Foreign object ingestion and dual power loss, McDonnell Douglas DC-9-87, March 14, 1997

Micro-summary: This McDonnell Douglas DC-9-87 experienced a partial loss of power on both engines due to ice ingestion.

Event Date: 1997-03-14 at 0647 EST

Investigative Body: National Transportation Safety Board (NTSB), USA

Investigative Body's Web Site: http://www.ntsb.gov/

## Cautions:

1. Accident reports can be and sometimes are revised. Be sure to consult the investigative agency for the latest version before basing anything significant on content (e.g., thesis, research, etc).

2. Readers are advised that each report is a glimpse of events at specific points in time. While broad themes permeate the causal events leading up to crashes, and we can learn from those, the specific regulatory and technological environments can and do change. Your company's flight operations manual is the final authority as to the safe operation of your aircraft!

3. Reports may or may not represent reality. Many many non-scientific factors go into an investigation, including the magnitude of the event, the experience of the investigator, the political climate, relationship with the regulatory authority, technological and recovery capabilities, etc. It is recommended that the reader review all reports analytically. Even a "bad" report can be a very useful launching point for learning.

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National Transport									
	F	Occurrono	o Data: 03/1/	/1007					
AVIATION A Accident									
Occurrence Type: Accident Investigated By: NTSB									
Location/Time									
Nearest City/Place	State	Zip	Code						
DETROIT	MI	48							
Airport Proximity: Off Airport/Airstrip	Distan	Distance From Landing Facility: Direction From Airport:							
Aircraft Information Summary									
Aircraft Manufacturer Model/Series Type of									
McDonnell Douglas			DC-9-87				Airplane		
Sightseeing Flight: No		Ai	r Medical Tr	ansport Flight: N	0				
Narrative									
<pre>operated as Reno Air flight 153 from Detroit, Michigan, to Reno, Nevada, experienced a partial loss of power on both engines during takeoff. The flight returned to Detroit and landed at 0658 est without further incident. Neither the 5 crewmembers nor the 106 passengers were injured. The 14 CFR Part 121 scheduled passenger flight was conducted in instrument meteorological conditions and an IFR flight plan was filed. The captain stated that he was aware that there had been an ice storm during the night prior to the accident. He reported that ice was visible on trees on the morning of the accident. He and the first officer discussed the likelihood of having the airplane de-iced prior to leaving for the airport. He reported that during the ride to the airport, he noticed that the streets were wet, not ice covered, and the precipitation was in the form of rain which was not freezing. He and the first officer once again discussed deicing the airplane and they agreed to "check the airplane very closely for ice." The first officer reported that upon arriving at the airplane he initiated his exterior preflight. He reported that during the preflight he noted a layer of frost on the bottom of the right wing. He also reported that he used a ladder to inspect the top of both wings using the "stick" and his hand. He did not find any ice. In addition, after entering the cockpit he went outside once again</pre>									
any ice. According to the captain, he went into the capin area and looked out the windows at the wings as the first officer was outside. He said the wings were wet, but there was no ice. At 0600 est, the captain informed the ground crew that the airplane would not need to be deiced. The captain reported they were pushed back from the gate at 0635 est, were delayed, and began taxiing at 0637 est. At 0645 est the airplane taxied onto runway 03L for takeoff. The captain reported he held the brakes and ran the engines to 1.4 engine pressure ratio (EPR) which was about 70% N1. He reported all engine indications were normal so he stabilized the engines at 1.6 EPR. The captain then called for autothrottles ON and the power increased to 2.02 EPR. The first officer stated that the airspeed seemed to stagnate for "a second" at 100 knots during the takeoff roll. He said he called V1 a little slower than normal and the captain rotated slightly slower than normal. Both pilots reported the first indication of a problem occurred immediately after liftoff at an altitude of 50 to 100 feet above the ground (agl). The captain reported hearing a loud popping sound and the airplane shuddered. The pilots reported that they received clearance from the tower to land on any runway. The captain said he disengaged the autothottles and pulled the left throttle back a half knob behind the right									

FACTUAL REPORT - AVIATION

National Transportation Safety Board	NTSB ID: CHI97FA083	
FACTUAL REPORT	Occurrence Date: 03/14/1997	
AVIATION ETYBOP	Occurrence Type: Accident	

## Narrative (Continued)

throttle because the left engine seemed more erratic. The captain then called for gear retraction.

