## Uncontained engine failure, Boeing 747-269B, July 29, 1999

Micro-summary: This Boeing 747-269B experienced an uncontained engine failure on climb.

## Event Date: 1999-07-29 at 1500 ADT

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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TRANSP National Transportation Safety Board		NTSB ID:	ANC99LA09	9	Aircraft Regist	ration Nu	mber: N707CK		
FACTUAL REPORT	Γ	Occurren	ce Date: 07/29	9/1999	Most Critical Ir	njury: No	ne		
AVIATION		Occurren	ce Type: Accio	lent	Investigated B	y: NTS	В	_	
Location/Time									
Nearest City/Place	State	Zi	p Code	Local Time	Time Zone				
ANCHORAGE	AK	99	9502	1500	ADT				
Airport Proximity: Off Airport/Airstrip	Distand	ce From L	anding Facility:		Direction Fro	m Airport			
Aircraft Information Summary									
Aircraft Manufacturer			Model/Series	3			Type of Aircraft		
Boeing			747-269B				Airplane		
Sightseeing Flight: No		A	ir Medical Tr	ansport Flight:	No				
Narrative Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:									
On July 29, 1999, about uncontained engine failure d Alaska. The flight was be international cargo flight, were no injuries to the five c time of departure from Anch Bangkok, Thailand. During an interview with the July 30, a company quality crew noted a loud "thump," fo He said that one of the crew of the engine, and noted t quality assurance official s	uring operat operat rewmen orage, Natior assun llowed member here tated	climb conduct ted by mbers a , and a nal Tra cance o d by a rs went was a that t	-out from ed under Kitty Ha board. Vi n instrume nsportatio fficial st change in to the ba "fist-size he captain	the Anchorag Title 14, wk Internati sual meteoro nt flight pl n Safety Boa ated that ab the number t ck of the ai d hole in th shut down t	e Internation CFR Part 1 onal, Inc., a logical condi an had been f rd (NTSB) inv out 20 minute hree engine i rplane to vis e side of the he number thr	al Air 21, a s Flig tions tiled f restiga es afte nstrum sually e engin	port, Anchorage, is a nonscheduled that 11281. There prevailed at the for the flight to tor-in-charge on er departure, the eent indications. check the status the cowling." The		
Anchorage International Airport A postaccident inspection revea						ial da	mage.		
On July 30, 1999, the airp maintenance base in Oscoda, shipped to a maintenance facili	Michi	igan, w	here the e	ngine was re	moved. The e	engine	was subsequently		
On September 7, 1999, the en Chairman, and in the presenc there were eleven 2nd stage 2nd stage turbine blade tha shroud tip rubbed off.	e of t turbir	che par ne blad	ties to th les that we	e investigat re fractured	ion. The dis in the midsp	assemb an are	bly revealed that a, and one other		
The turbine exhaust case ha mount rail.	d a 16	5 1/2-i	nch long h	ole between	the case from	nt flan	ge and the front		
The Powerplants Group complet Chairman's report is included i				the engine o	n September 8	8. A c	copy of the Group		
An examination of the engine to a cracked diffuser case During this maintenance procedu	on A	August	1, 1998,	at 43,946 h	ours total ti	.me, an	d 11,629 cycles.		
The engine records revealed Directive (AD) 96-25-10 was							AA Airworthiness ton Division's,		
	FA	ACTUAI	L REPORT - A	VIATION			Page 1	-	

FACTUAL REPORT     Occurrence Date: 07/29/1999       AVIATION     Occurrence Type: Accident	National Transportation Safety Board	NTSB ID: ANC99LA099	
AVIATION Occurrence Type: Accident	FACTUAL REPORT	Occurrence Date: 07/29/1999	
-1100	AVIATION ETYBON	Occurrence Type: Accident	

## Narrative (Continued)

Supplemental Type Certificate (STC) SE00047AT-D. The intent of STC SE00047AT-D is to comply with FAA Airworthiness Directive (AD) 96-25-10 by increasing the wall thickness of the turbine exhaust case, thus providing enhanced containment capabilities in the event of an internal engine failure.

