National Transportation Safety Board
Washington, DC 20594

Brief of Incident

Adopted 09/26/2008

OPS08IA007A

File No. 24237 | 07/02/2008 | Seattle, WA | Aircraft Reg No. N339AT | Time (Local): 22:36 PDT

Make/Model:	Boeing / 737-700
Engine Make/Model:	
Aircraft Damage:	None
Number of Engines:	2
Operating Certificate(s):	Flag Carrier/Domestic
Name of Carrier:	AirTran Holdings, Inc.
Type of Flight Operation:	Scheduled; Domestic; Passenger Only
Reg. Flight Conducted Under:	Part 121: Air Carrier

	Fatal	Serious	Minor/None
Crew	0	0	5
Pass	0	0	120

Last Depart. Point:	Baltimore, MD
Destination:	Same as Accident/Incident Location
Airport Proximity:	On Airport/Airstrip
Airport Name:	SEATTLE-TACOMA INTL
Runway Identification:	34C
Runway Length/Width (Ft):	9426 / 150
Runway Surface:	Concrete
Runway Surface Condition:	Dry

Condition of Light:	Night
Weather Info Src:	Weather Observation Facility
Basic Weather:	Visual Conditions
Lowest Ceiling:	20000 Ft. AGL, Broken
Visibility:	10.00 SM
Wind Dir/Speed:	200 / 004 Kts
Temperature (°C):	23
Precip/Obscuration:	No Obscuration; No Precipitation

Pilot-in-Command Age: 55

Certificate(s)/Rating(s)

Airline Transport; Commercial; Multi-engine Land; Single-engine Land

Instrument Rating

Flight Time (Hours)

Total All Aircraft:	17500
Last 90 Days:	Unk/Nr
Total Make/Model:	7000
Total Instrument Time:	UnK/Nr

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Brief of Incident

Adopted 09/26/2008

OPS08IA007B

File No. 24237 | 07/02/2008 | Seattle, WA | Aircraft Reg No. N857NW | Time (Local): 22:36 PDT

Make/Model:	Airbus Industrie / A330-200
Engine Make/Model:	
Aircraft Damage:	None
Number of Engines:	2
Operating Certificate(s):	Flag Carrier/Domestic
Name of Carrier:	NORTHWEST AIRLINES INC
Type of Flight Operation:	Scheduled; International; Passenger Only
Reg. Flight Conducted Under:	Part 121: Air Carrier

	Fatal	Serious	Minor/None
Crew	0	0	12
Pass	0	0	177

Last Depart. Point:	Same as Accident/Incident Location
Destination:	LONDON LHR
Airport Proximity:	On Airport/Airstrip
Airport Name:	SEATTLE-TACOMA INTL
Runway Identification:	34R
Runway Length/Width (Ft):	11901 / 150
Runway Surface:	Asphalt
Runway Surface Condition:	Dry

Condition of Light:	Night
Weather Info Src:	Weather Observation Facility
Basic Weather:	Visual Conditions
Lowest Ceiling:	20000 Ft. AGL, Broken
Visibility:	10.00 SM
Wind Dir/Speed:	200 / 004 Kts
Temperature (°C):	23
Precip/Obscuration:	No Obscuration; No Precipitation

Pilot-in-Command Age:

Certificate(s)/Rating(s)
Airline Transport; Commercial

Instrument Rating

Flight Time (Hours)

Total All Aircraft:	Unk/Nr
Last 90 Days:	Unk/Nr
Total Make/Model:	Unk/Nr
Total Instrument Time:	UnK/Nr

OPS08IA007A

On July 2, 2008, at 2236 Pacific daylight time, a runway incursion occurred involving Air Tran Airways, Inc. (TRS) Citrus flight 227, a Boeing 737-700 (N339AT), and Northwest Airlines (NWA) flight 106, an Airbus 330-200 (N857NW) at the Seattle-Tacoma International Airport (SEA), Seattle, Washington. The SEA tower controller cleared the A330 for takeoff and over flew the B737 that had taxied onto the runway after landing on a parallel runway. Both airplanes were scheduled passenger flights under 14 Code of Federal Regulations Part 121 and both had filed instrument flight rules flight plans. There were no injuries to the occupants and no reported damage to either airplane. Night visual meteorological conditions prevailed at the time of the incident. Data indicated the aircraft missed colliding by 425 feet vertically.

A review of the recorded air traffic control voice communication indicated that at 2235:39, NWA106 was cleared for takeoff on runway 34R. At 2235:53, the SEA air traffic control tower (ATCT) local controller instructed the pilots of the B737 to exit runway 34C via the high-speed taxiway F, hold short of runway 34R, and remain on tower's frequency. The captain of the B737, who was the Pilot Not Flying, acknowledged. A review of the Airport Surface Detection Equipment, Model X (ASDE-X) replay of the event revealed that NWA106 began its takeoff roll just prior to TRS227 exiting runway 34R.

At 2236:13, the tower controller asked the pilots of TRS227 to verify their hold short clearance, and the first officer acknowledged. About 18 seconds later, the local controller received an aural and visual alert from the ASDE-X stating, "Warning, Runway 3-4-Right, Occupied" was generated on the controller's display and the corresponding alert text "RWY 34R | NWA106 TRS227 | RWY OCCUPIED" was displayed when TRS227 crossed the taxiway hold short lines, and proceeded across the runway edge line onto runway 34R. NWA106 became airborne between taxiways M and N and over flew TRS227.

