Aviation Investigation Final Report

Location:	MIAMI, Florida	**Accident Number:**	MIA99FA038
Date & Time:	December 1, 1998, 04:13 Local	**Registration:**	N621FF
Aircraft:	Boeing 747-259B	**Aircraft Damage:**	Substantial
Defining Event:		**Injuries:**	4 None
Flight Conducted Under:	Part 121: Air carrier - Non-scheduled		

Analysis

The flight was delayed several hours from its originally scheduled departure, because the cargo had not yet been loaded. The first officer and engineer had entered the airplane, and laid down in the bunk beds at the aft end of the upper deck. The captain said he boarded the airplane about 0245, and, '...the cargo loading process was well on its way.' He got busy with determining the fuel load, and other changes in the flight plan. He said, '...suddenly we heard the Ground Crew Call signal...and I was told...the aircraft is on Fire... I ordered my crew to evacuate the aircraft. ' All the flight crew members exited the airplane out the L1, boarding door. An employee of Tower Air, standing on the left side of the airplane, near the nose said he noticed 'sparks' at the lower right hand side of the fuel truck, that was located under the right wing, near the ladder. He could see flames on the lower side of the truck under the right wing. He immediately beeped the flight deck crew who were in the cockpit, and realized they were probably not aware of the urgency, so he decided to run up the stairs and yelled 'Fire.' According to the refueler, he had pumped 6,000 gallons of Jet 'A' into the right wing and was standing on the deck over the pump when he noticed 'white to a light gray' smoke coming from the bottom of the truck's cab, and directly under him. He tried to disconnect the upper deck hoses from the airplane, but before he could he saw flames coming from the same area of the truck. He attempted to put out the fire with a handheld extinguisher, without success. Examination of the fuel truck revealed that there was intense fire damage near the truck's transmission. A hole was found in the fuel line from the pump to the hose, directly above the area of the most intense fire damage. The Metropolitan Dade County Fire Department, report stated, the fire damage on the truck's engine, '...was possibly due to burning jet fuel from fueling operations at the time of the fire...from under the vehicle in the area between the cab and tank...due to severe damage to the area tank/cab, the source of the fuel leak could not be determined.'

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: a fire that started under the fuel truck's cab from an undetermined fuel leak, resulting in fire damage to the airplane.

Findings

Occurrence #1: FIRE
Phase of Operation: STANDING - ENGINE(S) NOT OPERATING

Findings
1. OBJECT - VEHICLE
2. AIRPORT FACILITIES,REFUELING TRUCK/EQUIPMENT - OTHER
3. (C) FLUID,FUEL - LEAK
4. REASON FOR OCCURRENCE UNDETERMINED

Factual Information

HISTORY OF FLIGHT

On December 1, 1998, about 0413 eastern standard time, a Boeing 747-259B, N621FF, registered to Aerousa Inc., and operated by Tower Air Inc, received fire damage to the right wing during refueling at Miami International Airport, Miami, Florida. Visual meteorological conditions prevailed at the time. An IFR flight plan was on file, and canceled for the 14 CFR Part 121 cargo flight. The airplane was substantially damaged. The flightcrew of four, and one refueler on the ground reported no injuries. The airplane was being loaded with cargo at the time, and part of the crew was in the flight deck.

The first officer (FO) stated that the flight was originally scheduled to depart at 0100, "...but upon our arrival, no cargo had yet been loaded, and a delay of several hours was likely." The FO further said, "...both the engineer and I removed our shoes and uniform shirts and laid down in the bunk beds at the aft end of the upper deck. The aircraft APU was running for cooling. The next thing I knew was the engineer shaking me awake and saying we're on fire, get off the aircraft."

The captain said he boarded the airplane about 0245, and, "...the cargo loading process was well on its way and I got busy with determining the fuel load as there was a change and we were scheduled to go directly to GIG [Rio De Janeiro]...I cleared a couple of flight plan items with our dispatch over the phone and devoted my attention to the INS initialization procedure...suddenly we heard the Ground Crew Call signal. I answered the call and I was told: The aircraft is on Fire !!!!!!!! There was a lot of urgency in this call. Based on this information I ordered my crew to evacuate the aircraft. On my way out I pulled the APU Fire Handle, as this seemed to be the only logical conclusion of a fire without any indication of a fire in the cockpit, and placed the Battery Switch to the off position...on my way out, running down the stairs to the ramp, I saw a huge fire under the right wing of the aircraft. There were flames shooting from the fuel truck over the wing between the No. 3 and the No. 4 engines. These flames were so high and wide spread that I firmly believed that the entire airplane and fuel truck were going to explode any second...in my professional judgement it is a miracle that the fuel truck with 40,000 plus pounds and the airplane with 200,000 plus pounds of fuel on board at that time didn't explode...." All the flightcrew members exited the airplane out the L1, boarding door.

According to the refueler, he had pumped 6,000 gallons of Jet "A" into the right wing and was standing on the deck over the pump, when he noticed "white to a light gray" smoke coming from the bottom of the truck's cab, and directly under him. He tried to disconnect the upper deck hoses from the airplane, but before he could, he saw flames coming from the same area of the truck. He jumped off the deck to the ground and attempted to put out the fire with a handheld extinguisher, without success. He then called his dispatcher, and the airport fire

trucks were dispatched and extinguished the fire.

