## Clogged fuel filter, Airbus A320, February 16, 1998

Micro-summary: This Airbus A320 diverted after the ECAM indicated there was a clogged #1 fuel filter.

Event Date: 1998-02-16 at 1240 CST

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

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

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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 Transportation Safety Board	NTSB	ID: CHI98IA095	5	Aircraft Registration	n Number: N341NW			
FACTUAL REPORT	Occur	rence Date: 02/1	6/1998	Most Critical Injury: None				
<b>ÄVIATION</b>	Occur	rence Type: Incid	ent	Investigated By: N	nvestigated By: NTSB			
Location/Time	I							
Nearest City/Place	State	Zip Code	Local Time	Time Zone				
MEMPHIS	TN	38101	1240	CST				
Airport Proximity: Off Airport/Airstrip	Distance Fror	n Landing Facility		Direction From Air	irport:			
Aircraft Information Summary								
Aircraft Manufacturer		Model/Serie	S		Type of Aircraft			
Airbus Industrie		A-320-212 Airplane						
Sightseeing Flight: No Air Medical Transport Flight: No								
Narrative								
Brief narrative statement of facts, conditions and circumstand On February 16, 1998, at Northwest Airlines, had an it warning message about 200 mm aircraft to Memphis, Tennesse msl to burn off fuel to get dow experienced an uncommanded in An uneventful single-engine officer, the five flight atte departed Detroit Metropolitan meteorological conditions preva The examination of the engine burn-through in the low presses 11 o'clock location. There was the fuel pump filter revealed partially blocked by bronze-colo The engine was removed from the direction of the Bureau Engine part number (PN) 714900-2. Corporation, Cleveland, Ohio, for Northwest Airlines records sho operated 17,208 hours time sind the fuel pump had not been read by Northwest Airlines. The of CSN. The disassembly and examination The fixed and pressurized by bypass valve was found to have by The drive and driven gears we: 0.017 inches diametrically. follows: Feature Drive gear OD	1240 cent Engine Com iles from ee. While wn to the flight shu landing endants, or Airport, iled and t ne reveal ure turbin reported ed the pr ored mater e airplane uetes Acci The fuel or disasse how that ce new (TS moved from engine's r n of the f earings, w bronze-col re both in The drive	ral standard dition and M Memphis, T turning inbo maximum land tdown. The was made. or the 110 pa Detroit, Mic he flight wa ed a 4-ind heat distress resence of a rial in the r and shipped dents. The e pump was re- mbly and exa the fuel p mp rev hich are mad ored particl ttact. The t	Anitoring Syste Cennessee. The sound on the first and on the first attempt to rest There were no assengers. The sound of the sound of the sound on an instruct the plane of the sound of the left of bronze-colored mozele jets. A to SNECMA, who engine was equip- emoved from the mination. Dump, PN 714900- Cycles since of SN 731-709, so that it had oper realed the pump le of bronze, we cent of the dro gear were measure Actor	em (ECAMS) No. flight crew dee st turn in hold e No. 1 CFM56- tart the engine injuries to the 14 CFR Part 12 e to Mexico Cia ment flight pla ferential) by 1 2nd stage turn engine pylon. material. The ere it was disa pped with an As engine and res -2, serial number new (CSN). The ince the engine erated 17,208 here worn. The es of the value iven gear were ured and compasion	A 1 fuel filter clog ecided to divert the lding at 10,000 feet -5A3 turbofan engine he was unsuccessful. The captain or first 21, Flight 1821, had ty, Mexico. Visual lan. 1-inch wide (axial) cbine stators at the The examination of he fuel nozzles were eassembled under the Argo-Tech fuel pump, eturned to Argo-Tech aber (SN) 37001, had he records show that he had been received hours TSN and 6,972 gear pocket milling. a fuel pump's filter ye.			

