



# Aviation Investigation Final Report

<b>Location:</b>	OREGON, Illinois	<b>Accident Number:</b>	CHI93DEE04
<b>Date &amp; Time:</b>	August 5, 1993, 08:10 Local	<b>Registration:</b>	N585D
<b>Aircraft:</b>	DARST                      KR-1	<b>Aircraft Damage:</b>	Destroyed
<b>Defining Event:</b>		<b>Injuries:</b>	1 Fatal
<b>Flight Conducted Under:</b>	Part 91: General aviation - Personal		

## Analysis

APPROXIMATELY 12 MILES SOUTHWEST OF THE AIRPLANE'S DEPARTURE AIRPORT, WITNESSES OBSERVED THE AIRPLANE MAKING THREE ERRATIC EXCURSIONS IN THE VERTICAL. EACH ENDED IN A STALL AND FALL OFF, THE LAST TO GROUND COLLISION. PIECES OF THE ELEVATOR CONTROL CABLE WERE SENT TO THE NTSB METALLURGICAL LABORATORY FOR EXAMINATION. THE LAB FOUND A PARTIAL SEPARATION OF THE CABLE IN THE AREA OF THE PULLEY ASSEMBLY WHICH RESULTED IN THE MALFUNCTION OF THE ELEVATOR CONTROL CABLE SYSTEM.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the partial separation of the elevator control cable.

## Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: CRUISE

### Findings

1. (C) FLT CONTROL SYST,ELEVATOR CONTROL CABLE/ROD - FAILURE,PARTIAL

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Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER  
Phase of Operation: DESCENT - UNCONTROLLED

## Factual Information

### HISTORY OF FLIGHT

On August 5, 1993, AT 0810 hours central daylight time, a Darst/ KR-1, N585D, owned and operated by Eugene Darst, of Beaumont, Texas, departed Rockford Airport and crashed into a bean field 12 miles southwest of Rockford, Illinois. This accident occurred during the departure phase of the operation while on a 14 CFR Part 91 flight. Visual Flight Rules (VFR) prevailed at the time of the accident, and no flight plan was filed. The aircraft was destroyed by the impact and the fire. The pilot sustained fatal injuries. The pilot held a private pilot certificate, and a current airmen medical certificate.

### INVESTIGATION

An on sight investigation was conducted by Inspector George Bean on August 5, 1993, after the fire had been extinguished and the body removed.

### INJURIES TO PERSONS

The pilot received multiple extreme traumatic injuries and was thrown from the aircraft.

### DAMAGE TO THE AIRCRAFT

The aircraft was destroyed by the crash impact and fire.

### OTHER DAMAGE

The bean field was burned in a area 50 feet by 50 feet.

### CREW INFORMATION

The pilot Mr. Darst had approximately 900 hours, most of which was reported in this make and model. Mr. Darst was born on April 16, 1926, he was 67 years old. Mr. Darst held a second class medical certificate with the restriction "must wear glasses for near and distant vision."

### AIRCRAFT INFORMATION

The Darst/KR-1 is a amateur built aircraft constructed from plans provided by Rand Robinson Engineering, Inc. The aircraft is a low-wing, constructed of wood and fabric and is powered by a modified Volkswagen 65 h.p. engine. A Special Experimental Airworthiness Certificate was issued on May 17, 1990, with Experimental Amateur-built aircraft operating limitations.

An inspection of the engine determined that it should have functioned normally, all damage was due to impact. It was not possible to determine the operation of the engine controls due to the fire and impact damage. The fuel system was completely destroyed from the fire, what fittings could be found were tight.

It was also noted from a witness that the engine was running at the time of impact.

The flight control system is a mechanical cable type. The rudder cables were intact with all ends connected and all safety devices in place and no broken cables. The aileron control cables were intact, connected to the bellcranks and control stick, and all safety devices in place. The down elevator control cable was intact, connected to the control stick and elevator bellcrank, and all safety devices were in place. The up elevator control cable was torn from the swage at the control stick end and the cable was frayed 8 to 12 inches aft of the brake where the cable passes through a guide pulley. See metallurgists factual report dated September 29, 1993.

All flight controls although burned were still attached to the aircraft.

The flight instruments and control panel were destroyed by the fire.

#### METEOROLOGICAL INFORMATION

Not a factor. Visual meteorological conditions prevailed.

#### AIDS TO NAVIGATION

Not a factor.

#### COMMUNICATION

Not a factor. The aircraft had a two-way radio and the airport had an operating control tower.

#### AERODROME AND GROUND FACILITIES

Not a factor.

#### FLIGHT RECORDERS

Not required by FAR's and not installed.

#### WRECKAGE AND IMPACT INFORMATION

The aircraft was destroyed on ground impact. The left and right wings were broken and

burned. The engine and nose section was torn from the aircraft and burned. The propeller was broken and part of one blade was missing. There was no evidence of structural failure prior to the crash. Fire consumed most of the aircraft after the impact.