A portion of the turbine exhaust case was sent to the National Transportation Safety Board's Materials Laboratory for examination. A Safety Board metallurgist confirmed that both the hardness and microstructure were consistent with design specifications stipulated in Chromally Anniston Division's STC. A copy of the NTSB materials laboratory factual report is included in this report.

FACTUAL REPORT - AVIATION

National Transportation Safety Board NTSB ID: ANC99LA099												
FACTUAL REPORT		Occurren	nce Date:	07/29/1999								
AVIATION ETYBOP	c	Occurren	nce Type:	Accident								
Landing Facility/Approach Inform	ation											
Airport Name		Airp	Airport ID: Airport Elevation Runway Used Runway Leng							n Rur	nway Width	
				Ft	. MSL	0						
Runway Surface Type:						•						
Runway Surface Condition:												
Type Instrument Approach: NONE												
VFR Approach/Landing: None												
Aircraft Information												
Aircraft Manufacturer			Model/						Serial N			
Boeing			747-269B 21541									
Airworthiness Certificate(s): Normal												
Landing Gear Type: Retractable - Tric	ycle											
Homebuilt Aircraft? No Number of Seats: 8				d Max Gross W				of Engine				
Engine Type: Turbo Fan		Engine Manufacturer:Model/Series:P&WJT9D-7J								ted Power: 650 LBS		
- Aircraft Inspection Information												
Type of Last Inspection		Da	te of Las	t Inspection	Т	Time Si	nce Last Inspe			Airframe T		
Continuous Airworthiness 07/1999 268 Hours							5	9727 Hours				
ELT Installed? Yes ELT Operated? No ELT Aided in Locating Accident Site?												
ELT Installed? Yes			ELT	Aided i	n Locating Ac	cident S	Site?					
Owner/Operator Information												
Registered Aircraft Owner	Street Address 5063 SKYWAY STREET											
KITTY HAWK INTERNATIONAL, INC.				City OSCODA							Zip Code	
				OSCODA MI 48750 Street Address								
Operator of Aircraft				Same as Reg'd Aircraft Owner								
Same as Reg'd Aircraft Owner	City State Zip Code							Zip Code				
Operator Does Business As: Operator Designator Code: K4HA												
- Type of U.S. Certificate(s) Held:												
Air Carrier Operating Certificate(s): Car	Jo											
Operating Certificate:				Operator 0	Certifica	ate:						
Regulation Flight Conducted Under: Pa	rt 121: Air Carrie	ər										
Type of Flight Operation Conducted: No	n-scheduled; In	ternatio	onal; Ca	rgo								
	FA	CTUAI	L REPO	RT - AVIAT	ION						Page 2	

Natio	TRANS, nal Transportation	Safety Board	1	NTSB ID:	ANC99LA	4099								
	ACTUAL RI		•	Occurren	ice Date: 07	7/29/19	99							
	Z	1 2			ce Type: A				-					
	AVIATI ETYBO	Alari		Occulter	ice Type. A	ccident								
L	ot Information					0.1					01-1-			
Name						City					State		ate of Birth	Age
On File						On F	ile			_	On Fil		On File	45
Sex: U	Seat Occupied:	Left	Pr	incipal Profes	sion: Civilia	an Pilot				Cer	tificate N	umbe	er: On File	
Certificate	s): Airlin	ne Transpor	t											
Airplane R	Rating(s): Multi	i-engine Lai	nd; Single-	engine Land	1									
Rotorcraft	/Glider/LTA: None	9		-										
Instrumen	t Rating(s): Airpl	ane												
Instructor														
Type Ratir	ng/Endorsement fo	or Accident/Ir	ncident Aircr	aft? Yes			C	Current E	iennial F	light R	leview?			
Medical C	ert.: Class 1	Medica	al Cert. State	us: Valid Me	dicalw/ w	aivers/	lim.		Dat	e of La	ast Medio	al Exa	am: 04/1999	
		I							<b>I</b>					
- Flight Tir	me Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Ni	ght	Actual	Instrument	imulated	Roto	craft	Glider	Lighter Than Air
Total Time		11000						5	000	50	0			
Pilot In Co	ommand(PIC)		16200			_								
Instructor											_			
Last 90 Da			203								_			
Last 30 Da			41											
	Jsed? Yes	Char	10				Tovio		rformed			600	cond Pilot? Yes	
Sealbeil C		Shot	lider Harnes	s Used? Yes	5		TOXICO	Jiogy Fe	nonneu	r INO		360		5
	an/Itinerary ight Plan Filed: IF													
Departure		R							A I	1				
							State		Airport lo	dentifie				lime Zone
ANCHOR	RAGE						AK		ANC		1	510		ADT
Destinatio	n						State	•	Airport le	dentifie	er			
BANGK	ЭК								VTBD					
Type of C	learance: IFR													
Type of Ai	irspace: Class	G												
Weather	r Information													
Source of	Briefing: Compa	any												
Method of	f Briefing:													
				FACTUAI	REPORT	- AVI	ΑΤΙΟΙ	N						Page 3