FACTUAL REPORT - AVIATION

National Transportation Safety Board	NTSB ID: CHI98IA0	95	
FACTUAL REPORT	Occurrence Date: 02	2/16/1998	
AVIATION	Occurrence Type: Inc	cident	
arrative (Continued)	•		•
Driven gear OD 3.2474-3	.2480 3.2	31	
at the milled area and a me 0.240-inches thick. The driv	easurement of the ven gear had wea	remaining w r that corresp	ar side. The housing was sectioned all thickness showed that it was onded to wear on the quad-ring bolt quad-ring bolt boss was found to be
pearing, and pressurized driven	bearing, which are essed below the	made of bronz split line. A	d driven bearing, pressurized drive e. The fixed bearings did not move ll four bearings exhibited wear and rison to new bearings.
Part 1	New part weight	A	ctual weight
ixed drive bearing	523.42 grams	623.7 gra	ms
ixed driven bearing	522.86	564.4	
Pressurized drive bearing	602.13	5	70.2
Pressurized driven bearing	503.45	493.8	
The fixed drive bearing had a bearing bore was in good condition			earing face had minor scoring. The did not show any wear.
The fixed driven bearing had bore was worn 0.146 inches. The			the bearing was worn. The bearing worn.
The pressurized drive bearing hat bore was scored.	ad a severe dam wip	e. The face o	f the bearing was worn. The bearing
pearing bore was worn 0.146 incl	nes. The "O" ring	and backup rin	face of the bearing was worn. The g on the pressurized driven bearing e NTSB Powerplants Group Chairman's
		_	ected. The examination revealed no mp failure. (See Woodward Governor
Parties to the investigation : Aircraft Engines, CFM Internation			inistration, Northwest Airlines, GE ard Governor Company.

National Transportation Safety Board	NT	SB ID:	CHI98	IA095									
FACTUAL REPORT		curren	urrence Date: 02/16/1998										
AVIATION			rence Type: Incident										
۲۶۲۲۲BO <sup>R</sup> Landing Facility/Approach Informa		ounon											
Airport Name		Airp	ort ID:	Airport Eleva	tion	Run	way Used	Runwa	ay Length	n Ru	nway Width		
		1		.,									
Runway Surface Type:													
Runway Surface Condition:													
Type Instrument Approach:													
VFR Approach/Landing: Precautionary	Landing												
Aircraft Information									i				
Aircraft Manufacturer			Model/							Number			
Airbus Industrie			A-320	J-212					380				
Airworthiness Certificate(s): Transport													
Landing Gear Type: Retractable - Tricy	/cle												
	per of Seats: 157		Certified Max Gross Wt.						r of Engine				
Engine Type: Turbo Jet			Engine Manufacturer:Model/Series:GECFM56-5A3							Rated Power: 25000 LBS			
- Aircraft Inspection Information													
Type of Last Inspection		Dat	te of Las	t Inspection	۲	Fime Si	nce Last Inspe				otal Time		
Continuous Airworthiness								Ho	ours	-	7626 Hours		
- Emergency Locator Transmitter (ELT) In	nformation												
ELT Installed? No	ELT Operated?				ELT	Aided i	n Locating Ac	cident S	Site?				
Owner/Operator Information													
Registered Aircraft Owner			Street A	ddress 5101 NC	ORTHV	VEST	DR.						
NORTHWEST AIRLINES			- 9							State	Zip Code		
			Street A	ST. PAU	L					MN	55111		
Operator of Aircraft			e l'e e e e e		Reg'o	d Aircra	aft Owner						
Same as Reg'd Aircraft Owner			City Sta						State	Zip Code			
Operator Does Business As:		Operator Designator Code: NWAA											
- Type of U.S. Certificate(s) Held:	<u> </u>												
Air Carrier Operating Certificate(s): Flag	Carrier/Domestic	С											
Operating Certificate:				Operator 0	Certifica	ate:							
Regulation Flight Conducted Under: Part	121: Air Carrier												
Type of Flight Operation Conducted: Nor	1-scheduled; Dor	mestic	; Passe	enger Only									
	FAC	TUAI	. REPO	RT - AVIAT	ION						Page 2		