When the ASDE-X alert occurred, the B737 was moving at 21 feet per second (12.4 knots) and was approximately 130 feet from the edge of runway 34R. The A330 was approaching taxiway L about 6,700 feet down the runway and traveling 262 feet per second (155 knots). The exact altitude of the A330 when the alert initiated could not be determined from the aircraft's Mode-C transponder data. However, when the A330 over flew the B737 at the taxiway F intersection, Mode-C data indicated it was 425 feet from the runway surface.

After the event, both flight crew members of the B737 stated that they looked for but could not see the taxiway F hold short markings or lights (which are located 932 feet beyond the runway 34C right runway edge markings and 252 feet short of the runway 34R runway edge markings). The first officer stated that the brightness of the green taxiway centerline lights and a developing haze obscured his view of the taxiway markings, lighting, and signage. The captain stated that he expected the hold short lines would be perpendicular to runway 34R. The examination of SEA airport diagram prepared, by Jeppesen, revealed that the locations of runway hold short lines were not shown.

The first officer (FO) was the flying pilot during the landing and stated that he began to exit runway 34C using rudder pedal steering. Flight data recorder (FDR) data showed that the

aircraft's speed at that time was about 50 knots. After the captain acknowledged the hold short clearance, he took control of the airplane and called for the "After Landing" checklist. This required the FO to direct his attention inside the cockpit to complete the checklist items. As he slowed the airplane, the captain looked down at his airport diagram. The FO acknowledged the second hold short clearance. The crew then shut down the right engine. FDR data indicate 40 seconds elapsed from touchdown (weight on wheels) to right engine shutdown. The captain stated that he had made an idle reverse thrust landing, which was in accordance with company policy for the purpose of fuel savings.

During the visual approach to runway 34C, the FO would have had a clear view of runway 34R, but he stated that he was not aware of another airplane on runway 34R and missed the content of a tower radio transmission because he was concentrating on flying the airplane. The captain remembered hearing the NWA flight's call sign on the radio when he was on short final to runway 34C but he did not think it was a significant transmission. He did not recall hearing the SEA ATCT controller clear NWA106 for takeoff.

PERSONNEL INFORMATION

The captain of Air Tran flight 227 was a 55-year-old airline transport pilot with 17,500 total flight hours, including 12,000 hours as pilot in command (PIC) and 7,000 hours in the B737. He was type rated in the B737 and three other airplane types. He had flown 24 hours in the last 7 days and 70 hours in the last 30 days. His duty days and work cycles had been normal and he stated that fatigue did not contribute to the incident.

The first officer of Air Tran flight 227 was a 39-year-old airline transport pilot with 7,300 total flight hours, including 5,300 hours as PIC, and 1,100 hours on the B737. He was type rated in two other airplane types. He had flown 21 hours in the last 7 days and 83 hours in the last 30 days. He stated that he felt completely normal and alert at the time of the incident. He had flown with the captain before and believed that their crew coordination was good and that the captain was meticulous.

In post incident statements, the pilots of NWA flight 106 reported that they were not aware of the other aircraft or that any runway incursion had taken place.

METEOROLOGICAL INFORMATION

An automated surface observation system (ASOS) provided the official weather observation at the airport. The reported weather 53 minutes prior to incident was:

SEA routine weather report, 2143 PDT (0453 UTC), wind 200 degrees at 4 knots, visibility 10 statute miles, scattered clouds at 12,000 feet [above ground level (AGL)], ceiling broken 20,000 feet [AGL], temperature 23 degrees Celsius, dew point 16 degrees C, altimeter setting 29.87 inches of mercury. Lightning was observed distant east through south.

WRECKAGE AND IMPACT INFORMATION

There was no damage reported to either aircraft.

ADDITIONAL INFORMATION

Airport information:

SEA, which is located 10 statute miles south of Seattle, Washington, serves commercial and air taxi aircraft. The airport field elevation was 433 feet mean sea level. The annual air activity averages 347,000 operations per year. The airport is a hub for Alaska and Horizon Airlines and is an international gateway for NWA. The airport is configured with two parallel north-south runways with two full-length parallel taxiways and another parallel runway under construction. Runway 16 left (16L)/34R is 11,901 feet long by 150 feet wide, asphalt/grooved in good condition. Runway 16 center (16C)/34C is 9,426 feet by 150 feet, concrete/grooved in good condition. Runways 16L/16C are Category III and runways 34C/34R are Category II certified runways, and surface guidance movement and control system lights and markings are installed.

The airport authority records indicate that taxiway F has enhanced hold short lines that were 252 feet from runway 34R left runway edge markings. At the time of the incident, the taxiway F enhanced hold short line had both in-pavement and elevated runway guard lights, as well as taxiway centerline lights, which were operating on step one, the lowest setting. About 10 minutes after the incident, the tower requested and received verification that all lights, signage, and markings for taxiway F and runway 34R areas were present and operational. The verifying SEA airport operation supervisor also indicated that both the runways and taxiway F were dry.

SEA ATCT information

At the time of the incident, SEA ATCT was an air traffic control level 9 facility providing ATC services within 4.3 nautical miles of Seattle, Washington. The facility was equipped with an ASDE-X.

The National Transportation Safety Board determines the probable cause(s) of this incident as follows.

The flight crew's diverted attention during taxi. Contributing to the incident was the air traffic control clearance was not followed.