The captain reported that at an altitude of about 200 agl the airspeed decreased to approximately V2 and the airplane had very little climb performance. They advanced the left throttle so it was even with the right and once the gear was retracted the rate of climb increased. The captain reported the EPRs were fluctuating above 2.02.

The crew reported they initially turned the airplane for a landing on runway 21L. The flaps remained extended 11 degrees and both engines were experiencing compressor stalls. The captain reported they climbed to an altitude of 3,400 feet mean sea level (msl). The crew completed the appropriate checklists and were cleared to descend to 3,000 feet msl. The first officer suggested they turn on the airfoil anti-ice system as the captain reduced the power to descend. The captain reported that when power on the engines was reduced through an EPR setting of 1.60 to 1.70 and the airspeed decreased to approximately 180 knots, the compressor stalls stopped. The crew elected to change runways to land on runway 3L due to weight conditions and runway length. The airplane landed without incident. Tests and Research

The airplane was equipped with Pratt & Whitney (P&W) JT8D-219 engines. Initial on scene examination of the engines showed that the fan blades on both engines were damaged. Both engines were removed and shipped to the American Airlines Maintenance & Engineering Center for teardown. The teardown began on April 8, 1997, under the direction of the NTSB. Inspection of the left engine, s/n 725674, revealed that 19 of the 34 compressor fan blades had soft body impact damage. In addition, five of the blades either had tip rub or leading edge nicks. Ten of the blades were not damaged. Inspection of the right engine, s/n 708177, revealed that 27 of the 34 compressor fan blades had soft body impact damage. In addition, two of the blades either had leading edge nicks and the remaining five blades were not damaged.

The eighth and ninth stage compressor blades from both engines received a fluorescent penetrant inspection. The left engine compressor blades did not show any indication of cracking. Seventeen eighth stage blades and one ninth stage blade on the right engine showed indications of cracks. These blades were examined further using a binocular microscope. This examination revealed that all of the blades had transverse cracks on the convex side of the airfoil either in or just above the blade root platform fillet radius. See attached Powerplants Group Chairman's Factual Report of Investigation for further details.

Additional Information

The accident airplane departed Reno, Nevada, at 0035 est and arrived in Detroit at 0419 est on the morning of the accident. During this flight from Reno the crew logged instrument reading which indicated that at FL330 the static air temperature was -47 degree celsius and the ram air temperature was -22 degrees celsius. The airplane was on the ground in Detroit for approximately two hours prior to it being refueled. According to the refueling record the airplane landed with both the left and right wing tanks approximately full.

Parties participating in the investigation were the Federal Aviation Administration, Reno Air, United Technologies Pratt & Whitney, American Airlines, and Douglas Aircraft.

National Transportation Safety Boa	ID: CHI97	7FA083									
FACTUAL REPORT	rence Date	ence Date: 03/14/1997									
AVIATION	rence Type	nce Type: Accident									
Landing Facility/Approach Information											
Airport Name	Airport ID:	port ID: Airport Elevation Runway Used Runway Length							way Width		
METRO-WAYNE COUNTY		1	DTW	Ft	. MSL	0					
Runway Surface Type:											
Runway Surface Condition:											
Type Instrument Approach:											
VFR Approach/Landing: Forced Landing											
Aircraft Information			1						i		
Aircraft Manufacturer McDonnell Douglas				Model/SeriesSerialDC-9-874958							
Airworthiness Certificate(s): Transport											
Landing Gear Type: Retractable - Tricycle											
Homebuilt Aircraft? No Nu	d Max Gross W	/t.		140000	LBS	Number	r of Engine	s: 2			
Engine Type: Turbo Fan	Engine Manufacturer:Model/Series:P&WJT8D-219							Rated Power: 21700 LBS			
- Aircraft Inspection Information											
Type of Last Inspection     Date of Last Inspection     Time Since Last Inspection     Airframe Total Time								otal Time			
Continuous Airworthiness		Hours					ours		Hours		
- Emergency Locator Transmitter (ELT) Information											
ELT Installed? Yes	ELT Operated? No ELT Aided in Locating Accident Site?										
Owner/Operator Information											
Registered Aircraft Owner Street Address 98 N. WASHINGTON ST.											
INVESTORS ASSET HOLDING CORP				City St						State	Zip Code
	Street Address							02114			
Operator of Aircraft	P. O. BOX 300559										
RENO AIR	City RENO						State NV	Zip Code 89520			
Operator Does Business As: Operator Designator Code: ORJA											
- Type of U.S. Certificate(s) Held:											
Air Carrier Operating Certificate(s): Flag Carrier/Domestic											
Operating Certificate:				Operator 0	Certificate	e:					
Regulation Flight Conducted Under: F	art 121: Air Ca	rrier									
Type of Flight Operation Conducted: \$	Scheduled; Don	nestic; I	Passenge	r Only							
FACTUAL REPORT - AVIATION Page 2											

