



Aviation Investigation Final Report

Location:	Honolulu, Hawaii	Incident Number:	DCA23LA133
Date & Time:	January 23, 2023, 16:10 Local	Registration:	N774UA (A1); N145KA (A2)
Aircraft:	Boeing 777-222 (A1); Cessna 208B (A2)	Aircraft Damage:	None (A1); None (A2)
Defining Event:	Runway incursion veh/AC/person	Injuries:	301 None (A1); 2 None (A2)
Flight Conducted Under:	Part 121: Air carrier - Scheduled (A1); Part 135: Air taxi & commuter - Non-scheduled (A2)		

Analysis

This incident occurred when United Airlines (UAL) flight 384, a Boeing 777, landed on runway 4R at Daniel K. Inouye International Airport (HNL), Honolulu, Hawaii, and subsequently crossed runway 4L as a Kamaka Air (KMK145) Cessna 208B was landing on runway 4L, resulting in a runway incursion. KMK145 turned left onto taxiway E, which was before taxiway K and the closest distance between the two airplanes was 1,173 ft.

According to postincident flight crewmember statements, the UAL first officer was the pilot flying and landed the airplane on runway 4R. Subsequently, there was a transfer of aircraft control to the captain, as they had briefed during the approach. In his statement, the captain indicated that after taking control of the airplane, he asked the first officer to notify the tower that they were turning onto “K”. However, before the first officer could notify the tower of their exit plan, the controller contacted UAL and asked the flight crew, “have you got [taxiway] Kilo?”.

The first officer responded, “turn left on Kilo.” The controller then instructed the UAL flight crew to hold-short of runway 4L (which was parallel to runway 4R) on taxiway K, and the first officer acknowledged the hold-short instruction. However, by the time the captain realized the airplane had passed the hold-short line, they were already crossing runway 8L, which intersected runways 4R and 4L, see figure 1.

