
Engine fire, Airbus Industrie A300, July 9, 1998

Micro-summary: An in-flight #1 engine fire on this A300B4-605R resulted in a diversion back to the airport and subsequent evacuation.


Event Date: 1998-07-09 at 1007 AST

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

Investigative Body's Web Site: <http://www.nts.gov/>

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 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: MIA98IA195		Aircraft Registration Number: N80057	
		Occurrence Date: 07/09/1998		Most Critical Injury: Minor	
		Occurrence Type: Incident		Investigated By: NTSB	
Location/Time					
Nearest City/Place SAN JUAN		State PR	Zip Code 00937	Local Time 1007	Time Zone AST
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility: 2		Direction From Airport: 18	
Aircraft Information Summary					
Aircraft Manufacturer Airbus Industrie		Model/Series A-300B4-605R		Type of Aircraft Airplane	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:					
<p>HISTORY OF THE FLIGHT</p> <p>On July 9, 1998, about 1007 Atlantic standard time, an Airbus Industrie A300B4-605R, N80057, registered to General Electric Aircraft Engines (GEAE) and operated by American Airlines, Inc. (AA), as flight 574, had a fire in the No. 1 engine shortly after takeoff from Luis Munoz Marin International Airport, San Juan, Puerto Rico. The airplane received minor damage. The captain, first officer, 7 flight attendants, and 215 passengers were not injured. Twenty-eight passengers reported receiving minor injuries during the postlanding emergency evacuation. The airplane, operated by AA as a scheduled passenger flight under the provisions of Title 14 Code of Federal Regulations (CFR) Part 121, was destined for Miami, Florida. Visual meteorological conditions prevailed at the time and an instrument flight rules flight plan had been filed.</p> <p>During postincident interviews, the first officer stated that nothing appeared unusual about the No. 1 engine during preflight inspection and that neither the airplane nor the ground showed evidence of leakage. The captain (the pilot flying) stated that the engine start and taxi out were normal. He stated that he engaged the autothrottles for takeoff and that the takeoff and climb were normal. About 4,000 feet, he reported hearing a thump and that he did not feel any vibration after hearing the "thump." About 4,500 feet, the No. 1 engine fire warning went off; he observed the fire light illuminated in the overhead fire handle as he was hand-flying the airplane with the autothrottles engaged. Almost immediately, the autothrottles were disengaged and he made a left turn towards San Juan. He told the first officer to call air traffic control (ATC) and to declare an emergency and get clearance to return and land at San Juan. They leveled at 5,000 feet. ATC said to turn left to 210 degrees and cleared them to descend to 3,000 feet. The captain stated that he had already put the left engine to idle and reduced the right throttle to idle.</p> <p>About 47 seconds after the engine fire warning, the captain told the first officer to run the Electronic Centralized Airplane Monitoring (ECAM) checklist. The flight officer said that he then began to address the fire issue. He completed the checklist items down to the fuel lever OFF. About 88 seconds after the fire warning activated and 2 seconds before the first officer moved the No. 1 fuel lever to the OFF position, shutting down the No. 1 engine, he reached for the fire handle. The fire light was out, which he told the captain. The first officer stated that the operating manual states that you can stop the fire procedure if the fire light has gone out. He mentioned this to the captain and asked if he should continue with the ECAM checklist. They elected to stop the fire procedure before pulling the fire handle and returning to land. The first officer said that there was no procedure to check continuity of fire loops after a fire warning. The airplane's normal loop positions are both loop switches on and no faults; both loop switches were on. He did not recall getting a loop warning light after the fuel lever was moved to OFF. He stated that a warning went off, which he thought was a fuel filter clog light; a single chime also went off. According to the airplane's design, if the fire light goes out when the throttle is pulled back, the chime will cease.</p>					
FACTUAL REPORT - AVIATION					
Page 1					

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident

Narrative (Continued)

The captain stated that about 1,000 feet, during the approach to land, the interphone rang and the first officer answered it. It was the purser and he informed the first officer that an AA mechanic was on board and possibly saw smoke and fire in the No. 1 engine. The captain stated that he told the first officer to tell ATC they might have a fire and to "standby the emergency evacuation checklist." While still airborne, the first officer told the tower that they might still have smoke in the engine.

