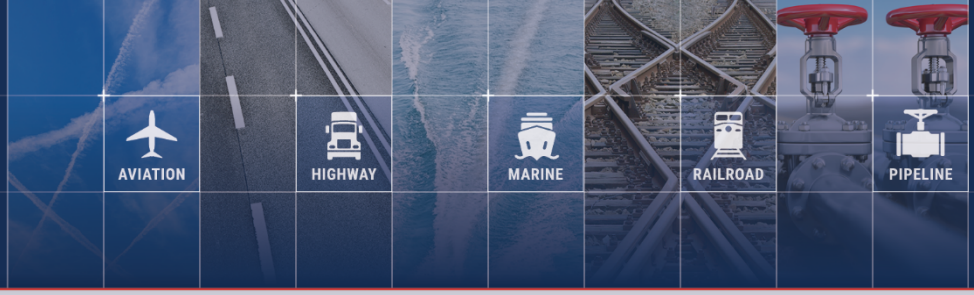

Aviation Investigation Factual Report

Location:	NEW SMYRNA BCH, Florida	**Accident Number:**	MIA00LA149
Date & Time:	May 9, 2000, 14:30 Local	**Registration:**	N69BM
Aircraft:	MORPHEW PITTS MODEL 12	**Aircraft Damage:**	Destroyed
Defining Event:		**Injuries:**	2 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Factual Information

HISTORY OF FLIGHT

On May 9, 2000, about 1430 eastern daylight time, a Morphew Pitts Model 12, N69BM, registered to DJK RSA Cellular Inc., operated as a Title 14 CFR Part 91 personal flight, crashed in New Smyrna Beach, Florida. Visual meteorological conditions prevailed, and no flight plan was filed. The experimental aircraft was destroyed, and the commercial-rated pilot and one passenger were fatally injured. The flight last departed from Deland, Florida, the same day, about 1330.

According to an official with the Volusia County Sheriff's office, the accident airplane was initially seen by a news helicopter crew, which had been providing news coverage of a brush fire, and had noted what appeared to be an airplane, in an area where the fire had already burned. According to the official, an examination revealed that the object was an airplane, and it was located where the fire had started. The examination further revealed that the aircraft was inverted, and had been destroyed by fire. Two occupants were found in the burnt wreckage.

According to a representative from the Volusia County Sheriff's office, while the on scene investigation was being conducted, they received a report from an individual stating that her husband had gone flying, and had not returned home. The investigation subsequently revealed that the missing pilot had flown N69BM in formation with three other aircraft from Spruce Creek to Deland, Florida, and according to one of the pilots in the other aircraft, while on the way back to Spruce Creek, had elected to break off from the formation to practice aerobatics.

On May 10, 2000, the Volusia and Seminole Counties Medical Examiner identified the individuals in the burnt wreckage as those who had been reported missing.

PERSONNEL INFORMATION

Records obtained during the investigation showed that the pilot held a commercial pilot certificate, with airplane single and multi engine land and instrument ratings, last issued on December 21, 1984. The pilot was also an FAA licensed airframe and powerplant mechanic. He held an FAA third class medical certificate, which was issued on June 14, 1999, with the limitation of "holder shall wear lenses that correct for distant vision and possess glasses that correct for near vision while exercising the privileges of this airman certificate." Information supplied by an individual handling the pilot's affairs showed that the pilot had accumulated over 6,174 flight hours, and had flown 11 flight hours in the previous 90 days. According to an investigator with the Volusia and Seminole Counties Medical Examiner's Office, the pilot was in

the rear seat of the airplane.

The second person in the wreckage, a pilot-rated passenger, held a commercial pilot's certificate with an airplane single engine land and instrument ratings. He also held an FAA second-class medical certificate, with the limitation of "must wear corrective lenses," which was issued on March 16, 2000. According to a family member, the passenger's logbook reflected that he had about 2,500 hours total flight experience. According to an investigator with the Volusia and Seminole Counties Medical Examiner's Office, the passenger was in the front seat of the airplane.

AIRCRAFT INFORMATION

N69BM is a Pitts Model 12, amateur built, two-place aerobatic biplane, with conventional landing gear, which was manufactured in 1999. On March 25, 2000, the aircraft received a condition inspection, and was endorsed, "in a condition for safe flight and operation," by the pilot. At the time of the condition inspection, the airframe logbook showed that the aircraft had a total time on the airframe of 76.6 hours.