FACTUAL REPORT       Occurrence Date: 07/29/1999         AVIATION       Occurrence Type: Accident         Weather Information       Observation Time         WOF ID       Observation Time         0000       0 Ft. MSL         0 Ft. AGL       Condition of Light: Day         Sky/Lowest Cloud Condition: Unknown       0 Ft. AGL         0 Ft. AGL       Visibility:         100       SM         Attimeter:       29.00	Nationa	al Transportation Safety	Board	NTS	B ID: AN	C99LA0	99							
Weather       Information         WOF ID       Observation Time       Time Zone       WOF Elevation       WOF Distance From Accident Site       Direction From Accident Site         0000       0 FL MSL       0 NM       0 Deg. Mag.         SkytLowest Cloud Condition: Unknown       0 FL AGL       Visibility: 100       SM       Attimeter:       29.00       'H         Lowest Ceiling: Unknown       0 FL AGL       Visibility:       100       SM       Attimeter:       29.00       'H         Temperature:       -10 °C       Dew Point:       °C       Wind Direction:       Density Altitude:       F         Wind Speed:       Gusts:       Weather Conditions at Accident Site:       Visual Conditions       F         Visibility (RVR):       0 FL       Visibility (RVV)       0 SM       Intensity of Precipitation:       Unknown         Type of Precipitation:       None       Aircraft Fire: None       Aircraft Explosion None       E         Classification: U.S. Registered/U.S. Soil       Intensity of TOTAL       1       1       1         Ingert Instructor       Immor       Immor       TOTAL       Immor       Immor       Immor         Prise Piot       Immor       Immor       Immor       Immor       Immor       Immor </td <td></td> <td></td> <td></td> <td>Occ</td> <td>urrence Da</td> <td>ate: 07/2</td> <td>29/19</td> <td>999</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td>				Occ	urrence Da	ate: 07/2	29/19	999		1				
Weather Information       Time Zone       WOF Elevation       WOF Distance From Accident Site       Direction From Accident Site         0000       0 FL MSL       0 NM       0 Deg. Mag.         SkylLowest Cloud Condition: Unknown       0 FL MSL       0 NM       0 Deg. Mag.         Lowest Ceiling: Unknown       0 FL AGL       Visibility: 100       SM       Attimeter: 29.00       "H         Temperature:       -10 °C       Dew Point:       °C       Wind Direction:       Density Altitude:       F         Wind Speed:       Gusts:       Weather Condutions at Accident Site: Visual Conditions       Visual Conditions       F         Visibility (RVR):       0 FL       Visibility (RVV)       0 SM       Intensity of Precipitation: Unknown       F         Type of Precipitation:       None       Aircraft Fire: None       Aircraft Explosion None       F         Classification: U.S. Registered/U.S. Soil       Infor       1       1       1         - Injury Summary Matrix       Fatal       Serious       Minor       TOTAL       F         Flight Engineer       I       I       1       1       1       1         Chreace Floit       I       I       I       1       1       1       1         Pright Enginee		2 2 2 2		Occ	urrence Ty	vpe: Acc	iden	t		1				
WOF ID         Observation Time         Time Zone         WOF Elevation         WOF Distance From Accident Site         Direction From Accident Site           SkyLowest Cloud Condition: Unknown         0 Ft. MSL         0 NM         0 Deg. Mag.           SkyLowest Cloud Condition: Unknown         0 Ft. AGL         Visibility: 100         SM         Attimeter: 29.00 ''H           Temperature:         -10 °C         Dew Point:         °C         Wind Direction:         Density Altitude:         F           Wind Speed:         Gusts:         Westher Conditions at Accident Site: Visual Conditions         Ontions         T           Yisibility (RVR):         0 Ft.         Visibility (RVV)         0 SM         Intensity of Precipitation: Unknown         T           Type of Precipitation:         None         T         Aircraft Erre: None         Aircraft Explosion None           Classification: U.S. Registered/U.S. Soil         -         1         1         1           - Injury Summary Matrix         Fetal         Serious         Minor         None         TOTAL           Flight Instructor         -         -         -         -         -         -           Student Pliot         -         -         -         -         -         -         -         -	Weather							-						