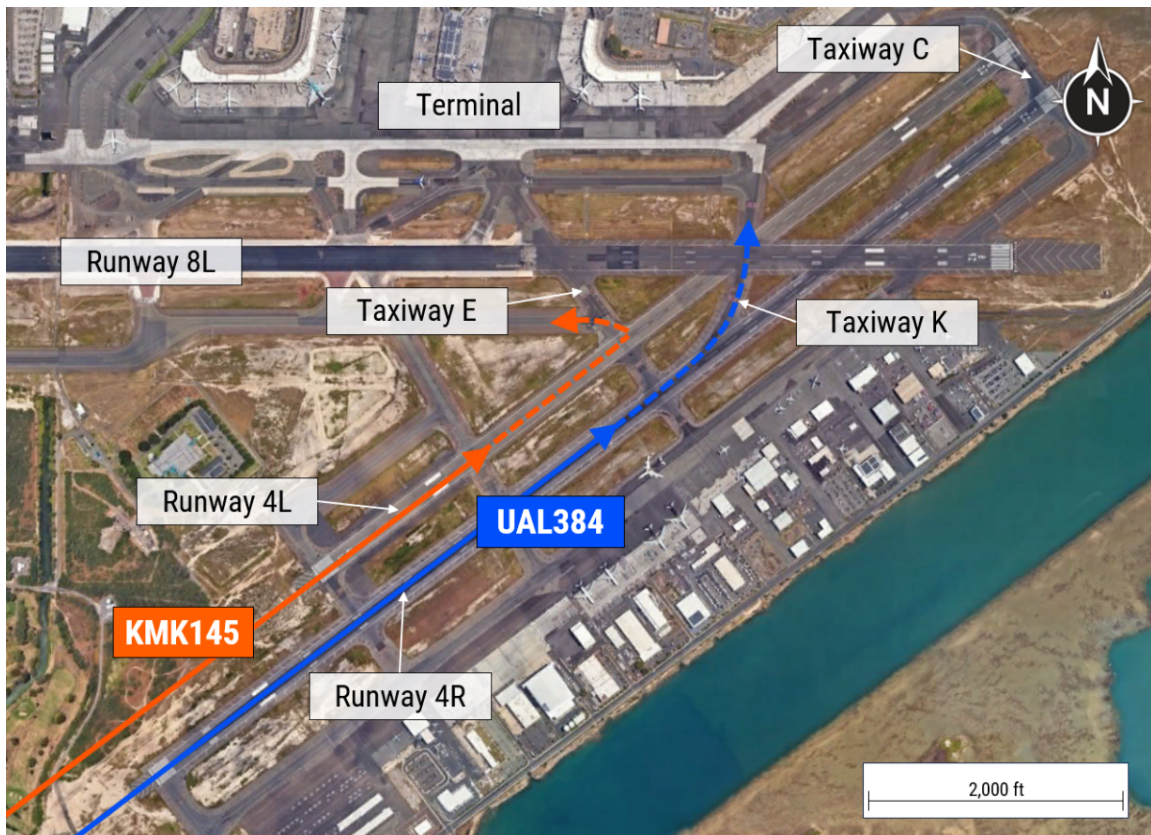


Figure 1. Overhead view showing HNL airport. The blue line shows UAL384’s ground track and the orange line shows KMK145’s ground track.

According to the captain’s postincident statement, he was “startled by how quickly” the airplane reached runways 4L and 8L after exiting runway 4R. The captain also thought there would not be “enough room” for the airplane to “be fully clear of” runway 4R and “still hold-short of” runway 4L. Similar to the captain, the first officer “found it confusing that there was no way to be clear of 4R without being on 8L/4L.”

The hold-short line for runway 4L was located less than 200 ft from the edge of runway 4R at the widest point (the west side of the hold-short line to the runway 4R centerline), which would not have accommodated a Boeing 777 airplane clearing the active landing runway. According to the post incident interview with the local controller, controllers were aware that airplanes may still be on runway 4R when they must hold short of runways 4L and 8L on taxiway K and to account for this the controllers increase the spacing between approaching aircraft for runway 4R.

The area in which runways 4L, 4R, and 8L and taxiway K converge was designated as a runway incursion hot spot because aircraft landing on runway 4R and exiting left onto taxiway K “sometimes fail to hold short” of runways 4L and 8L. According to the Federal Aviation Administration (FAA), the hot spot area, which was considered to be a “legacy complex airfield layout,” did not conform with current airport design standards. The FAA stated that it intended

to “continue to work with airport operators to bring non-standard geometry into compliance with future airport development opportunities, wherever possible.” Even though the captain stated he lost situational awareness after the airplane entered taxiway K, the nonconformance of the area in which runways 4L, 4R, and 8L and taxiway K converge contributed to his misjudgment of the distance to the hold-short line and his failure to stop the airplane.

The captain also stated they were busy setting up for the new approach and he failed to open the hot spot (HS2) note and read that “aircraft landing on runway 4R and exiting left onto taxiway K sometimes fail to hold short of runway 4L/22R and runway 8L/26R”. He also indicated that the first officer mentioned this HS2 note during the approach briefing but it didn’t register with him. He stated that his expectation bias was that they would probably be too fast to exit at taxiway K and that they would most likely roll to the end and exit at taxiway C.

Additionally, both flight crewmembers stated that, unlike the Jeppesen 10-9 chart, there was not a ball note in the airport moving map (AMM) stating, “Wide body and four engine turbojets landing runway 4R roll to end of runway, no left turn at taxiway K without tower approval” located on the AMM version of the airport diagram and that the AMM was used for the briefing and flying/taxiing of the airplane. If the ball note had been in the AMM, it likely would have raised the crew’s awareness of their susceptibility to the risk and likely affected their decision to use taxiway “K”.

