



# National Transportation Safety Board Aviation Accident Final Report

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<b>Location:</b>	GILLETTE, WY	<b>Accident Number:</b>	SEA95LA059
<b>Date &amp; Time:</b>	03/03/1995, 1804 MST	<b>Registration:</b>	N311BR
<b>Aircraft:</b>	Israel Aircraft Industries 1124A	<b>Aircraft Damage:</b>	Substantial
<b>Defining Event:</b>		<b>Injuries:</b>	1 Minor, 9 None

**Flight Conducted Under:** Part 91: General Aviation - Executive/Corporate

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## Analysis

THE CAPTAIN REPORTED ENTERING HOLDING AT DERYK AT 1758:50, ABEAM AT 1800:17, AND STARTING HIS TURN BACK IN TO THE FAF AT 1801:21. AT 1803:12 HE REPORTED ON THE GLIDE SLOPE AND CALLED FOR THE GEAR DOWN BUT WAS ADVISED BY THE FIRST OFFICER (FO) HE WAS TOO FAST. HE THEN EXTENDED THE SPOILERS. THE GEAR WAS EXTENDED AT 1803:56 AND THE AIRCRAFT TOUCHED DOWN AT 1804:41. THE AIRCRAFT PICKED UP ICE DURING THE DARK NIGHT APPROACH AND THE RUNWAY WAS SNOW COVERED WITH FAIR TO POOR BRAKING REPORTED. THE SPOILERS WERE FOUND EXTENDED SUBSEQUENT TO THE LANDING. THE AIRCRAFT TOUCHED DOWN SHORT OF THE RUNWAY AND THE LEFT MAIN LANDING GEAR SEPARATED SHORTLY THEREAFTER. THE FO CONDUCTED THE PRE-LANDING CHECKLIST SILENTLY AND NEITHER PILOT SAW THE SPOILER EXTENDED ANNUNCIATOR LIGHT. THE COMPANY OVERSEEING BOTH PILOTS PROVIDED NO COCKPIT RESOURCE MANAGEMENT TRAINING.

## Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: THE PILOT IN COMMAND'S FAILURE TO RETRACT THE SPOILERS AND THE CONSEQUENT HIGH SINK RATE ON AN UNSTABILIZED FINAL APPROACH. FACTORS CONTRIBUTING TO THE ACCIDENT WERE: ICING CONDITIONS, BOTH PILOTS DIVERTED ATTENTION, INADEQUATE FLIGHT CREW COORDINATION, AND INADEQUATE (COCKPIT RESOURCE MANAGEMENT) TRAINING.

## Findings

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Occurrence #1: HARD LANDING

Phase of Operation: LANDING - FLARE/TOUCHDOWN

### Findings

1. (C) PROPER DESCENT RATE - NOT ATTAINED - PILOT IN COMMAND
2. (F) WEATHER CONDITION - ICING CONDITIONS
3. (C) SPOILER RETRACTION - NOT PERFORMED - PILOT IN COMMAND
4. (F) DIVERTED ATTENTION - PILOT IN COMMAND
5. AIRPORT FACILITIES, RUNWAY/LANDING AREA CONDITION - SNOW COVERED
6. (F) CREW/GROUP COORDINATION - INADEQUATE - FLIGHTCREW
7. (F) INADEQUATE TRAINING - COMPANY/OPERATOR MANAGEMENT
8. LIGHT CONDITION - DARK NIGHT
9. (F) DIVERTED ATTENTION - COPILOT/SECOND PILOT

## Factual Information

### HISTORY OF FLIGHT

On March 3, 1995, 1804:41 hours mountain standard time (mst), an Israel Aircraft Industries 1124A "Westwind," N311BR, registered to/operated by Kennecott Corporation, and being flown by a certificated airline transport pilot (captain), assisted by a certificated airline transport pilot (first officer), was substantially damaged during a hard landing just short of the approach end of runway 34 at the Gillette Municipal Airport, Gillette, Wyoming. The first officer sustained minor injuries and the captain and 8 passengers were uninjured. Instrument meteorological conditions existed at the time of the accident and an IFR flight plan was in effect. The corporate flight, which was engaged in the transportation of company personnel, was to have been operated under 14CFR91, and originated from Hayden, Colorado, approximately 1715. The aircraft was inbound from TOOKE intersection (refer to CHART I) and, according to the cockpit voice recorder (CVR) transcription, was cleared to descend and maintain 9,000 feet and to hold at the DERYK NDB at 1755:28 (non directional beacon, refer to CHART I and Specialist's Factual Report attached). The captain indicated entering the hold at 1758:50 hours. At 1759:39 the captain asked the first officer "what's a good holding speed" and 14 seconds later the first officer asked "you entered the hold yet?" At 1800:17 the captain stated that he was abeam (DERYK) and 30 seconds later inquired "OK when we turn inbound, what can I go down to Jer(ry)?" The first officer responded "When 10 miles at DERYK, 6,400 feet." The captain then queried at 1800:55 "OK, when I turn inbound, I'll go ahead and start down?" This was acknowledged by the first officer who then stated at 1801:01 "give us a minute out here."