The captain stated that he landed about 1,000 feet down runway 8 and stopped about a third of the way down, abeam to gate 19. As soon as the airplane stopped, he pulled the No. 1 fire handle and fired both bottles. He called the tower and asked if they saw smoke or fire. The tower confirmed smoke and fire. According to the cockpit voice recorder (CVR), the captain ordered an emergency evacuation 1:03 minutes after stopping on the runway. The captain stated that he started the ground evacuation checklist and that he announced on the public address (PA) system, "do not use the left overwing exits." After completing the checklist, he left the cockpit. A flight attendant told him that the airplane was empty. He stated that there were no restrictions to visibility in the airplane and he could see it was clear. He stated that he exited through the 1 right (1R) door, even though according to AA procedures his assigned emergency evacuation exit was door 4 right (4R), because the fire marshal wanted him off of the airplane.

The purser stated that during the evacuation he cracked door 1 left (1L) a little and saw that fire trucks blocked it. He elected not to use this exit. The remainder of the flight attendants on the left side of the airplane also did not open their doors. The flight attendants directed all of the passengers to the right side exits.

The flight attendant stationed at the 1R door stated that he activated the door for the evacuation, but it only went out about 1 foot and then stopped. He pulled the door back in and pushed it out again to unjam the evacuation slide from the door. The door then opened and the slide activated. The flight attendant stationed at the 2 right (2R) door stated that the door and slide activated normally. The flight attendant stationed at the 3 right (3R) door stated that when he activated the door, the door hung up on the evacuation slide and he could not get the door to open or the slide to activate. He blocked off the exit and redirected the passengers to other exits. The flight attendant stationed at door 4R stated that the door and slide activated normally.

INJURIES TO PERSONS

Injuries	Flight Crew	Cabin Crew	Passengers	Other	Total
Fatal	0	0	0	0	0
Serious	0	0	0	0	0
Minor	0	0	28	0	28
None	2	7	215	0	224
Total	2	7	243	0	252

DAMAGE TO AIRPLANE

The airplane received minor fire damage in the area of the No.1 engine and No. 1 pylon. The left wing and flap in the area of the No. 1 engine were also damaged. Examination of the airplane revealed that the fire damaged the No. 1 engine's fan cowls, thrust reverser, core cowls, engine core compartment external to the engine cases, and fire detection system. The airframe experienced heat damage that included wrinkling and blistering of the pylon and flap actuating fairing

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident

Narrative (Continued)

surfaces. There was no indication of an internal engine fire.

OTHER DAMAGE

No other damage resulted from this incident.

PERSONNEL INFORMATION

The captain, age 53, was hired by AA in May 1976. He holds an airline transport pilot (ATP) certificate with type ratings in the DC-9 and A310 and a flight engineer certificate. At the time of the incident, he had an estimated total of 17,100 hours of flying time, including 3,705 hours as a A300 captain at AA. He had flown 3 hours, 63 hours, and 130 hours in the past 24 hours, 30 days, and 90 days, respectively. The captain received his last checkride on February 14, 1998. His most recent Federal Aviation Administration (FAA) first-class medical certificate was issued on February 9, 1998, with limitations requiring him to possess corrective glasses for near vision. FAA records showed no enforcement actions, accidents, or incidents.

The first officer, age 41, was hired by AA in August 1987. He holds an ATP certificate with a type rating in the A310 and a flight engineer certificate. At the time of the incident, he had an estimated total of 9,500 hours of flying time, including 408 hours as an A300 first officer at AA. He had flown 3 hours, 45 hours, and 143 hours in the past 24 hours, 30 days, and 90 days, respectively. The first officer received his last checkride on September 10, 1997, when he initially qualified as an A300 first officer. His most recent FAA first-class medical certificate was issued on March 23, 1998, with no limitations. FAA records showed no enforcement actions, accidents, or incidents.

See the Operations Group Chairman's Factual Report for additional information about the captain and first officer. See the Survival Factors Group Chairman's Factual Report for additional information about the seven revenue flight attendants and two nonrevenue flight attendants riding on the flight.


AIRPLANE INFORMATION

N80057, an Airbus Industrie A-300B4-605R, serial number (S/N) 465, was manufactured in 1988. The airplane was registered to GEAE and operated by AA. At the time of the incident, the airplane had accumulated 27,845 total flight hours. The airplane was last inspected on May 28, 1998, 326 flight hours before the incident.

