Aviation Investigation Final Report

Location:	Fort Lauderdale, Florida	**Accident Number:**	DCA16FA013
Date & Time:	October 29, 2015, 12:33 Local	**Registration:**	N251MY
Aircraft:	Boeing 767	**Aircraft Damage:**	Substantial
Defining Event:	Fire/smoke (non-impact)	**Injuries:**	1 Serious, 21 Minor, 79 None
Flight Conducted Under:	Part 121: Air carrier - Scheduled		

Analysis

On October 29, 2015, about 12:33 pm eastern daylight time (EDT), Dynamic International Airways flight 405, a Boeing 767-200ER, N251MY, experienced a fuel leak and subsequent fire while taxiing for departure at the Fort Lauderdale-Hollywood International Airport, Florida (FLL). Of the 101 passengers and crew onboard, one passenger received serious injuries. The airplane sustained substantial damage from the fire. The flight was operating under the provisions of 14 Code of Federal Regulations Part 121 supplemental as a scheduled charter from FLL to Maiquetía Simón Bolívar International Airport (CCS), Caracas, Venezuela.

A significant fuel leak and subsequent fire occurred in the left engine strut and nacelle during taxi, resulting in substantial damage to the airplane. The fuel leak was the result of a fuel line flexible coupling (Wiggins fitting) loosening and becoming disengaged due to the lack of a safety lockwire on the coupling as required by the maintenance manual. The leaking fuel contacted hot engine case surfaces which ignited the fire.

Records indicate that maintenance was conducted on this fitting in October of 2012 at the 4C check prior to the airplane being prepared for storage. The area would also have been subject to a visual inspection when the airplane was brought out of storage in 2015. The same maintenance facility conducted both of these activities. About 240 flight hours were logged between the aircraft returning to service and the accident. The leak occurred after the coupling loosened due to the missing safety wire which was the result of an error by the third-party maintenance provider.

The flight crew promptly shut down the left engine using the fire handle, and requested fire equipment. As the airplane stopped on the taxiway, passengers saw the fire and insisted that the cabin crew initiate an evacuation. One passenger opened an overwing exit on his own, and the slide did not deploy. The cabin crew initiated the evacuation without coordination with the flight crew. After the evacuation had already begun, the flight crew advised over the PA to evacuate out the right side of the airplane. The

flight crew did not immediately shut down the right engine and an evacuating passenger ran behind the engine and was blown to the pavement resulting in serious injuries. The lack of coordination between the flight crew and cabin crew resulted in the evacuation initiating while the right engine was still running.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

the separation of the flexible fuel line coupling and subsequent fuel leak due to the failure of maintenance personnel to install the required safety lockwire. Contributing to the severity of the accident was the initiation of the evacuation before the right engine was shut down which led to the passenger's injury.

Findings

Aircraft	Fuel distribution - Incorrect service/maintenance
Personnel issues	Expectation/assumption - Cabin crew
Personnel issues	Expectation/assumption - Flight crew

Factual Information

History of Flight

Taxi-to runway	Fire/smoke (non-impact) (Defining event)

On October 29, 2015, about 12:33 pm eastern daylight time (EDT), Dynamic International Airways flight 405, a Boeing 767-200ER, N251MY, experienced a fuel leak and subsequent fire while taxiing for departure at the Fort Lauderdale-Hollywood International Airport, Florida (FLL). Of the 101 passengers and crew onboard, one passenger received serious injuries. The airplane sustained substantial damage from the fire. The flight was operating under the provisions of 14 Code of Federal Regulations Part 121 supplemental as a scheduled charter from FLL to Maiquetía Simón Bolívar International Airport (CCS), Caracas, Venezuela.

About 20 minutes prior to pushback, during pre-flight preparation, the crew noted an anomaly with a fuel quantity indication and fuel tank configuration set by mechanics. The airplane pushed back from Gate E9 at 12:28 pm for taxi to Runway 28 right. At 12:32, the crew of another airplane taxiing behind the accident airplane advised ATC that they saw a large amount of fluid leaking from the left engine of the accident airplane. The flight crew heard the transmissions and advised they would need to return to the ramp. ATC instructed the crew to stop on taxiway B just east of taxiway T1. At 12:33, the other flight crew advised that the engine was on fire, and the accident flight crew shut down the left engine using the fire handle and requested fire equipment. At the same time, the CVR recorded sounds consistent with doors opening and a flight attendant on the public address system (PA) calling for evacuation.