Nation	TRANS	Safety Board	1	NTSB ID:	CHI97FA	083								
F	ACTUAL RI	<b>PORT</b>	-	Occurren	Occurrence Date: 03/14/1997									
<b>_</b>	AVIATI	ωN		Occurren										
First Pilot Information									4.00					
Name														Age
On File	On File On File On File 51											51		
Sex: M     Seat Occupied: Left     Principal Profession: Civilian Pilot     Certificate Number: On File														
Certificate(s): Airline Transport; Commercial; Flight Engineer														
Airplane Rating(s): Multi-engine Land; Single-engine Land														
Rotorcraft/Glider/LTA: None														
Instrument Rating(s): Airplane														
Instructor Rating(s): None														
Type Ratir	ng/Endorsement fo	or Accident/Ir	ncident Aircr	aft?			С	Current E	iennial Fl	ight R	eview?			
Medical Cert.: Class 1 Medical Cert. Status: Valid Medicalw/ waivers/lir							lim.		Date	e of La	ast Medic	al Exa	am: 11/1996	
- Flight Tir	ne Matrix	All A/C This Make Airplane Airplane Night and Model Single Engine Mult-Engine Night					Actual	Instrument	nulated	Rotor	craft	Glider	Lighter Than Air	
Total Time	9	14000	9700											
Pilot In Co	mmand(PIC)													
Instructor						_					_			
Last 90 Da	ays	200	200 200											
Last 30 Da	ays										_			
Last 24 Ho	ours											1		
Seatbelt Used? Yes     Shoulder Harness Used? Yes     Toxicology Performed? No     Second Pilot? Yes								S						
Flight Pla	an/Itinerary													
Type of Fli	ght Plan Filed: IF	R					-							
Departure Point     State     Airport Identifier     Departure Time     Time								Time Zone						
Same as Accident/Incident Location 0645 EST									EST					
Destination							State	State Airport Identifie			er			
RENO NV RNO														
Type of Clearance: IFR														
Type of Ai	rspace: Class	В												
Weather	Information													
Source of	Source of Briefing: Company													
Method of	Briefing:													
				FACTUAI	REPORT	- AVL	ΑΤΙΟΙ	N						Page 3