N69BM is powered by a Russian built Vendenyev Model M14P 9-cylinder 360-horsepower radial engine. An excerpt of pages from airplane's engine logbook was provided to the NTSB, and the information showed that the engine was manufactured in 1983, and had a total time since new of 897 hours. The first overhaul was conducted in October 1987, and the second in March 1991. On November 15, 1998, the engine was installed on the accident airplane, and "depreserved," according to the logbook entry. On March 25, 2000, the engine was inspected and found to be in a condition for safe operation by the pilot. At the time of the condition inspection, the recording tachometer reading was 76.6 hours, and the total time on the engine was 973.6 hours.

WRECKAGE AND IMPACT INFORMATION

According to the Volusia County Sheriff's Office, N69BM was spotted in the area of Lefler Airport, in the southeast quadrant of the 5-acre diameter burnt out area. The aircraft had been destroyed by fire. Volusia County Sheriff's office photographs of the scene, as well as a visual inspection of the wreckage, indicated that the aircraft was in about 20- to 25-degree nose low inverted attitude, when it impacted the ground. After the on-scene investigation was completed, the aircraft was removed and secured at Command Aircraft Parts and Recovery, in Bunnell, Florida, for followup-examination.

Postaccident examination of the wreckage was done at Command Aircraft Parts and Recovery, in Bunnell, Florida on May 24, 2000, and the examination revealed that the airframe had incurred extensive damage consistent with hard ground impact while it was inverted. The engine cowling had been pressed, and formed into the forward side of the cylinders, and there had been extensive postcrash fire damage. During the postaccident investigation, control continuity was traced within the fuselage and tail structure. The elevator push rods, and

elevator idler assembly, had bent and had fractured, and the fractured components were retained and sent to the NTSB Metallurgical Laboratory, in Washington, D.C., for further examination. The rudder control cables were intact, and the rudder surface contained witness marks indicative of a full right deflection. The fuselage structure consisting of structural tubes had been broken, and exhibited vertical compression throughout the structure, and all engine mount bolts, rated at over 11,000 pounds shear load, had broken. The seat frames are bent at the seat belt attach points, indicative of the occupants wearing the seat belt restraints at the time of impact. The canopy was in the closed and latched position.

The Pitts Model 12 wings are made from wood, and are equipped with steel fittings. The ailerons are made of aluminum. The wing struts are of 4130 Condition N steel, and the wings are externally braced, with a set of struts and streamline tie rods, or flying wires, to produce a rigid wing system. The wings and ailerons are covered with fabric. The wings of N69BM were nearly completely consumed by fire, with only the steel fittings and some of the wood remaining. The wing struts showing compression, consistent with high vertical loads, and the wings were in a position relative to the fuselage, showed little or no rotation, and contained no evidence of any preimpact structural failures. The empennage was intact with the exception of the fabric, which had burned, and there was some damage to the vertical fin and rudder. The tail structure is made of 4130 Condition N steel tubing and sheet metal, and is externally braced with wire similar to that of the wings. The brace wires were in position and intact.

N69BM is equipped with a conventional landing gear/taildragger design. The main gear is a spring aluminum type, attached with bolts that are mounted near the firewall. The landing gear was in place on the fuselage, except that one had been melted in the fire. The wheels, tires and wheel fairings had all been consumed by fire. The tail wheel was intact and undamaged except for the tire that had burned away. There was no evidence that the gear had made any contact with the terrain at the time of impact.

The engine was extensively damaged from the impact, and the fire. The engine cowling had been pressed, and had formed onto the forward side of the cylinders. Examination of the engine showed that the crankshaft could not be rotated, and the damaged gear reduction unit in the nose case prevented the crankshaft from being turned. No compression test could be performed due to the jammed gearbox and crankshaft. The No. 4 cylinder, the master rod cylinder, was removed to inspect the internal components of the engine, but the piston's position and the jammed gear box prevented an internal inspection from cylinder bore No. 4. Cylinder No. 8 was removed, and a visual inspection of the internal components of the engine was performed. All internal components were found to be in a condition consistent with that of a normally operating engine at the time of impact. The two removed cylinders, pistons and valve train operated normally. The engine pneumatic starting system is in place and intact, except for a portion, damaged by the fire. All oil piping and hoses had been consumed by fire.