The local controller had cleared KMK145 to land on runway 4L and therefore was aware he was required to hold UAL384 short of runway 4L on taxiway K. This inadvertently set the stage for the runway incursion. Had the local controller instead cleared UAL384 to continue their landing rollout to the end of runway 4R, the incursion likely would have been prevented.

The investigation of this incident found that the local controller provided an incorrect instruction to the KMK pilot by stating that the airplane should turn “right” at taxiway E and cross “runway 4R.” The controller most likely made that transmission about the same time that he recognized that the UAL airplane had not stopped at the hold-short line, as instructed. The controller realized his mistake and immediately provided the correct instruction to the KMK pilot, which was to turn left on taxiway E and hold short of runway 8L, and the pilot acknowledged those instructions. The controller’s incorrect transmission was not a factor in this incident because the KMK and UAL airplanes were no longer in danger of a collision at that point.

Probable Cause and Findings

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

The airport’s continued use of taxiway Kilo, despite an identified risk of pilots repeatedly failing to stop at a hold short line prior to two intersecting runways. Contributing were 1) the operator’s moving map display, which omitted a published restriction on the use of taxiway Kilo for

widebody airplanes, 2) the Captain's resulting inadvertent continuance through the hold-short line, and 3) the FAA's delayed action to remediate the airport's legacy design, which did not conform with current airport design standards.

Findings

Organizational issues (A1)	(general) - Airport
Personnel issues (A1)	Lack of action - Pilot
Personnel issues (A1)	(general) - Pilot
Personnel issues (A1)	Delayed action - ATC personnel
Personnel issues (A2)	(general) - Pilot of other aircraft

Factual Information

History of Flight

Taxi-from runway (A1)	Runway incursion veh/AC/person (Defining event)
Landing (A2)	Runway incursion veh/AC/person

On January 23, 2023, about 1610 Hawaii standard time (HST), United Airlines flight 384 (UAL384), a Boeing 777-200, and Kamaka Air flight 145 (KMK145), a Cessna 208B, were involved in a runway incursion at Daniel K. Inouye International Airport (HNL), Honolulu, Hawaii. After landing on runway 4R, UAL384 crossed runway 4L as KMK145 was landing on the same runway; the closest distance between the two airplanes was 1,173 ft. None of the airplane occupants (10 crewmembers and 291 passengers aboard UAL384 and 2 flight crewmembers aboard KMK145) were injured, and neither airplane was damaged. UAL384 was a regularly scheduled domestic passenger flight operating under the provisions of Title 14 *Code of Federal Regulations* (CFR) Part 121 from Denver International Airport (DEN), Denver, Colorado, to HNL. KMK145 was a domestic cargo flight operating under the provisions of Title 14 CFR Part 135 from Lihue Airport (LIH), Lihue, Hawaii, to HNL. Daytime visual meteorological conditions prevailed at the time of the incident.

According to flight data recorder (FDR) data, UAL384 departed DEN about 0939 (1239 mountain standard time). The taxi, takeoff, departure, cruise, and descent phases of flight were uneventful. The first officer was the pilot flying, and the captain was the pilot monitoring. KMK145 departed LIH at 1530:46 with a pilot flying and pilot/loader aboard.

According to postincident flight crewmember statements, before UAL384 began its descent into HNL, the first officer briefed the MAGGI3 arrival with the BITTA transition and briefed the RNAV (GPS) approach to runway 8R. The first officer obtained the automatic terminal information service (ATIS), gate assignment, and landing data via the aircraft communications addressing and reporting system (ACARS) for runways 4R and 8R. ATIS indicated that instrument and visual approaches were available for runways 4R and 8R and stated "LAHSO [land and hold-short operation] runways hold-short of 8L" and "[pilots] advise if unable."

The first officer then set up for the planned arrival and approach into HNL. After receiving the ATIS, the crewmembers reviewed the company notes for the airport, NOTAMs, arrival, landing, and taxi diagrams. Both crew members noted that there was construction on runway 8L making it unavailable to landing traffic. