- Oil pressure – Left and right were both on zero
- Oil temperature – Left and right both off scale low
- Throttles both slightly aft of full power. Propellers full forward. Mixtures at approximately the number 2 indication on the quadrant (lean of full rich). Some deformation of the throttle quadrant handles was noted

- Airspeed – At max possible reading
- Vertical speed – 550 FPM down
- Flap indicator – needle aligns with the bottom end of the white arc (white arc is takeoff range)
- Altimeter – Approximately 450 feet – altimeter setting approximately 29.96 inches
- Landing gear handle and gear – The selector was found in the neutral position. – The landing gear appeared to have been extended at impact. The nose landing gear and left wing main gear remained extended. Some brush was found on the inside of the well of the retracted right main gear. All the landing gear displayed signatures of impact deformation
- Both horns of the left control wheel remained intact. Both horns of the right control wheel were broken off.

Fuel System

Fuel selectors – The right fuel selector was found between the AUX (auxiliary) and OFF position and was not in a detent. The Left fuel selector was found selected to MAIN (left main tank) and was in the detent. Impact related deformation of the right selector precluded being able to move it to the AUX position detent.

Approximately 4.5” of fuel remained in the right aux fuel tank and was measured using a dipping stick. No fuel was present in the right main, left main or left aux tank. Deformation of the fuel lines likely caused some fuel to leak from the airplane after impact. Deformation of the fuel lines precluded air from being blown from the engine fuel feed line at the firewall to fuel tanks on either the left or right engine.

Both fuel selector valves were opened for examination. Fuel was present in the left selector valve. Fuel was not present in the right selector valve.

The screens of both valves appeared clean except for a small amount of debris in the right screen. The fuel present in the left valve appeared clear and presented the odor of aviation gasoline. Both main tank in-line fuel finger type screens were found clear and free of any obstructions. Both auxiliary fuel tank in-line screens were found clear and free of any obstruction.

Review of manufacturer supplied technical data indicated the capacity of the main tanks was 30 gallons on each side of which 27 gallons was useable. The capacity of the aux tanks was 15 gallons each all of which was useable. The operating handbook indicated takeoffs were to be performed on the main tanks only and that the aux tanks are to be used during straight and level flight only.

Airframe

Significant compression damage to the nose and cockpit floor location were visible. Significant compression damage to the top of the fuselage above the baggage door location also existed. The left side of the aft fuselage displayed buckling. The empennage displayed little damage. Both engine nacelles displayed compression damage on the top surfaces and were bent upward.

The leading edge of the left wing was compressed and torn. The left wing tip was separated at the point of initial ground impact.

The right wing was bent upward outboard of the flap/aileron juncture. Buckling was noted on the top surface of the wing at that location. The right aileron was also bent upward at approximately the inboard 1/3 of the surface. The right wingtip came to rest lodged against a pine tree deforming the tip.

The left wing displayed compression damage along the entire leading edge. The left aileron was separated at the outboard attach hinge and remained attached at the inboard hinge. The outboard end of the left wing was torn open at a position even with the inboard end of the aileron.

The flaps appeared to be in the retracted position. This position was verified at the flap actuator. Flight control continuity was verified from the ailerons, stabilator and rudder to the base of the control column and rudder bar. Deformation in that location precluded verification to the control wheel and rudder pedals.

The rudder trim actuator was found in a setting with 5 threads exposed. This translated to a slight nose right setting with zero threads being full nose right and 7-8 threads being neutral.

The stabilator trim actuator was found with an exposed dimension of 0.35". This translated to a slight nose down setting. The maximum nose down setting is 9°. The neutral setting range was a dimension of 0.45".

Seat Belts and Seat Rail Attachments

The left front seat belt was intact / attached and appeared to have not been in use. Emergency personnel indicated that it was not latched.

The right front seat belt was intact / attached and appeared to have been in use. Emergency personnel unbuckled it.

Right rear – (occupied) appeared to have been used and remained buckled. The outboard attachment remained attached. The inboard anchor separated at impact.

All seats remained attached to the rails and floor attachments. Deformation of the left front inboard roller claw was noted.

Engines

The left engine had a couple of ounces of fuel in the engine driven fuel pump. Fuel was found in the fuel distribution manifold. Fuel was also found in the fuel servo. The fuel servo screen was clean. The engine oil screen and propeller governor oil screen were found to be clear. The engine oil filter element was free of particles.

The engine drive train would rotate by hand and produce thumb compression on all cylinders.

The left and right magnetos produced spark from all towers. All the accessory drives turned when the engine was rotated. All the valves appeared intact and in place. The oil cooler remained attached to the rear of the engine case and revealed minor damage. The air filter appeared clean. The air intake hose appeared partially collapsed and was missing some interior support wire.

All the top and bottom spark plugs of the left engine appeared to be normal gray coloration with normal wear.

The right engine had only a few drops of fuel in the engine driven fuel pump. No fuel was found in the fuel distribution manifold. About 1 tablespoon of fuel was found in the fuel servo. The fuel servo screen was clean. The engine oil screen and propeller governor oil screens were found to be clear. The engine oil filter element was free of particles. The engine drive train would rotate by hand and produced thumb compression on all cylinders.

The left and right magnetos produced spark from all towers. All the accessory drives turned when the engine was rotated. All the valves appeared intact and in place.