At 1801:21 the captain stated "startin my turn back in and called for "flaps 12" and 1802:22 the first officer remarked "some ice, I wouldn't get a lot slower." At 1803:12 the captain called out "OK, comin' on the ILS" and immediately thereafter called for the landing gear down and the pre-landing checklist. At 1803:21 the first officer responded "you're too fast for gear down" and six seconds later the captain called "got the runway in sight." At 1803:54 the first officer stated "gear down" and this was followed two seconds later by a roaring sound picked up by the CVR similar to the sound of the gear being extended. At 1803:57 the captain called for (full?) flaps and at 1804:41, 45 seconds after the sound of gear extension, a sound similar to the aircraft touching down was picked up by the CVR followed by a loud rumbling. On site examination by FAA personnel revealed that the aircraft first touched down 61 feet short of the physical threshold of runway 34, passed onto the runway surface and then slid off the west side of the pavement coming to rest 3,062 feet upwind of the threshold. The left landing gear separated at its strut during the ground roll. The captain reported in his written statement (attached) that he used the spoilers to slow down to gear extension speed, and that during the ground roll he physically felt either the lift dump switch or spoiler switch in the EXTEND position. Additionally, he stated that he "did see the speed brakes (spoilers) up after exiting the aircraft that night." He also reported that the first officer completed the pre-landing checklist silently. Neither pilot recalled seeing the spoiler annunciator caution light during the approach.

### PERSONNEL INFORMATION

The captain was reported to have a total 218 hours of flight time in the model 1124. A total of 81 hours was logged as pilot in command which included an unspecified amount of left seat

authorization time preceding his qualification as captain in the aircraft. The first officer was reported to have a total 1,502 hours of flight time in the model 1124 of which a total of 1000 hours was logged as pilot in command. Both pilots held type ratings in the 1124, Learjet and Cessna CE-500 aircraft.

#### AIRCRAFT INFORMATION

The aircraft is equipped with a single spoiler and two lift dump panels on each wing. The spoiler panel is situated furthest outboard with the two lift dump panels side-by-side and inboard of the spoiler panel. All three panels are located forward of their respective wing flaps. The two spoilers are electrically actuated, hydraulically operated panels which raise up approximately 45 degrees from the wing surface to assist in decelerating the aircraft in flight. They can be engaged at any time by moving the spoiler switch to the extend position and will remain extended as long as this switch is in the "EXTEND" position. The four lift dumpers are electrically actuated, hydraulically operated panels which raise up approximately 45 degrees from the wing surface to assist in decelerating the aircraft on the ground. They can be engaged by moving the lift dump switch to the "ON" position, but only on the ground as their circuitry is wired through the landing gear squat switches. The spoilers are cross wired through the lift dump circuitry such that they will extend along with the lift dumpers if the lift dump switch has been engaged and there is weight on the wheels, even with the spoiler switch in the "RETRACT" position. However, once the lift dump switch is turned "OFF" or with the failure of either of the landing gear squat switch circuits the lift dump panels will retract but the spoiler panels will remain extended if their switch is still in the "EXTEND" position. Without hydraulic power the spoiler and lift dump panels will gradually bleed back to a flush position. Whenever the spoiler switch is set to "EXTEND" a caution light illuminates on the annunciator panel which is located in line with the attitude indicators and in the center section of the instrument panel. The light is half size (compared to the other lights on the panel) and is situated alongside and left of the lift dump extend caution light, also a half size light. The spoiler switch position is not on the pre-landing checklist provided by the manufacturer, nor on the abbreviated checklist provided by Barken International. However, the abbreviated checklist did indicate that it was the first officer's responsibility to check the annunciator panel lights during the pre-landing checklist.

#### METEOROLOGICAL AND ENVIRONMENTAL INFORMATION

The accident occurred under dark night conditions and the Gillette air traffic control tower advised the crew while on approach that braking action was "fair to poor, there's loose snow on the runway." Additionally, the captain reported that he remembered "seeing that the runway was snow covered." The aircraft was examined the following morning by an FAA inspector from the Casper Flight Standards Field Office. He noted coarse ice on the aircraft's wing leading edges (on the de-ice boots) as well as approximately one-half inch of ice on the winglets (refer to photographs 1 and 2).