According to the flight attendants, passengers witnessed the fire on the left engine, and many moved from the left side to the right side of the cabin while the airplane was still taxiing. Passengers were requesting the crew to open the doors and evacuate. Flight attendants opened the forward left (1L), forward right (1R), and aft right (2R) cabin doors. The slide rafts deployed, although the flight attendant at 2R noted that the slide did not appear to inflate quickly or symmetrically. Flight attendants did not open the aft left door (2L) due to the fire, and because all passengers had moved away from that area. A passenger opened the right side overwing exit, but the ramp/slide did not deploy. Flight attendants directed passengers away from the overwing exit, and out the door exits.

After the evacuation had already begun, the flight crew advised over the PA to evacuate out the right side of the airplane. The number 2 (right) engine was still running as the passengers evacuated out the 2R door. About 11 seconds after the airplane came to a stop, one of the passengers who evacuated through 2R passed behind the engine, where the exhaust caused him to fall to the pavement resulting in serious injuries. About 35 seconds later, the number 2 engine was shut down.

About 54 seconds after the airplane stopped, an airport authority official arrived, and repositioned the 2R slide. About one minute later, airport firefighting vehicles arrived and began extinguishing the fire.

Information

Certificate:	**Age:**
Airplane Rating(s):	**Seat Occupied:**
Other Aircraft Rating(s):	**Restraint Used:**
Instrument Rating(s):	**Second Pilot Present:**
Instructor Rating(s):	**Toxicology Performed:**
Medical Certification:	**Last FAA Medical Exam:**
Occupational Pilot:	**Last Flight Review or Equivalent:**
Flight Time:	

Aircraft and Owner/Operator Information

Aircraft Make:	Boeing	**Registration:**	N251MY
Model/Series:	767 200ER	**Aircraft Category:**	Airplane
Year of Manufacture:		**Amateur Built:**	
Airworthiness Certificate:	Transport	**Serial Number:**	23280
Landing Gear Type:	Retractable - Tricycle	**Seats:**	
Date/Type of Last Inspection:		**Certified Max Gross Wt.:**	
Time Since Last Inspection:		**Engines:**	Turbo fan
Airframe Total Time:		**Engine Manufacturer:**	Pratt & Whitney
ELT:		**Engine Model/Series:**	JT9D-7R4E
Registered Owner:	KMW Leasing LLC	**Rated Power:**	
Operator:	Dynamic International	**Operating Certificate(s) Held:**	Supplemental

The B767 is a twin-engine wide body transport airplane. The accident airplane was equipped with Pratt & Whitney JT9D-7R4E4 engines. The cabin was configured with 18 first class passenger seats, 200 travel-class passenger seats, and 9 retractable flight attendant jumpseats. There were 6 emergency exits, 4 floor-level (door) and 2 overwing exits.

The accident airplane was manufactured in 1986 and initially delivered to another operator. The airplane was owned and operated by several companies both domestically and internationally until it was sold to a leasing company in 2006. In 2012, the airplane was placed in storage until 2015 when it was taken out of storage and prepared for leasing to Dynamic. Maintenance before and after storage was conducted by Kalitta Air LLC in Oscoda, Michigan. The airplane was placed on Dynamic's certificate on September 12, 2015. The airplane had 30,108.26 flight hours with 9,986 flight cycles at the time of the accident.

Post-accident inspection of the cockpit revealed the left engine fire handle was found actuated (pulled

up) and rotated to the bottle 1 discharge position. The right engine fire handle was found in the normal non-actuated position.

During a visual examination of the left engine and strut, a fuel coupling assembly was found separated with the coupling body pushed aft on a main fuel supply line. There were indications of fuel leakage at the flange interface of the fuel supply lines where the coupling had separated including discoloration from fluid pooling in the strut compartments and streaking down the left engine cowling. There was no safety lockwire present on either the body or nut side of the fuel coupling as required in the Boeing aircraft maintenance manual (AMM), and no broken lockwire was recovered in the surrounding strut compartments. A material examination of the fuel supply lines and coupling components verified that the parts met dimensional drawing specifications and were free of defects or damage that would have affected normal operation.