Seven of the nine front spark plugs were removed, examined and had a color and absence of deposits, consistent with that of a normally operating engine. The spark plug electrode gaps were checked and were within specification. Two of the seven spark plugs

could not be removed, since they had broken off at the top of each plug in the cylinder. Both magnetos melted in the fire, and could not be field-tested. The carburetor had broken open, and had melted, and no residual fuel was present due to its design, and the damage sustained. The engine-driven fuel pump was intact, and the engine air intake/filtration system had been extensively burnt. The fuel system selector valve, located in the cockpit had also completely burnt, as well as the aluminum fuel lines which went to and from the various fuel system components.

The propeller, a "Whirlwind" three bladed aerobatic constant speed propeller, is made of composite material, and has a wooden core, carbon fiber skins, epoxy resins, stainless steel leading edges, and a hub ferrule. The propeller blades exhibited damage-related-signatures, consistent with an engine that had been producing power on impact. The propeller blade wooden core on all the blades, at the hub ferrules, were splintered and had pulled through, consistent with the blades impacting while the propeller was rotating. The blades fractured close to the hub, and all three detached blades were found close to the hub and the engine. Some blade fragments had been damaged in the fire. The propeller governor was in place on the engine, had no signs of any preexisting damage, and had its control cable still attached.

MEDICAL AND PATHOLOGICAL INFORMATION

Thomas R. Parsons, M.D., Associate Medical Examiner, Volusia and Seminole Counties Medical Examiner's Office, Daytona Beach, Florida, performed postmortem examinations of both the pilot and pilot-rated passenger. The causes of both deaths were attributed to multiple blunt force injuries. No findings that were considered causal to the accident were reported.

Wuesthuff Reference Laboratories performed toxicology studies on specimens from the pilot and passenger, and specimens from the pilot were positive for caffeine and carbon monoxide in solidified blood, and ephedrine/pseudoephedrine, acetaminophen, caffeine and salicylate SCR in urine. Toxicology studies performed by Wuesthuff Reference Laboratories on specimens from the passenger were positive for caffeine and carbon monoxide.

The FAA Toxicology Laboratory, Oklahoma City, Oklahoma, also performed toxicology studies on both occupants of N69BM. The tests detected pseudoephedrine and phenylpropanolamine in the passenger's liver and kidneys.

TESTS AND RESEARCH

The fractured elevator push rods, and elevator idler assembly were examined at the NTSB Metallurgical Laboratory, in Washington, D.C., and were determined to have failed in overstress.

ADDITIONAL INFORMATION

The NTSB released the wreckage to Mr. Kevin Rosa, President, Command Aircraft Parts

and Recovery, Inc., Bunnell, Florida, on May 24, 2000. Components, which the NTSB retained for further testing, were released to Mr. Rosa, President of Command Aircraft Parts and Recovery, on January 16, 2001.

Pilot Information

Certificate:	Commercial	**Age:**	64,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Rear
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	None	**Toxicology Performed:**	Yes
Medical Certification:	Class 3 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	June 4, 1999
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	6174 hours (Total, all aircraft), 20 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Make:	MORPHEW	**Registration:**	N69BM
Model/Series:	PITTS MODEL 12 PITTS MODE	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	Yes
Airworthiness Certificate:	Experimental (Special)	**Serial Number:**	003
Landing Gear Type:	Tailwheel	**Seats:**	
Date/Type of Last Inspection:	March 25, 2000 Annual	**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:		**Engine Manufacturer:**	Vendeneyev
ELT:		**Engine Model/Series:**	M-14P
Registered Owner:	DJK - RSA CELLULAR INC.	**Rated Power:**	360 Horsepower
Operator:		**Operating Certificate(s) Held:**	None
Operator Does Business As:		**Operator Designator Code:**	

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	DAB ,34 ft msl	**Distance from Accident Site:**	
Observation Time:	14:30 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	9 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	110°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	28°C / 19°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DELAND (DED)	**Type of Flight Plan Filed:**	None
Destination:	DAYTONA BEACH (7FL6)	**Type of Clearance:**	None
Departure Time:	13:45 Local	**Type of Airspace:**	Class G

Airport Information

Airport:		**Runway Surface Type:**	
Airport Elevation:		**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Destroyed
Passenger Injuries:	1 Fatal	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	Unknown
Total Injuries:	2 Fatal	**Latitude, Longitude:**	29.110857,-80.969039(est)

Administrative Information

Investigator In Charge (IIC):	Lovell, John
Additional Participating Persons:	ALAN NEMCIK; ORLANDO , FL
Report Date:	February 23, 2001
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=49146