#### WRECKAGE AND IMPACT INFORMATION

Examination of the aircraft following the accident by the FAA inspector revealed that all four lift dump panels were retracted but that both spoiler panels were extended (refer to photograph 3). This was confirmed by the Technical Services Representative for Astra Jet Corporation, who examined the aircraft following the accident and also found the flaps extended 40 degrees (refer to attached Statement and photograph 4).

## ADDITIONAL INFORMATION

At the time of the accident, Barken International, which provides flight crews for Kennecott's aircraft, was not providing any training in cockpit resource management (CRM) techniques.

### Pilot Information

<b>Certificate:</b>	Airline Transport; Commercial	<b>Age:</b>	38, Male
<b>Airplane Rating(s):</b>	Multi-engine Land; Single-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>	Yes
<b>Instructor Rating(s):</b>		<b>Toxicology Performed:</b>	No
<b>Medical Certification:</b>	Class 1 Valid Medical--no waivers/lim.	<b>Last Medical Exam:</b>	09/26/1994
<b>Occupational Pilot:</b>		<b>Last Flight Review or Equivalent:</b>	
<b>Flight Time:</b>	4650 hours (Total, all aircraft), 218 hours (Total, this make and model), 2600 hours (Pilot In Command, all aircraft), 108 hours (Last 90 days, all aircraft), 28 hours (Last 30 days, all aircraft)		

### Aircraft and Owner/Operator Information

<b>Aircraft Manufacturer:</b>	Israel Aircraft Industries	<b>Registration:</b>	N311BR
<b>Model/Series:</b>	1124A 1124A	<b>Aircraft Category:</b>	Airplane
<b>Year of Manufacture:</b>		<b>Amateur Built:</b>	No
<b>Airworthiness Certificate:</b>	Transport	<b>Serial Number:</b>	344
<b>Landing Gear Type:</b>	Retractable - Tricycle	<b>Seats:</b>	10
<b>Date/Type of Last Inspection:</b>	Continuous Airworthiness	<b>Certified Max Gross Wt.:</b>	23650 lbs
<b>Time Since Last Inspection:</b>	127 Hours	<b>Engines:</b>	2 Turbo Fan
<b>Airframe Total Time:</b>	3931 Hours	<b>Engine Manufacturer:</b>	GARRETT
<b>ELT:</b>	Not installed	<b>Engine Model/Series:</b>	TFE-731-3-1G
<b>Registered Owner:</b>	KENNECOTT, CORP.	<b>Rated Power:</b>	3700 lbs
<b>Operator:</b>	KENNECOTT, CORP.	<b>Air Carrier Operating Certificate:</b>	On-demand Air Taxi (135)
<b>Operator Does Business As:</b>		<b>Operator Designator Code:</b>	DQJG

## Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	Condition of Light:	Night/Dark
Observation Facility, Elevation:	GCC, 4363 ft msl	Observation Time:	1748 MST
Distance from Accident Site:	0 Nautical Miles	Direction from Accident Site:	0°
Lowest Cloud Condition:	Unknown / 0 ft agl	Temperature/Dew Point:	-3° C / -5° C
Lowest Ceiling:	Overcast / 900 ft agl	Visibility	3 Miles
Wind Speed/Gusts, Direction:	6 knots, 40°	Visibility (RVR):	0 ft
Altimeter Setting:	30 inches Hg	Visibility (RVV):	0 Miles
Precipitation and Obscuration:			
Departure Point:	HAYDEN, CO (HDN)	Type of Flight Plan Filed:	IFR
Destination:	(GCC)	Type of Clearance:	IFR
Departure Time:	1715 MST	Type of Airspace:	Class D

## Airport Information

Airport:	GILLETTE-CAMPBELL COUNTY (GCC)	Runway Surface Type:	Concrete
Airport Elevation:	4363 ft	Runway Surface Condition:	Snow--dry
Runway Used:	34	IFR Approach:	ILS
Runway Length/Width:	7500 ft / 150 ft	VFR Approach/Landing:	Full Stop

## Wreckage and Impact Information

Crew Injuries:	1 Minor, 1 None	Aircraft Damage:	Substantial
Passenger Injuries:	8 None	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor, 9 None	Latitude, Longitude:	

## Administrative Information

Investigator In Charge (IIC):	STEVEN A MCCREARY	Adopted Date:	01/29/1996
Additional Participating Persons:	KAY ARDALAN; WILMINGTON, DE JAMES HERZFELD; CASPER, WY WALTER ALEXANDER; CASPER, WY		
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> .		

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