Sky/Lowest Cloud Condition: Unknown       0 Ft. AGL       Condition of Light: Day         Lowest Ceiling: Unknown       0 Ft. AGL       Visibility:       100       SM       Attimeter:       29.00       "H         Temperature:       -10 °C       Dew Point:       °C       Wind Direction:       Density Attitude:       F         Wind Speed:       Gusts:       Weather Conditions at Accident Site: Visual Conditions       Density Attitude:       F         Visibility (RVR):       0       FL       Visibility (RVV)       0       SM       Intensity of Precipitation: Unknown         Restrictions to Visibility:       None        Aircraft Fire: None       Aircraft Explosion None         Classification:       U.S. Registered/U.S. Soil       -       1       1         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         First Pilot       1       1       1       1       1         Student Pilot       1       1       1       1         First Pilot       1       1       1       1         Student Pilot       1       1       1       1         Basengers       2       2       2       2       2 <td></td> <td>1</td> <td>Time Zone</td> <td>WOF E</td> <td>Elevation</td> <td>wo</td> <td>)F Di</td> <td>stance Fro</td> <td>m Acci</td> <td>dent Site</td> <td></td> <td>Direction From</td> <td>m Accident Sit</td> <td>е</td>		1	Time Zone	WOF E	Elevation	wo	)F Di	stance Fro	m Acci	dent Site		Direction From	m Accident Sit	е
Sky/Lowest Cloud Condition: Unknown       0 Ft. AGL       Condition of Light: Day         Lowest Ceiling: Unknown       0 Ft. AGL       Visibility:       100       SM       Attimeter:       29.00       "H         Temperature:       -10 °C       Dew Point:       °C       Wind Direction:       Density Attitude:       F         Wind Speed:       Gusts:       Weather Conditions at Accident Site: Visual Conditions       Density Attitude:       F         Visibility (RVR):       0       FL       Visibility (RVV)       0       SM       Intensity of Precipitation: Unknown         Restrictions to Visibility:       None        Aircraft Fire: None       Aircraft Explosion None         Classification:       U.S. Registered/U.S. Soil       -       1       1         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         First Pilot       1       1       1       1       1         Student Pilot       1       1       1       1         First Pilot       1       1       1       1         Student Pilot       1       1       1       1         Basengers       2       2       2       2       2 <td></td>														
Lowest Ceiling: Unknown         0 Ft. AGL         Visibility:         100         SM         Attimeter:         29,00         ''H           Temperature:         -10 °C         Dew Point:         °C         Wind Direction:         Density Attitude:         F           Wind Speed:         Gusts:         Weather Conditions at Accident Site: Visual Conditions         Density Attitude:         F           Visibility (RVR):         0         Ft.         Visibility (RVV)         0         SM         Intensity of Precipitation: Unknown           Restrictions to Visibility:         None          Aticraft Explosion None            Accident Information         Aircraft Fire: None         Aircraft Explosion None             Classification:         U.S. Soil         1         1             - Injury Summary Matrix         Fatal         Serious         Minor         None         TOTAL           First Plat         I         1         1         1         1         1           Second Plot         I         1         1         1         1         1           Student Plot         I         I         1         1         1         1         1 <td< td=""><td></td><td></td><td></td><td></td><td>0 Ft. MS</td><td>SL</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>0 Deg</td><td>. Mag.</td></td<>					0 Ft. MS	SL				-			0 Deg	. Mag.