Natior	TRANS	Safety Board	1	NTSB ID:	CHI98IA0	95								
F	ACTUAL RI	EPORT		Occurrence Date: 02/16/1998					1					
	AVIATI	26 <			Occurrence Type: Incident									
		pre i		Occurrent	ce rype. In	cident								
	ot Information					0.1					01-1-	Dete	- ( D'ath	
Name						City					State		of Birth	Age
On File						On Fi	ile On File On File							42
Sex: M	Seat Occupied	Left	Pr	incipal Profes	sion: Civilia	an Pilot				Cert	ificate Nur	nber: O	n File	
Certificate	(s): Airlir	ne Transpor	ť											
Airplane R	ating(s): Multi	i-engine Lai	nd											
Rotorcraft/	Glider/LTA: None	-												
	t Rating(s): Airpl													
Instructor														
Type Ratir	ng/Endorsement fo	or Accident/Ir	ncident Aircr	aft? Yes			(	Current B	iennial Fli	ght Re	eview?			
Medical Co	ert.: Class 1	Medica	al Cert. Statu	us: Unknowr	า				Date	of La	st Medical	Exam:	12/1997	
		I												
- Flight Tir	ne Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Mult-Engine	Niç	jht	Actual	Instrument Sim	ulated	Rotorcraf	t	Glider	Lighter Than Air
Total Time	9	5649	195											
Pilot In Co	ommand(PIC)					_						_		
Instructor												_		
Last 90 Da											_	_		
Last 30 Da	-										-			
	Ised? Yes	Shou	l Ider Harnes	s Used? Yes		_	Toxic	ology Pe	rformed?	No		Second	Pilot? Ye:	
		Onoc		5 03cu: 163			10/10						1 100. 10.	5
Elight Pl	an/Itinerary													
	ight Plan Filed: IF													
	-	N					State		Airport Ido	ntifior	. Don	orturo 1	Timo	Time Zone
Departure Point								Airport Identifier DTW		Departure Time 0916		EST		
DETROI							MI				091	0		231
Destinatio MEXICO							State		Airport Ide MEX	irport Identifier				
	earance: IFR	_												
-	rspace: Class	E												
Weather	Information													
Source of	Briefing: Compa	any												
Method of	Briefing:													
				FACTUAI	REPORT	- AVI	ATIO	N						Page 3

