



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	DES MOINES, IA	<b>Accident Number:</b>	CHI97LA266
<b>Date &amp; Time:</b>	08/19/1997, 2221 CDT	<b>Registration:</b>	N224AM
<b>Aircraft:</b>	Swearingen SA226TC	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Minor
<b>Flight Conducted Under:</b>	Part 135: Air Taxi & Commuter - Non-scheduled		

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## Analysis

During a landing approach, the pilot noted that the right engine remained at a high power setting, when he moved the power levers to reduce power. He executed a missed approach and had difficulty keeping the airplane straight and level. The pilot maneuvered for a second approach to land. After landing, he could not maintain directional control of the airplane and tried to go around, but the airplane went off the end of the runway and impacted the localizer antenna. The pilot did not advise ATC of the problem nor did he declare an emergency. The Pilot's Operating Handbook stated that for a power plant control malfunction, the affected engine should be shut down, and a single engine landing should be made. The power control cable was found disconnected from the anchoring point. A safety tab was broken off the housing, allowing it to unscrew. About one month before the accident, maintenance had been performed on the right engine to correct a discrepancy about the right engine power lever being stiff. The mechanic re-rigged the right engine power cable.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the pilot's improper in-flight planning/decision and failure to perform the emergency procedure for shut-down of the right engine. Factors relating to the accident were: the power lever cable became disconnected from the fuel control unit, due to improper maintenance; and reduced directional control of the airplane, when one engine remained at a high power setting.

## Findings

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Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: APPROACH

### Findings

1. (F) THROTTLE/POWER LEVER,CABLE - DISCONNECTED
2. (F) MAINTENANCE,ADJUSTMENT - INADEQUATE - COMPANY MAINTENANCE PERSONNEL

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Occurrence #2: OVERRUN

Phase of Operation: LANDING - ABORTED

### Findings

3. (C) IN-FLIGHT PLANNING/DECISION - IMPROPER - PILOT IN COMMAND
4. (C) EMERGENCY PROCEDURE - NOT FOLLOWED - PILOT IN COMMAND
5. (F) DIRECTIONAL CONTROL - REDUCED
6. GO-AROUND - ATTEMPTED - PILOT IN COMMAND

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Occurrence #3: ON GROUND/WATER COLLISION WITH OBJECT

Phase of Operation: LANDING - ABORTED

### Findings

7. OBJECT - ANTENNA

## Factual Information

On August 19, 1997, at 2221 central daylight time (cdt), a Swearingen SA226TC, N224AM, registered to Superior Aviation, Inc., was substantially damaged following a loss of control during the landing roll on runway 05 (6,501' x 150' asphalt), at the Des Moines International Airport, Des Moines, Iowa. The commercial pilot reported minor injuries. The 14 CFR Part 135 cargo flight was operating in instrument meteorological conditions. An IFR flight plan had been filed. The cargo flight departed from Wichita, Kansas, at 2050 cdt, with an intended destination of Des Moines, Iowa.

According to the pilot's written statement, he was on approach to land on runway 05, when it was observed that the right engine control was stuck at the maximum power position. The pilot indicated that it seemed like the right engine was disconnected from the right power lever. Upon breaking out of the clouds the pilot found himself approximately 1 1/2 miles from the runway and too high to make a safe landing so he chose to execute a missed approach. The pilot found the airplane would not maintain altitude with the gear down and one engine at zero thrust. Upon shooting a second localizer approach to runway 05, he found it hard to keep the airplane straight and level because of the power differential between the two engines. The pilot said, "Upon touchdown, within the first third of the runway, I attempted to engage Beta Mode on both engines. Only the left engine engaged while the right engine remained at full power. My intention was to keep the aircraft directionally controllable and stop the aircraft in the shortest distance possible. After touch down I realized directional control was minimal. I made a decision to go around rather than to risk running off the runway. I advanced the power on the left engine to MAX power and rotated. The aircraft then spun out of control and off the runway (end)." During a telephone interview, he stated that he had problems controlling the airplane on the runway so he advanced power on the left engine and initiated a go-around 1/2 way down the runway. The airplane became airborne, but settled back to the ground after reaching 130 knots.

According to the Federal Aviation Administration (FAA) approved Swearingen Metro SA226-TC Pilot's Operating Handbook, it states for a power plant control malfunction; "in the event there is an indication of improper operation of a fuel control or propeller control, it is recommended that the affected engine be shut down and a single engine landing accomplished."