	Nationa	al Transportation Safety	Board	NTSB ID	CHI97	FA083								
Occurrence Type: Accident       Veather Information       WOF ID     Observation Time     Time Zone     WOF Elevation     WOF Distance From Accident Site     Direction From Accident Site       DTW     0640     EST     640 FL MSL     VOR Distance From Accident Site     O Deg. Mag.       SkyLowest Cloud Condition: Scatteret     4000 FL ACL     Visibility: 4     SM     Attemeter     29.00     "Hg       Temperature:     1 °C     Dew Point:     -1 °C     Wind Unretor: 100     Density Altitude:     Ft.       Wind Speed:     1 °C     Gusts:     Wetter Conditions at Accident Site: Instrument Conditions     Ft.       Visibility (RVR):     0     Ft.     Visibility (RVV)     0     SM     Intensity of Precipitation: Unknown       Karcraft Fire: None     Aircraft Exected US.Soil       Aircraft Fire: None     Aircraft Exected US.Soil       Classification: U.S. Registered/U.S. Soil       Fire: None     Condition: Soil       Fire: None     Condition: Soil       Fire: None     Cond.	FA	ACTUAL REPOR	RT	Occurrence Date: 03/14/1997										
Weather Information     Time Zone     WOF Elevation     WOF Distance From Accident Site     Direction From Accident Site       DTW     0640     EST     640 FL MSL     0 NM     0 Deg. Mag.       SkyLlowest Cloud Condition: Scatteret     640 FL MSL     Visibility:     4     SM     Attimeter:     29.00     'Hg       Lowest Ceiling: Overcast     4000 FL AGL     Visibility:     4     SM     Attimeter:     29.00     'Hg       Temperature:     1 °C     Dew Point:     -1 °C     Wind Direction: 100     Density Altitude:     FL       Wind Speed:     13     Gusts:     Weather Conditions at Accident Site:     Instrument Conditions       Visibility (RVR):     0     FL     Visibility (RVR):     0     SM     Intensity of Precipitation:     Unknown       Accident Information     Arcraft Fire: None     Aircraft Explosion     None     Intensity of Precipitation:     None       Classification:     U,S Registered/U.S. Soil		AVIATION		Occurrer	Occurrence Type: Accident									
Normation     Time Zone     WOF Elevation     WOF Distance From Accident Site     Direction From Accident Site       DTW     0640     EST     640 FL MSL     Visibility     0 MM     0 Deg. Mag.       SkyLowest Cloud Condition: Scatteret     400 FL AGL     Visibility: 4     SM     Alfimeter: 29.00 'Hg       Temperature:     1 °C     0 =v Point:     -1 °C     Wind Direction: 100     Density Altitude:     Ft.       Vind Speed:     13     Gusts:     WestHer Conditions at Accident Site:     Instrument Conditions       Yisibility (RVR):     0     Ft     Visibility (RVV)     0     SM     Intensity of Precipitation:     Unknown       Accident Information     Aircraft Fire: None     Aircraft Explore     Aircraft Explore     None       Classification:     U, S, Registered/U.S. Soil     Aircraft Explore     1     1       Firet Plot     1     1     1     1     1     1       Stoden Plot     1     1     1     1     1     1       Stodent Information     1     1     1     1     1 <td< td=""><td>Weather</td><td>Information</td><td></td><td></td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Weather	Information			7									
DTW     0640     EST     640 Ft. MSL     0 NM     0 Deg. Mag.       Sky/Lowest Colud Condition: Scattered     4000 Ft. AGL     Condition of Light: Dawn       Lowest Ceiling: Overcast     4000 Ft. AGL     Visibility: 4     SM     Attimeter: 29.00 'Hg       Temperature:     1 °C     Dew Point:     -1 °C     Wind Direction: 100     Density Attitude:     Ft.       Wind Speed:     13     Gusts:     Weather Conditions at Accident Site: Instrument Conditions     Presity Attitude:     Ft.       Yisibility (RVR):     0     Ft.     Visibility (RVV)     SM     Intensity of Precipitation: Unknown       Restrictions to Visibility:     None     Atricraft Fire: None     Atricraft Explosion None       Classification:     U.S. Soli     Intensity of Precipitation:     None     TOTAL       Frise Plot     Intensity     1<11	WOF ID	Observation Time	Time Zone	WOF Eleva	tion	WOF Di	stance From	Accio	dent Site		Direction From Accident Site			
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600 Ft. AGL   Condition: Uight: Dawn     Lowest Ceiling: Overcast   4000 Ft. AGL   SM   Altimeter: 29.00 "Hg     Temperature:   1 °C   Wind Speed: 13   Sensity Altitude:   Ft.     Visibility (RVR):   0   Ft.   Visibility (RVR):   O   Ft.     Visibility (RVR):   O   Ft.   Visibility (RVR):   O   Ft.   Visibility (RVR):   O   Ft.   Visibility (RVR):   O   Ft.   Visibility (RVR):   O   Posterior:   Visibility:   None   Visibility:   None   Visibility (RVR):   None   Visibility (RVR):   None   Vis	DTW	0640	EST	640 F	t. MSL				0 NM			0 Deg.	Mag.	