FACIUAL REPORT         Occurrence Date: 02/16/1998           Occurrence Type: Incident           Weather Information         MORE Elevation Time         Time Zone         WOF Elevation Time         Direction From Accident Site         Direction From Accident Site           WOF ID         Observation Time         Time Zone         WOF Elevation         WOF Distance From Accident Site         Direction From Accident Site           SkylLowest Cloud Condition: Clear         O FL         Visibility         10         SM         Attimeter:         29.00         'Hg           Lowest Cealing: None         O FL AGL         Visibility: 10         SM         Attimeter:         29.00         'Hg           Temperature:         - 6 °C         Dew Point:         °C         Wind Direction:         Density Altitude:         Ft           Visibility (RVR):         0         Ft         Visibility (RVV)         0         SM         Intensity of Precipitation:         Unknow           Accident Information         Aircraft Erre: None         Aircraft Explosion         None         ToTAL           Final         Seriou         Minor         None         <	Nationa	al Transportation Safety	Board	NTSB ID:	CHI98	IA095							
Occurrence Type: Incident           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: Clear         0 FL MSL         Condition - TUBH: Day           Lowest Cluing: None         0 FL ASL         Visibility: 10         SM         Attimeter: 29.00         'Hg           Temperature:         -6 °C         Dew Point:         °C         Wind Direction:         Density Attitude:         FL           Wind Speed:         Gusts:         C         Wind VP recipitation:         Unscriptions         The set of the		O V		Occurren	ce Date:	02/16/19	998		]				
Weather Information           WOF ID         Observation Time         Time Zone         WOF Elevation         WOF Distance From Accident Site         Direction From Accident Site           0000         0 Ft. MSL         0 NM         0 Deg. Mag.           SkyLowest Cloud Condition: Clear         0 Ft. MSL         0 NM         0 Deg. Mag.           Lowest Cloud Condition: Clear         0 Ft. AGL         Visibility: 10         SM         Altimeter:         29.00         "Hg           Temperature:         -6 °C         Dew Point:         °C         Wind Direction:         Density Altitude:         Ft.           Wind Speed:         Gusts:         Weather Conditions at Accident Site: Visual Conditions         Density Altitude:         Ft.           Visibility (RVR):         0         Ft.         Visibility: (NVV)         0         SM         Intensity of Precipitation: Unknown           Restrictions to Visibility:         None         Aircraft Ere: None         Aircraft Explosion         None           Classification:         US. Registered/U.S. Soil         Intensity of TrafL         Aircraft Explosion         None           Findtr Ibanage:         Minor         None         TOTAL         Intensity of Precipitation:         None           Injury Summary Matrix         Fatel		7 74 1 1 1 1 1							1				
WOF ID         Observation Time         Time Zone         WOF Elevation         WOF Distance From Accident Site         Direction From Accident Site           SkyLowest Cloud Condition:         Clear         0 NL         0 NM         0 Deg. Mag.           SkyLowest Cloud Condition:         Clear         0 Ft. AGL         Condition of Light: Day         Day           Lowest Celling: None         0 Ft. AGL         Visibility:         10         SM         Attimeter:         29.00         "Hg           Temperature:         -6 °C         Dew Point:         °C         Wind Direction:         Density Attitude:         Ft.           Wind Speed:         Gusts:         Weather Conditions at Accident Site: Visual Conditions         Density Attitude:         Ft.           Visibility (RVR):         0         Ft.         Visibility (RVV)         SM         Intensity of Precipitation: Unknown         Intensity of Precipitation: Unknown           Restrictions to Visibility:         None         Aircraft Fire: None         Aircraft Explosion         None           Classification: U.S. Registered/U.S. Soil	Weather				71-								
000       0		1	Time Zone	WOF Elevat	ion	WOF Di	stance From	Accio	dent Site		Direction Fro	m Accident Site	
Sky/Lowest Cloud Condition: Clear       0 Ft. AGL       Condition of Light: Day         Lowest Ceiling: None       0 Ft. AGL       Visibility: 10       SM       Altimeter: 29.00       'Hg         Temperature:       -6 °C       Dew Point:       °C       Wind Direction:       Density Altitude:       Ft.         Wind Speed:       Gusts:       Weather Conditions at Accident Site: Visual Conditions       Density Altitude:       Ft.         Visibility (RVR):       0       Ft.       Visibility (RVV)       0       SM       Intensity of Precipitation:       Unknown         Restrictions to Visibility:       None       Aircraft Fire: None       Aircraft Explosion None       Aircraft Explosion None         Classification:       U.S. Registered/U.S. Soil       -       1       1       1         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         Flight Instructor       -       -       -       -       -         Check Plot       -       -       -       -       -         Flight Engineer       -       -       -       -       -         Other Crew       -       -       -       -       -         Passengers       -       - <td>-</td> <td></td> <td>-</td>	-												-
