Aviation Investigation Final Report

Location:	ORMOND BEACH, Florida	**Accident Number:**	MIA99LA016
Date & Time:	October 27, 1998, 12:41 Local	**Registration:**	N45SA
Aircraft:	Piper PA-34	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	3 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The instructor simulated the failure of the left engine by reducing the manifold pressure to 11 inches Hg., while on the downwind leg. She stated they did not clear the engine during the visual approach and that the engine had been running rich. On short final approach, the instructor took control of the aircraft and applied full power to both engines for a go-around. The left engine did not accelerate and the aircraft rolled rapidly to the left. The instructor reduced engine power and the aircraft rolled to a level attitude and touched down in a side slip on the runway, collapsing the landing gear. Postcrash examination of the left engine showed the spark plugs were fouled with combustion deposits and the fuel control was operating at a rich mixture in the idle range due to sand contamination.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's failure to maintain Vmc speed, which resulted in a loss of control, and his improper operation of the throttle given the known full rich operating condition of the left engine. A sand-contaminated fuel control was a contributing factor.

Findings

Occurrence #1: LOSS OF ENGINE POWER(PARTIAL) - NONMECHANICAL
Phase of Operation: GO-AROUND (VFR)

Findings

1. 1 ENGINE
2. ENGINE SHUTDOWN - SIMULATED - PILOT IN COMMAND
3. FUEL SYSTEM,FUEL CONTROL - CONTAMINATION,OTHER THAN WATER
4. MAINTENANCE,INSPECTION - INADEQUATE - COMPANY MAINTENANCE PERSONNEL
5. FUEL SYSTEM,FUEL CONTROL - EXCESSIVE FLOW/OUTPUT
6. (C) THROTTLE/POWER CONTROL - EXCESSIVE - PILOT IN COMMAND(CFI)

Occurrence #2: LOSS OF CONTROL - IN FLIGHT
Phase of Operation: GO-AROUND (VFR)

Findings
7. AIRSPEED(VMC) - NOT OBTAINED - PILOT IN COMMAND(CFI)
8. DIRECTIONAL CONTROL - NOT POSSIBLE - PILOT IN COMMAND(CFI)

Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: DESCENT - UNCONTROLLED

Findings
9. TERRAIN CONDITION - RUNWAY

Factual Information

On October 27, 1998, about 1241 eastern standard time, a Piper PA-34, N45SA, registered to International Aeronautical Consultants, Inc., crashed during a go-around at Ormond Beach Municipal Airport, Ormond Beach, Florida, while on a Title 14 CFR Part 91 instructional flight. Visual meteorological conditions prevailed at the time and no flight plan was filed. The aircraft received substantial damage and the commercial-rated flight instructor, commercial-rated dual student, and one passenger were not injured. The flight originated from Daytona Beach, Florida, the same day, about 1130.

The instructor stated they had performed an instrument approach to runway 17 at Ormond Beach Municipal Airport followed by a circle to land on runway 08. They performed a go-around and entered the traffic pattern for a visual approach to runway 08. On the downwind leg she simulated failure of the left engine for the student by moving the throttle to 11 inches of manifold pressure. The student continued the approach with the simulated failure of the left engine and on final approach the student allowed the aircraft to drift to the right of runway centerline. The aircraft's nose was pointing to the left and the aircraft was approaching the runway at an angle. The flight instructor took control of the aircraft and moved both throttles to the full power position to perform a go-around. The left engine did not respond and the aircraft's left wing dropped down. The flight instructor closed both throttles and the aircraft returned to a wings level attitude. The aircraft then impacted hard on the runway while angled to the left. The landing gear collapsed and the aircraft came to rest upright. The instructor stated further that the left engine had been "running rich" in the recent past, and that they did not clear the engine during the simulated engine out approach to runway 8.

Postcrash examination of the left engine was performed by a FAA inspector and a representative of Lycoming Engines. Fuel was found in the engine fuel system. The engine-driven fuel boost pump and electric driven fuel boost pump operated normally. The magneto timing was checked and the left magneto was found set to 24 degrees before top center (BTC) and the right magneto was set to 25 degrees BTC. Lycoming Service Instruction No. 1325A, dated May 14, 1976, states the previously approved 25 degrees BTC setting should be changed to 20 degrees BTC. Each magneto produced spark through the respective leads when the engine was rotated by hand. Continuity of the engine crankshaft, camshaft, valve train, and accessory drives was confirmed. Each cylinder produced normal compression. The spark plugs were removed and found to have black to brown soot deposits on them. The spark plug models found in the engine were not approved by Lycoming Engines for use in the engine. (See attached Lycoming Engine Report)

The engine fuel system was tested under NTSB supervision at a fuel system overhaul facility. The inlet screen of the fuel servo was checked before testing and found to contain sand. The sand was removed and the unit was tested. The servo operated normally except at

the idle setting. The fuel flow as tested at the idle setting was 37.6 pounds per hour. The specification calls for a fuel flow of 22 to 28 pounds per hour. The servo was disassembled and sand was found in the internal areas of the unit, which prevented the diaphragm ball from seating and giving a normal idle fuel flow.

The fuel manifold operated normally when tested and the fuel injector nozzles operated normally. Each of the fuel injector nozzles was found to have cracks in the fuel line attach areas. Two of the injectors had small leaks due to these cracks.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	26,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim	**Last FAA Medical Exam:**	April 17, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	1797 hours (Total, all aircraft), 73 hours (Total, this make and model), 1703 hours (Pilot In Command, all aircraft), 253 hours (Last 90 days, all aircraft), 125 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	**Registration:**	N45SA
Model/Series:	PA-34 PA-34	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	34-7250234
Landing Gear Type:	Retractable - Tricycle	**Seats:**	6
Date/Type of Last Inspection:	October 13, 1998 100 hour	**Certified Max Gross Wt.:**	4200 lbs
Time Since Last Inspection:	43 Hrs	**Engines:**	2 Reciprocating
Airframe Total Time:	7184 Hrs	**Engine Manufacturer:**	Lycoming
ELT:	Installed, not activated	**Engine Model/Series:**	IO-360-C1E6
Registered Owner:	INT'L. AERO. CONSULTANTS, INC.	**Rated Power:**	200 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 ,35 ft msl	**Distance from Accident Site:**	10 Nautical Miles
Observation Time:	12:53 Local	**Direction from Accident Site:**	180°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	12 knots /	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	27°C / 18°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	DAYTONA BEACH , FL (DAB)	**Type of Flight Plan Filed:**	None
Destination:		**Type of Clearance:**	None
Departure Time:	11:30 Local	**Type of Airspace:**	Class G

Airport Information

Airport:	ORMOND BEACH MUNICIPAL ORM	**Runway Surface Type:**	Asphalt
Airport Elevation:	28 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	8	**IFR Approach:**	None
Runway Length/Width:	4004 ft / 100 ft	**VFR Approach/Landing:**	Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	3 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Kennedy, Jeffrey
Additional Participating Persons:	JOHN MURPHY; ORLANDO , FL EDWARD ROGALSKI; WILLIAMSPORT , PA
Original Publish Date:	August 27, 1999
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45153