Lowest Ceiling: Overcast   4000 FL   Visibility: A   SM   Altimeter:   29.00   "Hg     Temperature:   1 °C   0 = Point:   -1 °C   WinJurceton: 100   Density Altitude:   FL   Passion     Wind Speed: 13   Gusts:   Gusts:   W==tronomicons at Accident Site: Instrumet Conditions   FL   Visibility (RVR):   0   FL   Visibility (RVR):   0   SM   Intensity of Precipitation: Unknown   FL   Visibility (RVR):   0   FL   Visibility (RVR):   0   SM   Intensity of Precipitation: Unknown   FL   Visibility (RVR):   0   FL   Visibility (RVR):   0   SM   Intensity of Precipitation: Unknown   FL   Visibility (RVR):   0   Altimetrice   FL   Visibility (RVR):   0   Altimetrice   FL   Visibility (RVR):   0   Altimetrice   FL	Sky/Lowest Cloud Condition: Scattered   600 Ft. AGL   Condition of Light: Dawn													
Temperature:1 °C $\square$ Point:.1 °C $\forall Into Direction: 100$ Density Altitude:FLWind Speed: 13Gusts:Gusts:Visibility (RVR):0FLVisibility (RVR):0SMIntensity of Precipitation:Intensity	Lowest Ce	Lowest Ceiling: Overcast 4000 Ft. AGL Visibility: 4 SM Altimeter: 29.00 "H									"Hg			
Wind Speed: 13   Gusts:   Weather Conditions at Accident Site: Instrument Conditions     Visibility (RVR):   0   Ft.   Visibility (RVV)   0   SM   Intensity of Precipitation: Unknown     Restrictions to Visibility: None    None   Intensity of Precipitation: Unknown     Type of Precipitation:   None    Aircraft Explosion None     Accident Information   Aircraft Fire: None   Aircraft Explosion None     Classification:   U.S. Registered/U.S. Soil    1   1     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Plot    1   1   1   1     Second Plot          Flight Instructor          Classifications           Second Plot            First Plot <td>Temperatu</td> <td>ıre: 1 °C</td> <td>Dew Point:</td> <td>-1 °C</td> <td>Wind</td> <td>Direction:</td> <td>100</td> <td></td> <td></td> <td>De</td> <td>nsity Altitude:</td> <td></td> <td>Ft.</td>	Temperatu	ıre: 1 °C	Dew Point:	-1 °C	Wind	Direction:	100			De	nsity Altitude:		Ft.	
Visibility (RVR):   0   Ft.   Visibility (RVV)   0   SM   Intensity of Precipitation: Unknown     Restrictions to Visibility:   None   Intensity of Precipitation: Unknown   Intensity of Precipitation: Unknown     Type of Precipitation:   None   Intensity of Precipitation: Unknown     Accident Information   Aircraft Fire: None   Aircraft Explosion None     Classification:   U.S. Registered/U.S. Soil   Intensity of Precipitation: TOTAL     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Plot   1   1   1   1   1   1     Second Plot   1   1   1   1   1   1     Student Plot   1   1   1   1   1   1   1     Flight Instructor   1	Wind Spee	ed: 13	Gusts:		Weath	ner Condt	ions at Accid	lent Si	<sup>ite:</sup> Instrum	ent C	Conditions			
Restrictions to Visibility: None     Type of Precipitation: None     Accident Information     Aircraft Damage: Substantial   Aircraft Fire: None     Aircraft Damage: Substantial   Aircraft Fire: None     Classification: U.S. Registered/U.S. Soil     - Injury Summary Matrix   Fatal     Serioux   Minor   None     ToTAL     First Plot   1     Second Plot   1     Student Plot   1     Flight Instructor   1     Check Plot   1     Flight Engineer   1     Cabin Attendants   1     Other Crew   1     Passengers   1     Other Ground   0     O   0	Visibility (R	RVR): 0 Ft.	Visibility	(RVV) 0	SM	Intensity	y of Precipita	ation: I	Unknown					
Arccident Information     Aircraft Damage: Substantial   Aircraft Fire: None   Aircraft Explosion None     Classification: U.S. Registered/U.S. Soil     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Pilot   1   1   1   1   1     Second Pilot   2   1   1   1     Student Pilot   2   1   1   1     Flight Instructor   2   2   1   1     Check Pilot   2   2   2   2     Flight Engineer   2   2   3   3     Other Crew   2   2   106   106     Passengers   4   2   111   111     Other Ground   0   0   0   0   0	Restriction	s to Visibility: None												