Lowest Ceiling: None         0 Ft. AGL         Visibility:         10         M Itimeter:         29.00         "Hg           Temperature:         -6 °C         Dew Point:         °C         Wind Direction:         Density Altitude:         Ft.           Wind Speed:         Gusts:         Weather Conditions at Accident Site: Visual Conditions         Density Altitude:         Ft.           Visibility (RVR):         0         Ft.         Visibility (RVV)         0         SM         Intensity of Precipitation:         Unknown           Restrictions to Visibility:         None          Aircraft Fire: None         Aircraft Explosion None         Aircraft Explosion None           Classification:         U.S. Registered/U.S. Soil          1         1         1           - Injury Summary Matrix         Fatal         Serious         Minor         None         TOTAL           Flight Instructor         I         1         1         1         1         1           Second Pilot         I         I         I         I         1         1         1           Second Pilot         I         I         I         I         I         1         1           Second Pilot         I         I         I<		0000		0 Ft	. MSL				0 NM			0 Deg.	Mag.
Temperature:         -6 °C         Dew Point:         °C         Wind Direction:         Density Altitude:         Ft.           Wind Speed:         Gusts:         WeatHer Condtions at Accident Site: Visual Conditions         Precipitation:         Visual Conditions           Visibility (RVR):         0         FL         Visibility (RVV)         0         SM         Intensity of Precipitation: Unknown           Restrictions to Visibility:         None         SM         Intensity of Precipitation: Unknown         Precipitation: Unknown           Accident Information         Aircraft Fire: None         Aircraft Explosion None           Classification: U.S. Registered/U.S. Soil         Intensity of ToTAL         Aircraft Explosion None           First Plot         Fatal         Serious         Minor         TOTAL           First Plot         Intensity         1         1         1           Student Plot         Intensity         Intensity         Intensity         Intensity           Flight Instructor         Intensity         Intensity         Intensity         Intensity           Injury Summary Matrix         Fatal         Serious         Minor         TOTAL           Student Plot         Intensity         Intensity         Intensity         Intensity	Sky/Lowes	st Cloud Condition: Clea	ar				0 Ft. AG	L	Condition of	of Lig	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       Type of Precipitation:     None       Accident Information     Aircraft Fire: None     Aircraft Explosion None       Classification:     U.S. Registered/U.S. Soil     Intensity of TOTAL       - Injury Summary Matrix     Fatal     Serious     Minor     TOTAL       First Plot     I     1     1       Second Plot     I     I     1       Student Plot     I     I     1       Flight Instructor     I     I     I       Flight Instructor     I     I     I       Flight Attendants     I     I     I       Cabin Attendants     I     I     I       Passengers     I     I     I       Attendants     I     I     I       Passengers     I     I     I	Lowest Ceiling: None 0 Ft. AGL Visibility: 10								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:       Minor       Aircraft Erre: None         Classification:       U.S. Registered/U.S. Soil       Aircraft Erre: None         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         First Pliot       I       1       1       1       1       1         Second Pliot       I       I       1       1       1       1       1       1         Flight Instructor       I       I       I       I       I       I       1	Temperature:     -6 °C     Dew Point:     °C     Wind Direction:								De	nsity Altitude:		Ft.	
Restrictions to Visibility:     None       Type of Precipitation:     None       Accident Information     Aircraft Damage: Minor     Aircraft Explosion None       Aircraft Damage: Minor     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     1     1     1     1       Second Pilot     1     1     1       Student Pilot     1     1     1       Fight Instructor     1     1     1       Check Pilot     1     1     1       Fight Engineer     1     1     1       Cabin Attendants     1     1     1       Passengers     1     1     1       Passengers     1     1     1	Wind Spee	ed:		Weather Condtions at Accident Site: Visual Conditions									
Accident Information         Aircraft Damage: Minor       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       Image: Minor       None       TOTAL       Image: Minor       None       TOTAL         Second Pilot       Image: Minor       Image: Minor       Image: Minor       Image: Minor       None       TOTAL         Student Pilot       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Filight Instructor       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Filight Engineer       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Cabin Attendants       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Passengers       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         -TOTAL ABOARD-       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Minor       Image: M	Visibility (F	RVR): 0 Ft	. Visibility (	RVV) 0	SM	Intensity	of Precipita	ation: I	Unknown				
Accident Information         Aircraft Damage: Minor       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       Image: Minor       None       TOTAL       Image: Minor       None       TOTAL         Second Pilot       Image: Minor       Image: Minor       Image: Minor       Image: Minor       None       TOTAL         Student Pilot       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Filight Instructor       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Filight Engineer       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Cabin Attendants       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Passengers       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         -TOTAL ABOARD-       Image: Minor       Image: Minor       Image: Minor       Image: Minor       Image: Minor         Minor       Image: M	Restriction	s to Visibility: None											