The No. 1 engine was a GEAE CF6-80C2A5 turbofan, S/N 695250. The engine was last overhauled at Motoren-und Turbinen-Union (MTU), Hannover, Germany, from September to November 1995. The most recent repair of the engine occurred at the AA Maintenance and Engineering Center in Tulsa, Oklahoma, in September 1997, to replace several high-pressure turbine stage two blades and the main fuel pump. The engine had accumulated 1,806 flight hours and 727 cycles since repair; 5,484 flight hours and 2,178 cycles since overhaul; and 22,239 flight hours and 8,914 cycles since new, at the time of the incident.

Examination of the engine revealed that the accessory gearbox adapter bolt inserts had backed out, allowing fuel lines (cross-over tubes) to unseat from the adapter. This allowed pressurized fuel to spray onto hot engine parts and ignite, resulting in the nacelle fire. On September 26, 1995, the adaptor had been reworked per GEAE Service Bulletin (SB) 72-743, which called for the installation of new adapter inserts to permit higher and more consistent bolt torque that would improve the clamping interface and eliminate fuel leaks from the adapter cross-over tube interface.

The replacement insert specified in SB 72-743 was much smaller than the hole, and use of this insert would have allowed it to slide completely through the hole. MTU reworked the incident adapter to the SB; however, MTU did not use the insert specified in the SB. Instead, MTU installed

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA98IA195
	Occurrence Date: 07/09/1998
	Occurrence Type: Incident

Narrative (Continued)

an alternate insert using the GEAE Standard Practices Manual as a reference. However, the installed inserts were also too small for the adapter hole; consequently, the insert threads did not have the proper engagement with the housing, which permitted the fuel lines to unseat from the adapter. (The error in the SB was subsequently corrected by GEAE.)

METEOROLOGICAL INFORMATION

The Luis Munoz Marin International Airport surface weather observation taken at 0954 showed clouds were scattered at 3,700 feet above ground level, visibility 10 statute miles, winds from 70 degrees at 13 knots with gusts to 20 knots, temperature 84 degrees F, dewpoint temperature 79 degrees F, altimeter setting 30.08 inches Hg.

AIDS TO NAVIGATION

There were no reported problems with aids to navigation.

COMMUNICATIONS

There were no reported problems with communications between the flight crewmembers of AA flight 574 and ATC personnel.

AIRPORT INFORMATION

Luis Munoz Marin International Airport is located about 3 miles southeast of the city of San Juan, Puerto Rico. The airport is owned and operated by the Port Authority, Commonwealth of Puerto Rico. It has an FAA-approved emergency plan and is certified as an Aircraft Rescue and Firefighting (ARFF) Index D airport under 14 CFR Part 139. It has an elevation of 10 feet above mean sea level. The airport has two runways, one grooved concrete and the other asphalt, with precision instrument markings. Runway 8-26, used by flight 574, is asphalt, 10,002 feet long, and 200 feet wide.

ARFF personnel and equipment were stationed adjacent to runway 8 as flight 574 landed. As the airplane came to a stop, ARFF personnel immediately began firefighting efforts on the No. 1 engine; the fire was extinguished in 45 seconds.

FLIGHT RECORDERS


The incident airplane was equipped with a digital flight data recorder Sundstrand Model UFDR, S/N 9783, which recorded about 200 parameters. The recorder was read out at the Safety Board's Vehicle Recorder Laboratory in Washington, D.C.

The incident airplane was equipped with a Fairchild model A-100A CVR, S/N 53281. The recorder was read out at the Safety Board's Vehicle Recorder Laboratory in Washington, D.C.

The CVR recording consisted of four channels of fair quality audio information, which included flight crew communications, ATC transmissions to and from the airplane, PA, and interphone transmissions. Timing on the CVR recording was established using an ATC transcript supplied by the FAA. The recording started as the flight crew was preparing for departure at the gate. The transcript of the CVR recording started at 10:04:32 as the flight crew was commencing the takeoff for departure to Miami and continued uninterrupted until 10:25:25, when electrical power was removed from the CVR.

MEDICAL AND PATHOLOGICAL INFORMATION

Twenty-eight passengers reported receiving minor injuries during the evacuation and were treated by fire department personnel at the airport or transported to hospitals for treatment.