Type of Precipitation:   None     Accident Information   Aircraft Fire: None   Aircraft Explosion None     Aircraft Damage: Substantial   Aircraft Fire: None   Aircraft Explosion None     Classification: U,S. Registered/U.S. Soil   Minor   None   TOTAL     - Injury Summary Matrix   Fatal   Serious   Minor   TOTAL     First Pilot   I   1   1   1     Second Pilot   I   I   1   1     Student Pilot   I   I   1   1     Student Pilot   I   I   1   1     Flight Instructor   I   I   I   I     Flight Engineer   I   I   I   I     Cabin Attendants   I   I   I   I     Passengers   I   I   106   106     -TOTAL ABOARD-   I   I   111   111     Other Ground   0   0   0   0   0		,												
Accident Information     Aircraft Fire: None   Aircraft Explosion None     Classification: U.S. Registered/U.S. Soil     TOTAL     First Pliot   1   1     Second Pliot   2   1   1     Student Pliot   2   2   2   2     Flight Instructor   2   2   2   2     Flight Engineer   2   2   2   2     Cabin Attendants   2   3   3   3     Other Crew   2   106   106   106     Passengers   2   111   111   111     Other Ground   0   0   0   0   0		ecinitation: None												
Accident Information     Aircraft Damage: Substantial   Aircraft Fire: None   Aircraft Explosion None     Classification: U.S. Registered/U.S. Soil    None   TOTAL     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Pilot     1   1     Second Pilot     1   1     Student Pilot          Flight Instructor          Classinger          Flight Engineer          Passengers          Other Ground      111   111     Other Ground       0   0														
Aircraft Damage: Substantial   Aircraft Fire: None   Aircraft Explosion None     Classification: U.S. Registered/U.S. Soil     Image: Substantial   Aircraft Explosion None     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Pilot    1   1   1     Second Pilot    1   1     Student Pilot     1   1     Flight Instructor          Flight Engineer           Cabin Attendants            Passengers             Other Ground   0   0   0   0   0   0                                <	Accident	Information												
Classification: U.S. Registered/U.S. Soil     - Injury Summary Matrix   Fatal   Serious   Minor   None   TOTAL     First Pilot   1   1   1   1   1     Second Pilot   1   1   1   1     Student Pilot   1   1   1   1     Flight Instructor   1   1   1   1     Check Pilot   1   1   1   1     Flight Engineer   1   1   1   1     Cabin Attendants   1   1   1   1     Passengers   1   1   11   111     Other Ground   0   0   0   0   0	Aircraft Dar	mage: Substantial		Aircraft Fi	re: None	;			Aircraft Exp	olosio	n None			
- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst Pilot111Second Pilot111Student Pilot111Flight Instructor111Check Pilot111Flight Engineer111Cabin Attendants133Other Crew11106Passengers11111Other Ground000	Classificati	on: U.S. Registered/L	LS Soil											
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Second PilotImage: Constraint of the second point point of the second point p	First Pi		T didi			1	1							
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Flight InstructorImage: Check PilotImage: Check PilotImage: Check PilotFlight EngineerImage: Check PilotImage: Check PilotImage: Check PilotCabin AttendantsImage: Check PilotImage: Check PilotImage: Check PilotCabin AttendantsImage: Check PilotImage: Check PilotImage: Check PilotOther CrewImage: Check PilotImage: Check PilotImage: Check PilotPassengersImage: Check PilotImage: Check PilotImage: Check PilotOther GroundImage: Check PilotImage: Check PilotImage: Check PilotOther GroundImage: Check PilotImage: Check PilotImage: Check Pilot	Studen	t Pilot					· · ·							
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Other CrewImage: Constraint of the constr	Cabin A	Attendants				3	3							
Passengers     Image: Constraint of the sense o	Other C	Crew												
- TOTAL ABOARD -     111     111     111       Other Ground     0     0     0     0	Passen	qers				106	106							
Other Ground 0 0 0	- TOTAL A	ABOARD -				111	111							
	Other G	Ground	0	0	0		0							
- GRAND TOTAL - 0 0 0 111 111	- GRAND	) TOTAL -	0	0	0	111	111							
				FACTUA	L REPO	RT - AV	IATION					F	Page 4	

National Transportation Safety Board	NTSB ID: CHI97FA083								
FACTUAL REPORT	Occurrence Date: 03/14/1997								
AVIATION	Occurrence Type: Accident								
Administrative Information									
Investigator-In-Charge (IIC)									
WESLEY M. ROBBINS									
Additional Persons Participating in This Accident/Incide	ent Investigation:								
RICHARD MERRILL FAA, 800 BECK ROAD BELLEVILLE, MI 48111									
STEVEN LUND DOUGLAS AIRCRAFT									
JEFFREY BUKIO RENO AIR, P.O. BOX 30059 RENO, NV 89520									
ALAN WEAVER P&W, 400 MAIN ST. M/S 162-24 E. HARTFORD, CT 06108									