Accident Information         Aircraft Damage: Minor       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> <li>First Pilot</li> <li>First Pilot</li> <li>First Pilot</li> <li>I</li> <li>Second Pilot</li> <li>I</li> <li>Student Pilot</li> <li>I</li> <li>Flight Instructor</li> <li>I</li> <li>I</li> <li>Flight Engineer</li> <li>I</li> <li>I</li> <li>Sesongers</li> <li>I</li> <li>I</li> <li>TOTAL ABOARD-</li> <li>I</li> <lii< li=""> <li>I</li> <lii< li=""> <li>I</li> <liii< li=""></liii<></lii<></lii<></ul>		-											
Accident Information       Aircraft Damage: Minor       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       C       1       1       1         Second Pilot       C       I       1       1         Student Pilot       C       I       1       1         Flight Instructor       C       I       I       1         Flight Engineer       C       I       I       1         Cabin Attendants       C       I       I       1         Passengers       C       I       110       110         -TOTAL ABOARD-       I       III       117       117	Type of Pro	ecipitation: None											
Aircraft Damage: Minor       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       1       1         Second Pilot         1       1       1         Student Pilot          1       1         Flight Instructor              Clabin Attendants              Passengers         110       110       110         -TOTAL ABOARD-          1117       117	.,												
Classification: U.S. Registered/U.S. Soil         - Injury Summary Matrix       Fatal       Serious       Minor       None       TOTAL         First Pilot       1       1       1       1         Second Pilot       1       1       1         Student Pilot       1       1       1         Flight Instructor       1       1       1         Check Pilot       1       1       1         Flight Engineer       1       1       1         Cabin Attendants       1       1       1         Passengers       1       110       110         -TOTAL ABOARD -       1       117       117	Accident	Information											
- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst Pilot111Second Pilot111Student Pilot111Flight Instructor111Check Pilot111Flight Engineer155Other Crew1110110Passengers1110110- TOTAL ABOARD -1117117	Aircraft Da	mage: Minor		Aircraft Fi	e: None	•			Aircraft Exp	olosio	n None		
- Injury Summary MatrixFatalSeriousMinorNoneTOTALFirst Pilot111Second Pilot111Student Pilot111Flight Instructor111Check Pilot111Flight Engineer155Other Crew1110110Passengers1110110- TOTAL ABOARD -1117117	Classificati	ion: U.S. Registered/L	J.S. Soil	<b>I</b>									
First PilotImage: state of the s				Serious Min	or	None	TOTAL						
Student PilotImage: Constraint of the con						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 PilotCabin AttendantsImage: Check PilotImage: Check PilotImage: Check PilotOther CrewImage: Check PilotImage: Check PilotImage: Check PilotPassengersImage: Check PilotImage: Check PilotImage: Check Pilot- TOTAL ABOARD -Image: 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 PilotCabin AttendantsImage: Check PilotImage: Check PilotImage: Check PilotOther CrewImage: Check PilotImage: Check PilotImage: Check PilotPassengersImage: Check PilotImage: Check PilotImage: Check Pilot- TOTAL ABOARD -Image: Check PilotImage: Check Pilot<	Studen	t Pilot											
Flight EngineerImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsOther CrewImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsPassengersImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsPassengersImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin Attendants- TOTAL ABOARD -Image: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin AttendantsPassengersImage: Cabin AttendantsImage: Cabin AttendantsImage: Cabin Attendants- TOTAL ABOARD -Image: Cabin AttendantsImage: Cabin AttendantsImage: Cabin Attendants	Flight li	nstructor											
Cabin AttendantsImage: Cabin AttendantsImage: Second Cabin AttendantsOther CrewImage: Cabin CrewImage: Cabin CrewPassengersImage: Cabin CrewImage: Cabin Crew- TOTAL ABOARD -Image: Cabin CrewImage: Cabin Crew	Check	Pilot											
Other Crew     Image: Constraint of the second	Flight E	Engineer											
Passengers         110         110           - TOTAL ABOARD -         110         117         117	Cabin A	Attendants				5	5						
- TOTAL ABOARD - 117 117	Other C	Crew											
	Passer	ngers				110	110						
Other Ground 0 0 0 0 0	- TOTAL A	ABOARD -				117	117						
	Other C	Ground	0	0	0		0						
- GRAND TOTAL - 0 0 0 117 117	- GRANE	D TOTAL -	0	0	0	117	117						
				FACTUAI	L REPO	RT - AV	IATION					F	Page 4

Administrative Information Investigator-In-Charge (IIC) JIM SILLIMAN Additional Persons Participating in This Accident/Incid CHUNG-DER YOUNG FAA, 2300 E. DEVON AVE. DES PLAINES, IL 60018 MITCH ROBBINS 5101 NORTHWEST DR.	Occurrence Date: 02/16/1998 Occurrence Type: Incident	
Administrative Information Investigator-In-Charge (IIC) JIM SILLIMAN Additional Persons Participating in This Accident/Incid CHUNG-DER YOUNG FAA, 2300 E. DEVON AVE. DES PLAINES, IL 60018 MITCH ROBBINS		
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CHUNG-DER YOUNG FAA, 2300 E. DEVON AVE. DES PLAINES, IL 60018 MITCH ROBBINS	lent Investigation:	
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