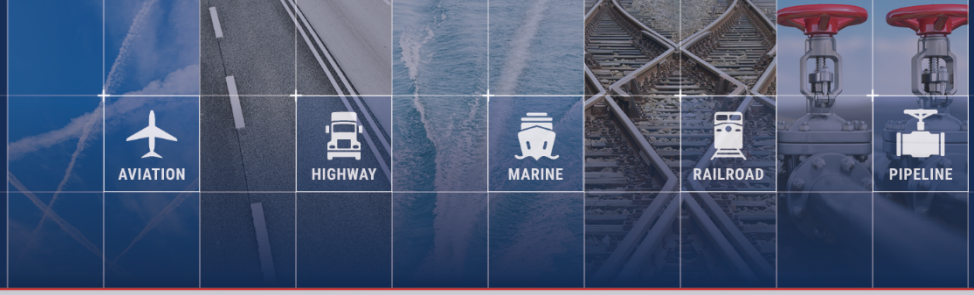

Aviation Investigation Final Report

Location:	Dallas, Texas	**Accident Number:**	CEN23MA034
Date & Time:	November 12, 2022, 13:22 Local	**Registration:**	N7227C (A1); N6763 (A2)
Aircraft:	Boeing B17 (A1); Bell P63 (A2)	**Aircraft Damage:**	Destroyed (A1); Destroyed (A2)
Defining Event:	Midair collision	**Injuries:**	5 Fatal (A1); 1 Fatal (A2)
Flight Conducted Under:	Part 91: General aviation - Air race/show (A1); Part 91: General aviation - Air race/show (A2)		

Analysis

On November 12, 2022, about 1322 central standard time, a Boeing B-17G airplane, N7227C, and a Bell P-63F airplane, N6763, collided in flight during a performance at the Commemorative Air Force's (CAF) Wings Over Dallas air show at Dallas Executive Airport (KRBD) in Dallas, Texas. The pilot, copilot, flight engineer, and two scanners on board the Boeing B 17G and the pilot of the Bell P-63F were fatally injured, and both airplanes were destroyed. No injuries to persons on the ground were reported. Both accident airplanes (and six other historic, former military airplanes that were airborne as part of the same performance) were operated by the CAF under the provisions of Title 14 *Code of Federal Regulations* (*CFR*) Part 91 and a certificate of waiver for the air show. The Boeing B 17G and the Bell P-63F departed from KRBD about 1310 and 1315, respectively, for the local flights.

Probable Cause and Findings

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

the air boss's and air show event organizer's lack of an adequate, prebriefed aircraft separation plan for the air show performance, relying instead on the air boss's real-time deconfliction directives and the see-and-avoid strategy for collision avoidance, which allowed for the loss of separation between the Boeing B-17G and the Bell P-63F airplanes. Also causal

was the diminished ability of the accident pilots to see and avoid the other aircraft due to flight path geometry, out-the-window view obscuration by aircraft structures, attention demands associated with the air show performance, and the inherent limitations of human performance that can make it difficult to see another aircraft. Contributing to the accident were the lack of FAA guidance for air bosses and air show event organizers on developing plans and performing risk assessments that ensure the separation of aircraft that are not part of an approved maneuvers package and the lack of FAA requirements and guidance for recurrent evaluations of air bosses and direct surveillance of their performance.

Findings

Organizational issues (A1)	Adequacy of policy/proc - Other institution/organization
Personnel issues (A1)	Perception - Pilot
Personnel issues (A1)	(general) - Pilot
Environmental issues (A1)	Other pressure/demand - Effect on personnel
Organizational issues (A1)	Adequacy of safety program - FAA/Regulator
Organizational issues (A1)	Oversight of operation - FAA/Regulator
Organizational issues (A2)	Adequacy of policy/proc - Other institution/organization
Personnel issues (A2)	Perception - Pilot
Environmental issues (A2)	Other pressure/demand - Effect on personnel
Organizational issues (A2)	Adequacy of safety program - FAA/Regulator
Personnel issues (A2)	(general) - Pilot
Organizational issues (A2)	Oversight of operation - FAA/Regulator

Factual Information

History of Flight

Maneuvering-low-alt flying (A1)	Midair collision (Defining event)
Maneuvering-low-alt flying (A2)	Midair collision

Pilot Information (A1)

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	66,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	Glider	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	September 2, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	September 21, 2022
Flight Time:	28000 hours (Total, all aircraft), 500 hours (Total, this make and model), 24000 hours (Pilot In Command, all aircraft), 1.7 hours (Last 30 days, all aircraft)		