An interview with a Tower Air maintenance technical representative, revealed that he had come on duty at 2300. It was his responsibility to ensure that maintenance was done according to Tower Air's procedures. He stated that everything was okay with the airplane before the fire. He did a walk around the airplane, checked the logbook, checked to see that the two Signature fuel trucks, one under each wing were grounded, and he found that both trucks were grounded. He then went with another ground person and stood on the left side of the airplane, near the nose. He then said that he noticed "sparks" at the lower right hand side of the fuel truck, that was located under the right wing, near the ladder. He quickly ran to the fuel truck on the left of the airplane and told the fueler to stop fueling. The fueler stopped and pulled the truck away. By the time he got back to the nose of the airplane on the left side, he could see flames on the lower side of the truck under the right wing. He immediately beeped the flight deck crew who were in the cockpit by pressing the call switch (ringing bell), located on the nose gear, several times. They beeped back once, he realized they were probably not aware of the urgency, so he decided to run up the stairs and yelled "Fire." When he got back down the stairs the fuel truck and wing were on fire.

The accident occurred during the hours of darkness approximately 25 degrees, 47 minutes north, and 080 degrees, 17 minutes west.

PERSONNEL INFORMATION

Information on the pilot is contained in this report on page 3, under First Pilot Information.

METEOROLOGICAL INFORMATION

Meteorological information is contained in this report on page 3, under Weather Information.

MEDICAL AND PATHOLOGICAL INFORMATION

Toxicological tests were conducted on the refueler, reportedly by his company, and revealed, no ethanol or drugs detected in Blood.

WRECKAGE AND IMPACT INFORMATION

The airplane's damage was concentrated mainly on the right wing. The leading edge of the right wing, between the numbers 3 and 4 engines, was burnt completely through. The leading edge flaps were melted as were numerous panels. The trailing edge flaps between engines 3 and 4, plus the underside skin was burnt. The number 3 engine had a large section of the strut and pylon burned away. The cowling on the number 4 engine was scored and burned. Examination of the fuel truck revealed that there was intense fire damage

near the truck's transmission. A hole was found in the fuel line from the pump to the hose, directly above the area of the most intense fire damage. The truck was burned in the engine, passenger and pump areas. Severe fire damage, to the area between the cab and tank was found. The fuel piping found in this same area, had some severe damage. The fuel meter and other metal parts had been completely consumed by fire and melted. Fire damage to the engine was to the rear and on the top.

ADDITIONAL INFORMATION

The Metropolitan Dade County Fire Department Report, (an attachment to this report) stated the fire department conducted an investigation of the vehicle to determine the cause of the fire. According to the report the fire damage on the truck's engine, "...was possibly due to burning jet fuel from fueling operations at the time of the fire. The truck driver stated that he saw smoke and then fire from under the vehicle in the area between the cab and tank. The fire damage is consistent with the information. Due to severe damage to the area tank/cab, the source of the fuel leak could not be determined."

The airplane was released to Mr. Peter Russo, Director of Safety, Tower Air, on December 3, 1998. Mr. Russo signed the NTSB Form 6120.15, Wreckage Release form on December 18, 1998.

Pilot Information

Certificate:	Airline transport; Commercial	**Age:**	44,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	**Toxicology Performed:**	No
Medical Certification:	Class 1 Valid Medical--no waivers/lim.	**Last FAA Medical Exam:**	September 1, 1998
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	
Flight Time:	11300 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	**Registration:**	N621FF
Model/Series:	747-259B 747-259B	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	21730
Landing Gear Type:	Retractable - Tricycle	**Seats:**	9
Date/Type of Last Inspection:	Unknown	**Certified Max Gross Wt.:**	833000 lbs
Time Since Last Inspection:		**Engines:**	4 Turbo jet
Airframe Total Time:		**Engine Manufacturer:**	P&W
ELT:		**Engine Model/Series:**	JT90-7Q
Registered Owner:	AEROUSA INC.	**Rated Power:**	
Operator:	TOWER AIR	**Operating Certificate(s) Held:**	Flag carrier (121)
Operator Does Business As:	TOWER AIR	**Operator Designator Code:**	TWRA

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Night/dark
Observation Facility, Elevation:	MIA ,11 ft msl	**Distance from Accident Site:**	
Observation Time:	04:56 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Scattered / 7000 ft AGL	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	14 knots / None	**Turbulence Type Forecast/Actual:**	/
Wind Direction:	60°	**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:	30 inches Hg	**Temperature/Dew Point:**	27°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	(MIA)	**Type of Flight Plan Filed:**	IFR
Destination:	VIRACOPOS (VCP)	**Type of Clearance:**	None
Departure Time:	00:00 Local	**Type of Airspace:**	

Airport Information

Airport:	MIAMI INTERNATIONAL MIA	**Runway Surface Type:**	
Airport Elevation:	11 ft msl	**Runway Surface Condition:**	
Runway Used:	0	**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	4 None	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	4 None	**Latitude, Longitude:**	

Administrative Information

Investigator In Charge (IIC):	Yurman, Alan
Additional Participating Persons:	GARY CRANFORD; MIAMI , FL
Original Publish Date:	September 28, 1999
Last Revision Date:	
Investigation Class:	Class
Note:	
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=45400