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA98IA195
	Occurrence Date: 07/09/1998
	Occurrence Type: Incident

Narrative (Continued)

FIRE

A fire occurred in the No. 1 engine.

SURVIVAL ASPECTS

The incident was survivable. There were no serious or fatal injuries sustained by the occupants of the incident airplane or by persons on the ground.

During the emergency evacuation, door 3R failed to open completely and the slide failed to activate. An FAA inspector stated that "after entering the plane at the gate, he went to door 3R and rested his hand on the fairing that covers the door hinge." The slide "fell immediately to the ground" and "made a hissing noise." He described the door as being "90 percent open" and the girt bar was disengaged. Examination of door 3R revealed no visible damage to the door structure, packboard, lacing cover, or decorative cover. The girt bar floor fittings showed no signs of damage and appeared to have been recently greased. The door was cycled without slide weight but with the packboard and yellow lacing cover attached. During the postincident examination, the door operated normally.

The 3R slide (part number (P/N) 31021-107, S/N 0348) was manufactured by Air Cruisers Company in January 1992 and last overhauled in October 1997. Examination of the slide showed no tears, cuts, or abnormalities to the exposed area of the inflatable. The gauge adapter was fractured at the threaded section of the neck of the valve assembly. There was zero pressure in the cylinder and no damage to the grommets. During examination, it was noted that the outboard portion of the girt was located on the inboard portion of the girt bar. The clip girt retainer was installed properly with respect to the slide girt, but when installed in the airplane it would have been located on the outboard edge of the girt bar, rather than on the inboard edge. The inflation cable was disconnected at the quick disconnect. Four slide pack release pins showed no obvious signs of damage. Further examination of the forward and aft "parachute pin assemblies" for damage to the cable and webbing assemblies revealed that the aft cable assembly appeared to be pinched and twisted.

During the evacuation, door 1L was partially opened in an attempt to determine if it could be used for passenger egress. Because of the fire trucks blocking it, the door was not used; however, after the girt bar was disengaged, the slide packet fell from the door and inflated on the ground. On July 13, 1998, the actuator bottle unit (P/N 7015600002, S/N 46478) at door 1L was still fully charged and its gauge was reading 1,950 pounds per square inch (psi).

The actuator unit from door 1L was removed from the airplane and examined at Barfield Incorporated in Miami, Florida, on July 23, 1998. The operating lever on top of the strike mechanism was not fully engaged and the knurled screw was not secured in the correct notch of the operating lever. The striker locking device was in a position that prevented vertical movement of the striker pin, thereby preventing diaphragm puncture. The position of the striker locking device and operating lever was reproduced on the actuator and it was confirmed that the striker pin was not movable. When the striker pin was removed, it was found nearly sheared at both shear points. Further examination of the operating lever showed scrape marks 1/8" x 1/2". The diaphragm showed no signs of contact with the striker. A test of the dampening qualities showed that the unit was in proper working order for extension and retraction. The extend dampening time was 9.17 seconds, and the retract dampening time was 2.00 seconds. The required dampening time for extension is 5 to 30 seconds and for retraction it is 2 to 15 seconds.

The flight attendant operating door 1R stated that the door opened "halfway," which he described as going "out one foot and forward a foot." He "had to pull it back again and then gave it a big push in order to unjam the slide from the door. At that time the slide opened." On July 13, 1998, the

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident

Narrative (Continued)

actuator bottle unit (P/N 7015097003, S/N 2077) at door 1R was not charged and its gauge was reading 0 psi.

The actuator unit from door 1R was removed and taken to Barfield Incorporated for tear down. The operating lever was examined and showed two scrape marks. One mark was 1/16" x 7/16" and showed signs of surface oxidation. The other mark was 1/32" x 3/16" and appeared fresh without signs of oxidation. The shear pin had not sheared, but it was slightly notched at the two shear points. The lifting motion of the door, including the hammer device, was not sufficient to rotate the operating lever to puncture the diaphragm. An examination of the diaphragm revealed that contact between the striker pin and diaphragm was not sufficient to completely puncture the diaphragm; however, the striker pin had gouged it to a point where it almost went through the diaphragm. The extend dampening time was 4.91 seconds, and the retract dampening time was 1.82 seconds. The required dampening time for extension is 5 to 30 seconds and for retraction it is 2 to 15 seconds.