#### MEDICAL AND PATHOLOGICAL INFORMATION

1. Medical; not a factor. The pilot held an valid second class medical with glasses required.
2. Pathological; not a factor.
3. An autopsy was performed by Dr. Shaku S. Teas, 1461 Forest, River Forest, Illinois, 60305.

#### FIRE

The aircraft was consumed by fire after the impact.

#### SURVIVAL ASPECTS

The accident was not survivable due to high impact forces. The pilot was thrown from the aircraft at impact with his seat belt and part of the aircraft structure attached.

#### TEST AND RESEARCH

The elevator control cable that was broken was sent to the National Transportation Safety Board for examination. See report #93-147 dated September 29, 1993.

#### ADDITIONAL DATA

The wreckage was released to the Ogle County Sheriff's Office August 10, 1993.

## Pilot Information

<b>Certificate:</b>	Private	<b>Age:</b>	67, Male
<b>Airplane Rating(s):</b>	Single-engine land	<b>Seat Occupied:</b>	Center
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	
<b>Instrument Rating(s):</b>	None	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	Yes
<b>Medical Certification:</b>	Class 2 Valid Medical-w/ waivers/lim	<b>Last FAA Medical Exam:</b>	February 2, 1992
<b>Occupational Pilot:</b>	UNK	<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	900 hours (Total, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	DARST	<b>Registration:</b>	N585D
<b>Model/Series:</b>	KR-1 KR-1	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	Yes
<b>Airworthiness Certificate:</b>	Experimental (Special)	<b>Serial Number:</b>	5444
<b>Landing Gear Type:</b>	Retractable - Tailwheel	<b>Seats:</b>	1
<b>Date/Type of Last Inspection:</b>	Annual	<b>Certified Max Gross Wt.:</b>	
<b>Time Since Last Inspection:</b>		<b>Engines:</b>	1 Reciprocating
<b>Airframe Total Time:</b>		<b>Engine Manufacturer:</b>	Volkswagen
<b>ELT:</b>	Installed	<b>Engine Model/Series:</b>	1834CC
<b>Registered Owner:</b>	EUGENE DARST	<b>Rated Power:</b>	65 Horsepower
<b>Operator:</b>	EUGENE DARST	<b>Operating Certificate(s) Held:</b>	None
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	

## Meteorological Information and Flight Plan

<b>Conditions at Accident Site:</b>	Visual (VMC)	<b>Condition of Light:</b>	Day
<b>Observation Facility, Elevation:</b>	RFD ,736 ft msl	<b>Distance from Accident Site:</b>	12 Nautical Miles
<b>Observation Time:</b>	08:27 Local	<b>Direction from Accident Site:</b>	240°
<b>Lowest Cloud Condition:</b>	Scattered / 6000 ft AGL	<b>Visibility</b>	15 miles
<b>Lowest Ceiling:</b>	None / 25000 ft AGL	<b>Visibility (RVR):</b>	
<b>Wind Speed/Gusts:</b>	5 knots /	<b>Turbulence Type Forecast/Actual:</b>	/
<b>Wind Direction:</b>	200°	<b>Turbulence Severity Forecast/Actual:</b>	/
<b>Altimeter Setting:</b>	30 inches Hg	<b>Temperature/Dew Point:</b>	16°C / 13°C
<b>Precipitation and Obscuration:</b>	No Obscuration; No Precipitation		
<b>Departure Point:</b>	ROCKFORD , IL (RFD )	<b>Type of Flight Plan Filed:</b>	None
<b>Destination:</b>		<b>Type of Clearance:</b>	None
<b>Departure Time:</b>	00:00 Local	<b>Type of Airspace:</b>	Class G

## Airport Information

<b>Airport:</b>		<b>Runway Surface Type:</b>	
<b>Airport Elevation:</b>		<b>Runway Surface Condition:</b>	
<b>Runway Used:</b>	0	<b>IFR Approach:</b>	
<b>Runway Length/Width:</b>		<b>VFR Approach/Landing:</b>	None

## Wreckage and Impact Information

<b>Crew Injuries:</b>	1 Fatal	<b>Aircraft Damage:</b>	Destroyed
<b>Passenger Injuries:</b>		<b>Aircraft Fire:</b>	On-ground
<b>Ground Injuries:</b>	N/A	<b>Aircraft Explosion:</b>	Unknown
<b>Total Injuries:</b>	1 Fatal	<b>Latitude, Longitude:</b>	42.009632,-89.330123(est)

## Administrative Information

**Investigator In Charge (IIC):** Bean, George

**Additional Participating Persons:**

**Original Publish Date:** August 17, 1994

**Last Revision Date:**

**Investigation Class:** [Class](#)

**Note:**

**Investigation Docket:** <https://data.ntsb.gov/Docket?ProjectID=9139>

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