National Transportation Safety Board
Aviation Accident Final Report

Location:	PHILADELPHIA, PA	**Accident Number:**	NYC98LA177
Date & Time:	09/02/1998, 1805 EDT	**Registration:**	N927VJ
Aircraft:	Douglas DC-9-30	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	86 None
Flight Conducted Under:	Part 121: Air Carrier - Scheduled		

Analysis

The DC-9-30 cleared the runway and was taxiing into an alleyway entrance between terminal concourses, when it's left wing struck a fuel truck that was traveling on a service road. The fuel truck, traveling from left to right, came from behind a stopped airplane. The fuel truck was about 150 feet beyond the vehicle stop sign. The airplane's left main landing gear tire left skid marks 47 feet in length on the ramp. The fuel truck driver reported he had stopped at the stop sign prior to crossing the alleyway entrance. The stop sign only required a stop if aircraft were present. In addition, drivers were taught that airplanes had the right of way over vehicles. The fuel truck driver's visibility to the right was restricted by equipment on the truck and the stopped airplane. The pilot's visibility to the left was restricted by the stopped airplane. When the fuel truck appeared from behind the stopped airplane, the fuel truck driver observed the airplane, stopped, and was attempting to back out of the way when he was struck by the airplane.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the failure of the fuel truck driver to follow airport operating procedures, and yield the right-of-way to the airplane. Factors were the stopped airplane, which obscured the fuel truck from the approaching airplane and the approaching airplane from the fuel truck, and the lack of visual aids on the vehicle to help compensate for restricted driver visibility to the right.

Findings

Occurrence #1: ON GROUND/WATER COLLISION WITH OBJECT
Phase of Operation: TAXI - FROM LANDING

Findings
1. (C) AIRPORT OPERATIONS - NOT FOLLOWED - DRIVER OF VEHICLE
2. (F) VISUAL LOOKOUT - RESTRICTED - DRIVER OF VEHICLE
3. (F) VISUAL LOOKOUT - RESTRICTED - PILOT IN COMMAND

Factual Information

On September 2, 1998, about 1805 eastern daylight time, a Douglas DC-9-30, N927VJ, operated by US Airways as flight 1722, struck a refueling vehicle at Philadelphia International Airport, Philadelphia, Pennsylvania. The airplane received substantial damage. In addition, the fuel truck was damaged. There were no injuries to the certificated airline transport captain, co-pilot, 3 flight attendants, 81 passengers and refueling truck driver. Visual meteorological conditions prevailed for the international passenger flight that originated in Ottawa, Ontario, Canada, at 1641. Flight 1722 was operated on an instrument flight rules (IFR) flight plan under 14 CFR Part 121.

Flight 1722 was about 1 hour 20 minutes behind schedule. The airplane landed on runway 27R, and exited the runway to the right at a high speed turnoff, K-4. The airplane continued with a right turn and passed through intersection OSCAR, headed straight toward the alleyway entrance between concourses A and B. Flight 1722 was cleared to change from tower frequency, to ground control, and then to US Airways ramp control. The flight was scheduled to arrive at gate B-8.

In a written statement, the captain stated:

"...I cleared the left side of the aircraft and proceeded toward the gate area. Just prior to entering the alleyway between Concourses A and B, my peripheral vision caught an object to our left. I immediately applied full brakes and immediately felt something contact the aircraft. I notified ramp control. Emergency equipment was called. It was determined that an evacuation was not necessary. There were no injuries to crew or passengers. Ultimately, the passengers were deplaned and transported to the terminal...."

The operator of the refueling truck had recently transferred experienced drivers, including the accident driver, from other airports to increase the work force at Philadelphia. The accident driver first received 2 days of on the job training, which included riding with another driver. He also passed his Philadelphia Airport, vehicle airport operations area test, after which he was released for work. The accident occurred on his third day of work. He reported that he had serviced an airplane on the west side of concourse A. As he approached the alleyway entrance between concourses A and B, he observed a US Airways B737 to his right just outside of the outer service road. He further stated:

"...I proceeded down the roadway [and] stopped before the stop [sign] next to 737. The 737 was to the right of the tanker. I look[ed] around and didn't see anything else coming or going. Seeing that the 737 wasn't going, I proceeded on looking to the left to see if any planes were taxiing out. I look[ed] to the right again, and I saw the DC-9 moving fast toward the tanker. I made a complete stop. When I saw the aircraft wasn't stopping I tried to kick it in reverse, but by the time I put it in reverse the aircraft [had] struck the lift on the right side of the truck."