TESTS AND RESEARCH

A300 Emergency Checklist Procedures

The captain and first officer stated they were trained to perform the fire procedure checklist items on the ECAM checklist that pops up when an engine fire warning occurs. After completing the items on this checklist, they would go to the Emergency Procedures Checklist, not to the second page of the ECAM checklist. If time is not critical, they would go to the AA A300 Operating Manual, Volume 1. The flight crew stated that during flight 574, they performed the initial items down to the fuel lever OFF item on the ECAM checklist and then used the Emergency Procedures Checklist. The AA A300 Operating Manual in-flight engine fire emergency procedure contains a note after the first step (retarding the throttle to idle), which states, "This procedure may be discontinued if fire warning disappears after the affected throttle is retarded."

The first officer remembered the note about discontinuing the engine fire procedure if the fire warning goes out even though it is not included on the ECAM or Emergency Procedures Checklist. Although the Operating Manual clearly stated that the fire procedure could be terminated if the fire warning ceased before the fuel lever is selected OFF, it did not specify the amount of time the flight crew should wait for the fire warning to cease before selecting the fuel lever to OFF. Because the fire warning disappeared (about 88 seconds after it had activated and about 2 seconds before the No. 1 engine fuel lever was placed OFF and the engine was shut down), the captain elected not to continue the engine fire procedure and pull the No. 1 fire handle. This action allowed pressurized fuel to continue to flow to the engine and to feed the fire. As a result of this incident, the Safety Board recommended that the FAA "require that Airbus include supplementary information to the in-flight engine fire procedure specified in the A300-600 and A310 Flight Crew Operating Manuals that indicates an appropriate amount of time flight crews should wait after the throttle is retarded to idle before the fuel lever is selected OFF and that all operators of A300-600 and A310 airplanes adopt the new Airbus in-flight engine fire procedure."

A300 Engine Fire Detection System

The engine fire detection system in the A300-600 consists of two identical but independent (A and B) heat-sensitive fire loops and a fire detection control (FDC) unit. The fire detection loops for each engine are mounted in parallel and are located along the bottom of the engine between the aft fan case and the compressor rear frame. Each loop consists of a stainless steel tube containing helium and a hydrogen-charged core material connected to a responder assembly. The responder assembly contains two pressure switches (an alarm switch and an integrity switch) and is connected to the FDC unit via an airplane electrical harness, which triggers appropriate warnings in the cockpit when temperature limits are exceeded inside the nacelle.

Application of heat to the fire loop causes an increase in internal gas pressure, which acts on a

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident

Narrative (Continued)

pressure diaphragm inside the responder assembly. If the gas pressure within the loop increases sufficiently, the alarm switch is closed, and a fire signal is sent to the FDC unit. A pressure drop inside the loop because of a gas leak causes the integrity switch to open, sending a fault signal to the FDC unit. A loss of electrical continuity from the responder will also send a fault signal.

The FDC unit contains two electronic control circuit cards, one for each loop. Each card has two separate circuits, a fault circuit that interprets faults involving the fire loops or the associated electrical harness and a fire circuit that interprets the fire signal. The FDC unit triggers corresponding warnings in the cockpit.

Pushbutton switches located on the overhead panel in the cockpit control operation of the fire loops. When both loops are selected ON, each loop must provide either an overheat or a fault signal to the FDC unit to trigger the fire warnings. If only one of the loops senses an overheat, a loop fault signal is generated. Additionally, if a loop failure occurs when a fire warning is active, the fire warning will cease, and a loop fault signal will be indicated. Illumination of the master caution and the respective loop detection light, a left ECAM display of loop fault procedures, and a single chime indicate a loop fault signal. Should this occur, the faulty loop must be manually selected OFF to reactivate the fire warning.

Examination of the fire detection system from the incident airplane revealed extensive fire damage to the No. 1 engine's core wiring harness (loop B), which would have caused the loss of responder signal to the FDC unit. Because both loops were selected ON in the cockpit, the FDC unit would have interpreted the signal loss as a loop fault and consequently disengaged the fire warning and activated the loop fault warning in the cockpit.