An Air Traffic Control Tower controller who was working Local and Ground Control observed the airplane touchdown at a high rate of speed in the vicinity of Taxiway M (approximately 1/3 down the runway). The controller reported that as the airplane passed Taxiway Q (2/3 down the runway), it appeared to be having directional control problems. The controller observed the airplane to exit the end of the runway and skid sideways through the localizer antenna onto the grass area. The pilot also did not advise nor declare an emergency.

An FAA Inspector represented the NTSB during the on-scene investigation. The inspector observed tire marks which appeared to be skid marks from the end of the runway to where the airplane came to rest. During the investigation it was determined that the right engine power control cable housing was disconnected. This gives the cable no anchor point for the sheathing and it prevents the rod end from moving, but allows the sheathing to flop back and forth. This occurred due to a safety tab being broken off, allowing it to unscrew. The maintenance log books revealed maintenance was performed on the right engine on July 19, 1997. The

discrepancy was on the right engine power lever being stiff. The mechanic re-rigged the engine power cable. All other flight and engine controls were inspected and were found to have continuity. Both engine propeller governors and fuel control units were removed and bench tested. The tests and inspections reveal no pre-accident anomalies with the units.

## Pilot Information

<b>Certificate:</b>	Commercial	<b>Age:</b>	29, Male
<b>Airplane Rating(s):</b>	Multi-engine Land	<b>Seat Occupied:</b>	Left
<b>Other Aircraft Rating(s):</b>	None	<b>Restraint Used:</b>	Seatbelt, Shoulder harness
<b>Instrument Rating(s):</b>	Airplane	<b>Second Pilot Present:</b>	No
<b>Instructor Rating(s):</b>	None	<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last FAA Medical Exam:</b>	02/17/1997
<b>Occupational Pilot:</b>	<b>Last Flight Review or Equivalent:</b>		
<b>Flight Time:</b>	2436 hours (Total, all aircraft), 93 hours (Total, this make and model), 2209 hours (Pilot In Command, all aircraft), 221 hours (Last 90 days, all aircraft), 68 hours (Last 30 days, all aircraft), 7 hours (Last 24 hours, all aircraft)		

## Aircraft and Owner/Operator Information

<b>Aircraft Make:</b>	Swearingen	<b>Registration:</b>	N224AM
<b>Model/Series:</b>	SA226TC SA226TC	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Normal	<b>Serial Number:</b>	TC-227
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	3
<b>Date/Type of Last Inspection:</b>	08/10/1997, Continuous Airworthiness	<b>Certified Max Gross Wt.:</b>	12500 lbs
<b>Time Since Last Inspection:</b>	69 Hours	<b>Engines:</b>	2 Turbo Prop
<b>Airframe Total Time:</b>	51119 Hours	<b>Engine Manufacturer:</b>	Garrett
<b>ELT:</b>	Installed, activated, did not aid in locating accident	<b>Engine Model/Series:</b>	TPE-331-10UA
<b>Registered Owner:</b>	SUPERIOR AVIATION	<b>Rated Power:</b>	840 hp
<b>Operator:</b>	SUPERIOR AVIATION	<b>Operating Certificate(s) Held:</b>	On-demand Air Taxi (135)

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	DSM, 957 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	2216 CDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Visibility	7 Miles
Lowest Ceiling:	Broken / 700 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	150°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	18° C / 17° C
Precipitation and Obscuration:			
Departure Point:	WICHITA, KS (ICT)	Type of Flight Plan Filed:	IFR
Destination:	(DSM)	Type of Clearance:	IFR
Departure Time:	2050 CDT	Type of Airspace:	Class C

## Airport Information

Airport:	DES MOINES INTERNATIONAL (DSM)	Runway Surface Type:	Asphalt
Airport Elevation:	957 ft	Runway Surface Condition:	Dry
Runway Used:	5	IFR Approach:	Localizer Only
Runway Length/Width:	6501 ft / 150 ft	VFR Approach/Landing:	Full Stop

## Wreckage and Impact Information

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

## Administrative Information

Investigator In Charge (IIC):	TODD J CARLSON	Report Date:	06/26/1998
Additional Participating Persons:	TOM WOOD; DES MOINES, IA		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at <a href="mailto:pubinq@ntsb.gov">pubinq@ntsb.gov</a> , or at 800-877-6799. Dockets released after this date are available at <a href="http://dms.nts.gov/pubdms/">http://dms.nts.gov/pubdms/</a> .		

The National Transportation Safety Board (NTSB), established in 1967, is an independent federal agency mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).