The investigation revealed that the outer service roadway crossed the alleyway entrance between concourses A and B. Printed on the roadway in white letters was, "STOP FOR AIRCRAFT." According to airport operations personnel, a driver would not be expected to stop if no aircraft were present. Vehicle drivers were instructed that airplanes have the right of way.

Additionally, the investigation revealed that the US Airways B737 parked adjacent to concourse A would have obstructed the fuel truck driver's view of the approaching DC-9, and the flight crew's view of the fuel truck, until the fuel truck had passed from behind the airplane.

Visibility to the right was further restricted for the fuel truck driver by refueling hoses located to the right of the cab.

At the time of the accident, the fuel truck had driven 150 feet ahead of the STOP FOR AIRCRAFT sign. The front wheels of the fuel truck (empty weight 42,000 pounds) were displaced 2 feet laterally to the left. Skid marks were found from the left main landing gear of the DC-9, which measured 47 feet. The ramp was dry.

US Airways submitted calculation which indicated the airplane was traveling at 14.48 knots when the skid was initiated.

The fuel truck was a 10,000 gallon capacity truck, which was carrying about 5,000 gallons of Jet-A at the time of the accident.

Pilot Information

Certificate:	Airline Transport; Commercial	**Age:**	49, Male
Airplane Rating(s):	Multi-engine Land; Single-engine Land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--w/ waivers/lim.	**Last Medical Exam:**	05/18/1998
Occupational Pilot:		**Last Flight Review or Equivalent:**	
Flight Time:	19500 hours (Total, all aircraft), 12400 hours (Total, this make and model)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	Douglas	**Registration:**	N927VJ
Model/Series:	DC-9-30 DC-9-30	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	No
Airworthiness Certificate:	Transport	**Serial Number:**	48154
Landing Gear Type:	Retractable - Tricycle	**Seats:**	106
Date/Type of Last Inspection:	08/28/1998, Continuous Airworthiness	**Certified Max Gross Wt.:**	105000 lbs
Time Since Last Inspection:	40 Hours	**Engines:**	2 Turbo Fan
Airframe Total Time:	40700 Hours	**Engine Manufacturer:**	P&W
ELT:	Not installed	**Engine Model/Series:**	JT8D-9A
Registered Owner:	USAIR	**Rated Power:**	14500 lbs
Operator:	USAIR	**Air Carrier Operating Certificate:**	Flag carrier (121)
Operator Does Business As:		**Operator Designator Code:**	USAA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual Conditions	**Condition of Light:**	Day
Observation Facility, Elevation:	PHL, 10 ft msl	**Observation Time:**	1754 EDT
Distance from Accident Site:	0 Nautical Miles	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Scattered / 3500 ft agl	**Temperature/Dew Point:**	26°C / 19°C
Lowest Ceiling:	Broken / 6000 ft agl	**Visibility**	9 Miles
Wind Speed/Gusts, Direction:	10 knots, 190°	**Visibility (RVR):**	0 ft
Altimeter Setting:	29 inches Hg	**Visibility (RVV):**	0 Miles
Precipitation and Obscuration:			
Departure Point:	OTTAWA, CD (YOW)	**Type of Flight Plan Filed:**	IFR
Destination:	(PHL)	**Type of Clearance:**	None
Departure Time:	1641 EDT	**Type of Airspace:**	

Airport Information

Airport:	PHILADELPHIA INTL ARPT (PHL)	**Runway Surface Type:**	
Airport Elevation:	10 ft	**Runway Surface Condition:**	Dry
Runway Used:	0	**IFR Approach:**	
Runway Length/Width:		**VFR Approach/Landing:**	

Wreckage and Impact Information

Crew Injuries:	5 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	81 None	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	86 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	ROBERT L HANCOCK	**Adopted Date:**	02/11/2000
Additional Participating Persons:	DARRELL MADIA; PHILADELPHIA, PA CAPT. LORI CLINE; PITTSBURGH, PA		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov, or at 800-877-6799. Dockets released after this date are available at http://dms.ntsb.gov/pubdms/.		