A300 3R Door

A spare slide (S/N 0321, weight 60.5 lbs) was installed on door 3R of the incident airplane with its inflation cable disconnected. The outboard edge of the girt was rotated 180 degrees to face the inboard edge of the door sill to simulate the condition of the incident slide. The decorative cover was installed. The door was cycled in the disarmed mode to ensure that the door would open properly. The door was armed and operated by an A300-qualified flight attendant. The slide released from the pack and deployed normally. After the deployment, an examination of the slide showed no detrimental effects to the unit because of the reverse placement of the girt.

The Survival Factors Group reconvened on July 29, 1998, at the AA Maintenance and Engineering Center in Tulsa, Oklahoma, to further investigate the door 3R issue. Mr. Luis Oracca, the passenger who disconnected the girt bar, demonstrated the position of door 3R when he saw it during the incident. Using an A300 3R door, Mr. Oracca demonstrated that the door was open approximately 16 inches outward and 7 inches forward when he arrived at the door.

One of the photographs supplied by Dr. Magda James, a passenger, showed the position of the slide at door 3R during the evacuation and before Mr. Oracca had disengaged the girt bar. Several tests were conducted in an attempt to approximate the position of the slide packet as seen in the picture. It was suggested that the inflation cable of the slide might have caught on the retention clip on the aft side of the decorative cover (Air Cruisers P/N D15220-101). Two tests were performed with the inflation cable intentionally hooked over the retention clip. Neither test reproduced the hang-up seen in the incident photograph. It was noted that the decorative cover on the test airplane had retainer clips located on the inside, bottom area instead of wear strips located halfway up the sides of the decorative cover. A photograph of the incident airplane's 3R decorative cover showed that the retainer clips were also located on the interior lower surface of the decorative cover.

The 3R slide from the incident airplane was used to try to approximate the position of the slide as

National Transportation Safety Board

FACTUAL REPORT

AVIATION

NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident


Narrative (Continued)


seen in the photograph. The packboard was installed on the door and the slide pack was held against the packboard in its stowed position. A decorative cover with the interior retention clips was installed by locking its catch to the top of the packboard. The girt bar was locked into the floor fittings with its sliders. The door was opened slowly and it was discovered that if the red velcro positioner at the lower right inboard edge of the pack was held in place over the aft retention clip, the slide pack's position closely resembled the position seen in Dr. James' photograph. The door was then pushed from the inside and could not be opened fully. This finding matched the descriptions of the door given by the flight attendant and Mr. Oracca, both of whom attempted to open the door during the incident. Finally, the girt bar was released by moving the sliders, and the door was pushed to the locked, open position. The slide hung in a manner similar to that seen in the FAA photos of the airplane being towed. It should be noted that the pack did not actually hang from the clip by the red velcro positioner, but required "very little" finger pressure to keep the positioner in place over the clip.

Airworthiness Directive (AD) 92-10-06, which was effective on July 6, 1992, required compliance with Air Cruisers Company SB 001-25-8 "within 9 months from the effective date of the AD, unless previously accomplished." The AD was applicable to Air Cruisers Company Technical Standard Order-C69 emergency evacuation slide systems (P/Ns D31021-101 and -103, S/Ns 1 through 222) installed on several airplanes, including the A300 B4-600 series. The AD required operators to "remove existing clips from decorative cover" and "install wear strip with rivets on both sides of decorative cover." When this work was accomplished, the SB instructed that P/N 31021-103 be replaced with 31021-107.

ADDITIONAL INFORMATION

The airplane, less components retained for further Safety Board investigation, was released to AA on July 10, 1998. All components retained by the Board for further investigation were subsequently released to AA.

