



Aviation Investigation Final Report

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|--------------------------------|--|-------------------------|-------------------------------------|
| Location: | Mesa, Arizona | Accident Number: | WPR23LA129 |
| Date & Time: | March 17, 2023, 12:40 Local | Registration: | N610 (A1); N2504U (A2) |
| Aircraft: | Navion NAVION A (A1); Yakovlev YAK-52 (A2) | Aircraft Damage: | Substantial (A1); Substantial (A2) |
| Defining Event: | Midair collision | Injuries: | 1 Serious, 1 None (A1); 2 None (A2) |
| Flight Conducted Under: | Part 91: General aviation - Personal (A1); Part 91: General aviation - Personal (A2) | | |

Analysis

The pilot of a Yakovlev Yak-52 reported that he was in the number three position, off the lead airplane's left wing while in a four-airplane formation flight. The pilot of the lead airplane initiated a left turn and the formation followed. While in the left turn, the pilot of the number three airplane felt "a bump" from underneath and observed the number four airplane pass under his right wing, and ascend toward the lead airplane. The pilot of the number three airplane realized there had been a mid-air collision, broke away from the formation to the left, and executed an emergency landing. The number three airplane's right wing sustained substantial damage.

The pilot of a Ryan Navion reported that, he was in the number four position off of the number three airplane's left wing in the four-airplane formation flight. The pilot of the lead airplane initiated a left turn and the formation followed. When the pilot of the number four airplane "felt to level off", his airplane collided with the number three airplane from underneath. He then executed an emergency landing. The fuselage, vertical stabilizer, and rudder were substantially damaged.

The pilots of both airplanes reported that there were no preaccident mechanical malfunctions or failures with the airplanes that would have precluded normal operation.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot of the Ryan Navion's failure to maintain visual sight of and clearance from another airplane during a formation flight, which resulted in a mid-air collision.

Findings

| | |
|------------------------------|---|
| Personnel issues (A1) | Task monitoring/vigilance - Pilot |
| Personnel issues (A1) | Aircraft control - Pilot |
| Personnel issues (A1) | Incorrect action performance - Pilot |
| Personnel issues (A2) | Task monitoring/vigilance - Pilot of other aircraft |

Factual Information

History of Flight

| | |
|---------------------|-----------------------------------|
| Enroute-cruise (A1) | Midair collision (Defining event) |
| Enroute-cruise (A2) | Midair collision |

Pilot Information (A1)

| | | | |
|---------------------------|---|-----------------------------------|-------------------|
| Certificate: | Commercial; Military | Age: | 89,Male |
| Airplane Rating(s): | Single-engine land | Seat Occupied: | Left |
| Other Aircraft Rating(s): | None | Restraint Used: | Unknown |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | None | Toxicology Performed: | |
| Medical Certification: | Class 3 With waivers/limitations | Last FAA Medical Exam: | February 7, 2023 |
| Occupational Pilot: | Yes | Last Flight Review or Equivalent: | February 18, 2023 |
| Flight Time: | (Estimated) 16000 hours (Total, all aircraft), 130 hours (Total, this make and model) | | |

Passenger Information (A1)

| | | | |
|---------------------------|-----|-----------------------------------|----------|
| Certificate: | | Age: | Female |
| Airplane Rating(s): | | Seat Occupied: | Right |
| Other Aircraft Rating(s): | | Restraint Used: | Lap only |
| Instrument Rating(s): | | Second Pilot Present: | No |
| Instructor Rating(s): | | Toxicology Performed: | |
| Medical Certification: | | Last FAA Medical Exam: | |
| Occupational Pilot: | UNK | Last Flight Review or Equivalent: | |
| Flight Time: | | | |

Pilot Information (A2)

| | | | |
|----------------------------------|---|--|------------------|
| Certificate: | Airline transport; Flight instructor | Age: | 55, Male |
| Airplane Rating(s): | Single-engine land; Multi-engine land | Seat Occupied: | Front |
| Other Aircraft Rating(s): | None | Restraint Used: | 5-point |
| Instrument Rating(s): | Airplane | Second Pilot Present: | No |
| Instructor Rating(s): | Airplane multi-engine; Airplane single-engine; Instrument airplane | Toxicology Performed: | |
| Medical Certification: | Class 1 With waivers/limitations | Last FAA Medical Exam: | January 5, 2023 |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | October 12, 2022 |
| Flight Time: | (Estimated) 5765 hours (Total, all aircraft), 223 hours (Total, this make and model), 2011 hours (Pilot In Command, all aircraft), 19 hours (Last 90 days, all aircraft), 9 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft) | | |

Passenger Information (A2)