A Boeing Service Letter recommending replacement of fuel line flexible coupling (Wiggins coupling) retainer components was issued on March 14, 2000. Maintenance records of the accident airplane indicate the last time this service was performed was by Kalitta Air LLC on October 12, 2012 just prior to going into storage in Arizona.

Additionally, the strut fuel feed line components, while not specifically called out, could be looked at during a Zonal Inspection (General Visual) of the area during a 1C interval. The last Zonal Inspection was accomplished May 5, 2015, by Kalitta Air LLC.

The airplane accumulated about 240 flight hours between the fuel line coupling service and the accident.

After the accident, Dynamic International Airways issued a Fleet Campaign Directive to inspect the remainder of their aircraft to ensure proper installation of the fuel line coupling assemblies. No other instances of improper installation were found.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:		**Distance from Accident Site:**	
Observation Time:		**Direction from Accident Site:**	
Lowest Cloud Condition:		**Visibility**	
Lowest Ceiling:		**Visibility (RVR):**	
Wind Speed/Gusts:	/	**Turbulence Type Forecast/Actual:**	/
Wind Direction:		**Turbulence Severity Forecast/Actual:**	/
Altimeter Setting:		**Temperature/Dew Point:**	
Precipitation and Obscuration:			
Departure Point:	Fort Lauderdale, FL (FLL)	**Type of Flight Plan Filed:**	IFR
Destination:	Caracas (CCS)	**Type of Clearance:**	IFR
Departure Time:		**Type of Airspace:**	

Airport Information

Airport:	FORT LAUDERDALE/HOLLYWOOD INTL FLL	**Runway Surface Type:**	
Airport Elevation:	64 ft msl	**Runway Surface Condition:**	Unknown
Runway Used:		**IFR Approach:**	None
Runway Length/Width:		**VFR Approach/Landing:**	None

Wreckage and Impact Information

Crew Injuries:	1 Minor, 10 None	**Aircraft Damage:**	Substantial
Passenger Injuries:	1 Serious, 20 Minor, 69 None	**Aircraft Fire:**	On-ground
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Serious, 21 Minor, 79 None	**Latitude, Longitude:**	26.074722,-80.146667

Injuries to Persons

One of the passengers that evacuated from the 2R door ran behind the still-operating number 2 engine and was blown to the ground, receiving serious injuries. 21 other passengers received minor injuries during the evacuation.

Damage to Aircraft

The left engine strut and nacelle, left wing including control surfaces, left main gear, and portions of the left side of the fuselage were substantially damaged by fire.

Communications

The "A" flight attendant activated the emergency signaling system located on a panel above the jumpseat to notify the flight deck and other crewmembers of an emergency. The chime was audible in the CVR recording, but the flight crew did not respond via interphone. There was no indication on the CVR of an evacuation checklist or communication between the cabin and flight deck.

Flight recorders

The flight data recorder was an Allied Signal Universal Flight Data Recorder (UFDR) which records airplane flight information in a binary format, using analog signals, onto eight tracks of 1/4-inch Mylar tape. The FDR was examined upon receipt and was found to be in good condition. Upon removal, the magnetic tape was found to be undamaged. The data were transcribed from the tape medium to computer hard drive for analysis using the NTSB's laboratory equipment. The accident flight was located during the transcription.

The cockpit voice recorder (CVR) was an L-3/Fairchild FA2100-1020 which recorded a minimum of 120 minutes of digital audio stored on solid state memory modules. The audio information was extracted from the recorder normally, without difficulty. The NTSB CVR laboratory compiled a summary of the events recorded. Significant items are included in the History of Flight.

Fire

The flight data recorder (FDR) included an engine exhaust gas temperature (EGT) parameter. The highest recorded value during taxi was 452°C (845.6°F). The heat transfer from the exhaust gas through the exhaust nozzle exterior surface would have resulted in temperatures high enough for a hot surface ignition source to be available to ignite the fuel originating from the engine strut leak.

Tests and Research

The right over-wing exit was opened by a passenger, but the slide did not deploy. Testing at the manufacturer revealed a misalignment in the pull-force increase mechanism created a binding in the firing cable.

Administrative Information

Investigator In Charge (IIC):	English, William
Additional Participating Persons:	
Original Publish Date:	June 8, 2020
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92257