Temperature:       -10 °C       Dew Point:       °C       Wind Direction:       Density Altitude:       F         Wind Speed:       Gusts:       Weather Conditions at Accident Site: Visual Conditions       Visual Conditions         Visibility (RVR):       0       Ft.       Visibility (RVV)       0       SM       Intensity of Precipitation: Unknown         Restrictions to Visibility:       None       Intensity of Precipitation:       Unknown         Accident Information       Aircraft Fire: None       Aircraft Explosion None         Accident Information       Intensity of None       TOTAL         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         - Flight Instructor       I       1       1       1       1         Second Pilot       I       I       1       1       1         Flight Instructor       I       I       1       1       1       1         Flight Engineer       I       I       I       I       1	Sky/Lowes	st Cloud Condition: Un	known					0 Ft. A	GL	Condition of	of Ligl	nt: Day		
Wind Speed:     Gusts:     Weather Conditions at Accident Site: Visual Conditions       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     Aircraft Explosion None       Injury Summary Matrix     Fatal     Serious     Minor     None     TOTAL       First Pilot     I     1     1       Student Pilot     I     I     I       Flight Instructor     I     I     I       Flight Engineer     I     I     I       Other Crew     I     I     I       Other Crew     I     I     I       Passengers     I     I     I	Lowest Ce	illing: Unknown			0 Ft. AGL	L	/isibi	lity:	100	SM	Alti	meter:	29.00	"Hg
Visibility (RVR):     0     Ft.     Visibility (RVV)     0     SM     Intensity of Precipitation: Unknown       Restrictions to Visibility:     None     Intensity of Precipitation: Unknown       Type of Precipitation:     None       Accident Information       Aircraft Damage:     Substantial       Aircraft Fire:     None       Classification:     U.S. Registered/U.S. Soil       - Injury Summary Matrix     Fatal       Serious     Minor       None     TOTAL       First Pilot     1       Second Pilot     1       Suddent Pilot     2       Check Pilot     2       Flight Instructor     2       Check Pilot     1       Tight Engineer     2       Other Crew     2       Passengers     2	Temperatu	ure: -10 °C	Dew Point:		°C W	/ind Direc	tion:				De	nsity Altitude:		Ft.
Restrictions to Visibility: None         Type of Precipitation: None         Accident Information         Aircraft Damage: Substantial       Aircraft Fire: None       Aircraft Explosion None         Classification: U.S. Registered/U.S. Soil       Aircraft Fire: None       TOTAL         - Injury Summary Matrix       Fatal       Serious       Minor       None         First Pilot       1       1         Second Pilot       1       1         Student Pilot       1       1         Flight Instructor       1       1         Flight Engineer       1       1         Check Pilot       1       1         Other Crew       1       1         Passengers       I       1	Wind Spee	ed:	Gusts:		W	/eather Co	ondti	ons at Acc	ident S	ite: Visual (	Cond	itions		
None         Accident 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       0        0       1       1         Second Pilot       0        0       1       1         Student Pilot       0        0	Visibility (F	RVR): 0 F1	t. Visibility	(RVV)	0 SI	M Inte	ensity	of Precipi	tation:	Unknown				
Accident Information         Aircraft Damage: Substantial       Aircraft Fire: None       Aircraft Explosion None         Classification: U.S. Registered/U.S. Soil <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Second Pilot</li> <li>Initian Information</li> <li>Initian Information</li> <li>Initian Information</li> <li>Initian Information</li> <li>Initian Information</li> <li>Initian Information</li> </ul> Flight Instructor       Initian Information       Initian Information         Check Pilot       Initian Information       Initian Information         Check Pilot       Initian Information       Initian Information         Other Crew       Initian Information       Initian Information         Other Crew       Initian Information       Initian Information         Passengers       Initian Information       Initian Information       <	Restriction	ns to Visibility: None	I											