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|----------------------------------|----|--|---------|
| Certificate: | | Age: | Male |
| Airplane Rating(s): | | Seat Occupied: | Rear |
| Other Aircraft Rating(s): | | Restraint Used: | 5-point |
| Instrument Rating(s): | | Second Pilot Present: | No |
| Instructor Rating(s): | | Toxicology Performed: | |
| Medical Certification: | | Last FAA Medical Exam: | |
| Occupational Pilot: | No | Last Flight Review or Equivalent: | |
| Flight Time: | | | |

Aircraft and Owner/Operator Information (A1)

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|--------------------------------------|--------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Navion | Registration: | N610 |
| Model/Series: | NAVION A | Aircraft Category: | Airplane |
| Year of Manufacture: | 1950 | Amateur Built: | |
| Airworthiness Certificate: | Normal | Serial Number: | NAV-4-2066 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 4 |
| Date/Type of Last Inspection: | May 1, 2022 100 hour | Certified Max Gross Wt.: | 2850 lbs |
| Time Since Last Inspection: | | Engines: | 1 Reciprocating |
| Airframe Total Time: | 4450 Hrs as of last inspection | Engine Manufacturer: | Continental |
| ELT: | Installed, not activated | Engine Model/Series: | E185 |
| Registered Owner: | On file | Rated Power: | 205 Horsepower |
| Operator: | On file | Operating Certificate(s) Held: | None |

Aircraft and Owner/Operator Information (A2)

| | | | |
|--------------------------------------|-------------------------------|---------------------------------------|-----------------|
| Aircraft Make: | Yakovlev | Registration: | N2504U |
| Model/Series: | YAK-52 | Aircraft Category: | Airplane |
| Year of Manufacture: | 1987 | Amateur Built: | |
| Airworthiness Certificate: | Experimental (Special) | Serial Number: | 87-8012 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 2 |
| Date/Type of Last Inspection: | October 15, 2022 Condition | Certified Max Gross Wt.: | 2899 lbs |
| Time Since Last Inspection: | 26 Hrs | Engines: | 1 Reciprocating |
| Airframe Total Time: | 976 Hrs as of last inspection | Engine Manufacturer: | Vedeneyev |
| ELT: | C91 installed, not activated | Engine Model/Series: | M14P |
| Registered Owner: | TTD LLC | Rated Power: | 350 Horsepower |
| Operator: | TTD LLC | Operating Certificate(s) Held: | None |

Meteorological Information and Flight Plan

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|---|---|---|----------------------------|
| Conditions at Accident Site: | Visual (VMC) | Condition of Light: | Day |
| Observation Facility, Elevation: | KFFZ, 1394 ft msl | Distance from Accident Site: | 3 Nautical Miles |
| Observation Time: | 12:54 Local | Direction from Accident Site: | 205° |
| Lowest Cloud Condition: | Clear | Visibility | 10 miles |
| Lowest Ceiling: | None | Visibility (RVR): | |
| Wind Speed/Gusts: | 3 knots / | Turbulence Type Forecast/Actual: | / None |
| Wind Direction: | | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 30 inches Hg | Temperature/Dew Point: | 18°C / 7°C |
| Precipitation and Obscuration: | No Obscuration; No Precipitation | | |
| Departure Point: | Mesa, AZ (KFFZ) (A1); Mesa, AZ (KFFZ) (A2) | Type of Flight Plan Filed: | None (A1); None (A2) |
| Destination: | Mesa, AZ (KFFZ) (A1); Mesa, AZ (KFFZ) (A2) | Type of Clearance: | VFR (A1); VFR (A2) |
| Departure Time: | 12:35 Local (A1); 12:35 Local (A2) | Type of Airspace: | Class D (A1); Class D (A2) |

Wreckage and Impact Information (A1)

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|----------------------------|-------------------|-----------------------------|---------------|
| Crew Injuries: | 1 Serious | Aircraft Damage: | Substantial |
| Passenger Injuries: | 1 None | Aircraft Fire: | None |
| Ground Injuries: | | Aircraft Explosion: | None |
| Total Injuries: | 1 Serious, 1 None | Latitude, Longitude: | 33.46,-111.73 |

Wreckage and Impact Information (A2)

| | | | |
|----------------------------|--------|-----------------------------|---------------|
| Crew Injuries: | 1 None | Aircraft Damage: | Substantial |
| Passenger Injuries: | 1 None | Aircraft Fire: | None |
| Ground Injuries: | | Aircraft Explosion: | None |
| Total Injuries: | 2 None | Latitude, Longitude: | 33.46,-111.73 |

Administrative Information

Investigator In Charge (IIC): Blocher, Kristyn

Additional Participating Persons: Ryan Armenta; Federal Aviation Administration; Scottsdale, AZ

Original Publish Date: June 23, 2023

Last Revision Date:

Investigation Class: [Class 4](#)

Note: The NTSB did not travel to the scene of this accident.

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=106913>

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).