Co-pilot Information (A1)

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor	**Age:**	67,Male
Airplane Rating(s):	Single-engine land; Single-engine sea	**Seat Occupied:**	Right
Other Aircraft Rating(s):	Glider; Helicopter	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	October 21, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 15, 2022
Flight Time:	(Estimated) 25300 hours (Total, all aircraft), 90 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft), 0.3 hours (Last 30 days, all aircraft)		

Pilot Information (A2)

Certificate:	Airline transport; Commercial; Flight engineer; Flight instructor; Remote	**Age:**	63,Male
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	**Seat Occupied:**	Single
Other Aircraft Rating(s):	Glider; Unmanned (sUAS)	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Class 1 Without waivers/limitations	**Last FAA Medical Exam:**	November 1, 2022
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 19, 2022
Flight Time:	34500 hours (Total, all aircraft), 108 hours (Total, this make and model), 20000 hours (Pilot In Command, all aircraft), 7.8 hours (Last 30 days, all aircraft)		

Aircraft and Owner/Operator Information (A1)

Aircraft Make:	Boeing	**Registration:**	N7227C
Model/Series:	B17 G	**Aircraft Category:**	Airplane
Year of Manufacture:	1944	**Amateur Built:**	
Airworthiness Certificate:	Limited (Special)	**Serial Number:**	44-83872
Landing Gear Type:	Retractable - Tailwheel	**Seats:**	10
Date/Type of Last Inspection:	November 1, 2022 AAIP	**Certified Max Gross Wt.:**	65000 lbs
Time Since Last Inspection:	11 Hrs	**Engines:**	4 Reciprocating
Airframe Total Time:	9239 Hrs at time of accident	**Engine Manufacturer:**	Wright
ELT:	Installed, not activated	**Engine Model/Series:**	R-1820-97
Registered Owner:	AMERICAN AIRPOWER HERITAGE FLYING MUSEUM	**Rated Power:**	1200 Horsepower
Operator:	Commemorative Air Force	**Operating Certificate(s) Held:**	None

Aircraft and Owner/Operator Information (A2)

Aircraft Make:	Bell	**Registration:**	N6763
Model/Series:	P63 F	**Aircraft Category:**	Airplane
Year of Manufacture:	1946	**Amateur Built:**	
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	43-11719
Landing Gear Type:	Retractable - Tricycle	**Seats:**	1
Date/Type of Last Inspection:	March 23, 2023 Condition	**Certified Max Gross Wt.:**	10700 lbs
Time Since Last Inspection:	20 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	1232 Hrs at time of accident	**Engine Manufacturer:**	ALLISON
ELT:		**Engine Model/Series:**	V-1710-135
Registered Owner:	AMERICAN AIRPOWER HERITAGE FLYING MU	**Rated Power:**	1425 Horsepower
Operator:	Commemorative Air Force	**Operating Certificate(s) Held:**	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KRBD,657 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	314°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots / 18 knots	**Turbulence Type Forecast/Actual:**	None /
Wind Direction:	350°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30.3 inches Hg	**Temperature/Dew Point:**	9°C / -4°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Dallas, TX (KRBD) (A1); Dallas, TX (KRBD) (A2)	**Type of Flight Plan Filed:**	None (A1); None (A2)
Destination:	Dallas, TX (A1); Dallas, TX (KRBD) (A2)	**Type of Clearance:**	None (A1); None (A2)
Departure Time:	13:09 Local (A1); 13:14 Local (A2)	**Type of Airspace:**	Class D (A1); Class D (A2)

Airport Information

Airport:	Dallas Executive RBD	**Runway Surface Type:**	
Airport Elevation:	660 ft msl	**Runway Surface Condition:**	
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information (A1)

Crew Injuries:	5 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	Both in-flight and on-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	On-ground
Total Injuries:	5 Fatal	**Latitude, Longitude:**	32.673779,-96.862801(est)

Wreckage and Impact Information (A2)

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	32.673779,-96.862801(est)

Administrative Information

Investigator In Charge (IIC):	Aguilera, Jason
Additional Participating Persons:	Matt Rigsby; FAA AVP-100; Dallas, TX Jim Lasche; Commemorative Air Force; Dallas, TX Robert Heath; Commemorative Air Force; Dallas, TX Dan Hollowell; International Council of Air Shows; Herndon, VA
Original Publish Date:	December 13, 2024
Last Revision Date:	
Investigation Class:	Class 1
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=106276

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.