Accident Information         Aircraft Damage: Substantial       Aircraft Fire: None       Aircraft Explosion None         Classification: U.S. Registered/U.S. Soil <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Serious</li> <li>Minor</li> <li>None</li> <li>TOTAL</li> </ul> <ul> <li>Injury Summary Matrix</li> <li>Fatal</li> <li>Second Pilot</li> <li>Initian</li> <li>Second Pilot</li> <li>Initian</li> <li>Initian</li> <li>Initian</li> <li>Student Pilot</li> <li>Initian</li> <li>Initian</li> <li>Initian</li> <li>Initian</li> <li>Initian</li> <li>Initian</li> </ul> Flight Instructor       Initian       Initian       Initian         Check Pilot       Initian       Initian       Initian         Other Crew       Initian       Initian         Other Crew       Initian       Initian         Passengers       Initian       Initian														
Accident Information         Aircraft Damage: Substantial       Aircraft Fire: None       Aircraft Explosion None         Classification: U.S. Registered/U.S. Soil       TOTAL         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         First Pilot       1       1         Second Pilot       O       U       Second Pilot       Image: Substantial       Minor       None       TOTAL         Filight Pilot       Image: Substantial       Second Pilot       Image: Substantial       Second Pilot       Image: Substantial       Minor       None       TOTAL         Filight Instructor       Image: Ima	Type of Pro	ecipitation: None												
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       Image: Substantial       Fatal       Serious       Minor       None       TOTAL         Second Pilot       Image: Substantial       Image: Substantial       Image: Substantial       Image: Substantial       Image: Substantial Substantial       Image: Substantial Subst	<b>5</b> 1 - 5													
Classification: U.S. Registered/U.S. Soil- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst Pilot111Second Pilot111Student Pilot111Flight Instructor111Check Pilot111Flight Engineer111Other Crew111Other Crew11	Accident	Information												
- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst PilotII11Second PilotII11Student PilotIII1Flight InstructorIIIICheck PilotIIIIFlight EngineerIIIIOther CrewIIIIPassengersIIII	Aircraft Da	mage: Substantial		Aircra	aft Fire: N	lone				Aircraft Exp	olosio	n None		
- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst PilotII11Second PilotII11Student PilotIII1Flight InstructorIIIICheck PilotIIIIFlight EngineerIIIIOther CrewIIIIPassengersIIII	Classificati	ion: U.S. Registered/	U.S. Soil											
First PilotImage: state of the s				Serious	Minor	None		TOTAL						
Student PilotImage: Student PilotImage: Student PilotFlight InstructorImage: Student PilotImage: Student PilotCheck PilotImage: Student PilotImage: Student PilotFlight EngineerImage: Student PilotImage: Student PilotCabin AttendantsImage: Student PilotImage: Student PilotOther CrewImage: Student PilotImage: Student PilotPassengersImage: Student PilotImage: Student Pilot							1	1						
Flight InstructorImage: Check PilotImage: Check PilotImage: Check PilotCheck PilotImage: Check PilotImage: Check PilotImage: Check PilotFlight EngineerImage: 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 Pilot	Second	d Pilot					1	1						
Check PilotImage: Check PilotImage: Check PilotImage: Check PilotFlight EngineerImage: 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 Pilot	Studen	nt Pilot												
Flight EngineerImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsOther CrewImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsPassengersImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin Attendants	Flight li	nstructor												
Cabin Attendants     Image: Constraint of the second	Check	Pilot							1					
Other Crew     2       Passengers	Flight E	Engineer					1	,	ī]					
Passengers I I I I I I I I I I I I I I I I I I I	Cabin A	Attendants							1					
Passengers I I I I I I I I I I I I I I I I I I I	Other C	Crew					2	2	2					
- TOTAL ABOARD - 5 5	Passer	ngers												
	- TOTAL A	ABOARD -					5	Ę	5					
Other Ground 0 0 0 0	Other C	Ground	0	0	(	0	-		-					
- GRAND TOTAL - 0 0 0 5 5	- GRANE	D TOTAL -	1 1		(	0	5	Ę	5					
				FACT	TUAL RE	EPORT -	AV	IATION						Page 4

National Transportation Safety Board	NTSB ID: ANC99LA099	
National Transportation Safety Board FACTUAL REPORT	Occurrence Date: 07/29/1999	
AVIATION	Occurrence Type: Accident	
Administrative Information		
nvestigator-In-Charge (IIC)		
CLINTON O. JOHNSON		
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