 National Transportation Safety Board FACTUAL REPORT AVIATION		NTSB ID: MIA98IA195			
		Occurrence Date: 07/09/1998			
		Occurrence Type: Incident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation	Runway Used	Runway Length	Runway Width
LUIZ MUNOZ MARIN INT'L	SJU	10 Ft. MSL	8	10002	200
Runway Surface Type: Asphalt					
Runway Surface Condition: Dry					
Type Instrument Approach: NONE					
VFR Approach/Landing: Straight-in					
Aircraft Information					
Aircraft Manufacturer		Model/Series		Serial Number	
Airbus Industrie		A-300B4-605R		465	
Airworthiness Certificate(s): Transport					
Landing Gear Type: Retractable - Tricycle					
Homebuilt Aircraft? No	Number of Seats: 280	Certified Max Gross Wt.	375890 LBS	Number of Engines: 2	
Engine Type:	Engine Manufacturer:	Model/Series:	Rated Power:		
Turbo Fan	GE	CF6-80C2A5	61500 LBS		
- Aircraft Inspection Information					
Type of Last Inspection	Date of Last Inspection	Time Since Last Inspection	Airframe Total Time		
Continuous Airworthiness	05/1998	326 Hours	27845 Hours		
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated?	ELT Aided in Locating Accident Site?			
Owner/Operator Information					
Registered Aircraft Owner		Street Address			
GENERAL ELECTRIC CO.		1 NEUMANN			
		City	State	Zip Code	
		CINCINNATI	OH	45215	
Operator of Aircraft		Street Address			
AMERICAN AIRLINES, INC.		4333 AMON CARTER BLVD.			
		City	State	Zip Code	
		FORT WORTH	TX	76133	
Operator Does Business As:			Operator Designator Code: AALA		
- Type of U.S. Certificate(s) Held:					
Air Carrier Operating Certificate(s): Flag Carrier/Domestic					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 121: Air Carrier					
Type of Flight Operation Conducted: Scheduled; Domestic; Passenger Only					
FACTUAL REPORT - AVIATION					

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA98IA195
	Occurrence Date: 07/09/1998
	Occurrence Type: Incident

First Pilot Information

Name On File	City On File	State On File	Date of Birth On File	Age 53
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Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot	Certificate Number: On File
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Certificate(s): Airline Transport; Flight Engineer

Airplane Rating(s): Multi-engine Land; Single-engine Land

Rotorcraft/Glider/LTA: None

Instrument Rating(s): Airplane

Instructor Rating(s): None

Type Rating/Endorsement for Accident/Incident Aircraft? Yes	Current Biennial Flight Review?
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Medical Cert.: Class 1	Medical Cert. Status: Valid Medical--w/ waivers/lim.	Date of Last Medical Exam: 02/1998
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- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air
						Actual	Simulated			
Total Time	17100	3705								
Pilot In Command(PIC)										
Instructor										
Last 90 Days		130								
Last 30 Days		63								
Last 24 Hours		3								

Seatbelt Used? Yes	Shoulder Harness Used? Yes	Toxicology Performed? No	Second Pilot? Yes
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Flight Plan/Itinerary

Type of Flight Plan Filed: IFR

Departure Point Same as Accident/Incident Location	State	Airport Identifier SJU	Departure Time 1005	Time Zone AST
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Destination MIAMI	State FL	Airport Identifier MIA	
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Type of Clearance: IFR

Type of Airspace: Class D

Weather Information

Source of Briefing: Company

Method of Briefing:

 <p>National Transportation Safety Board FACTUAL REPORT AVIATION</p>	NTSB ID: MIA98IA195
	Occurrence Date: 07/09/1998
	Occurrence Type: Incident

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
SJU	0954	AST	10 Ft. MSL	2 NM	18 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			3700 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: None		0 Ft. AGL	Visibility: 10 SM	Altimeter: 30.00	"Hg
Temperature: 29 °C	Dew Point: 26 °C	Wind Direction: 70		Density Altitude: 1200	Ft.
Wind Speed: 13	Gusts: 20	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): 0 Ft.	Visibility (RVV) 0 SM	Intensity of Precipitation: Unknown			
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information		
Aircraft Damage: Minor	Aircraft Fire: In-flight	Aircraft Explosion: In-flight

Classification: U.S. Registered/U.S. Soil					
- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot				1	1
Second Pilot				1	1
Student Pilot					
Flight Instructor					
Check Pilot					
Flight Engineer					
Cabin Attendants				7	7
Other Crew					
Passengers			28	215	243
- TOTAL ABOARD -			28	224	252
Other Ground	0	0	0		0
- GRAND TOTAL -	0	0	28	224	252

National Transportation Safety Board

FACTUAL REPORT

AVIATION



NTSB ID: MIA98IA195

Occurrence Date: 07/09/1998

Occurrence Type: Incident

Administrative Information

Investigator-In-Charge (IIC)

JEFFREY L. KENNEDY

Additional Persons Participating in This Accident/Incident Investigation:

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FORT WORTH, TX 75261

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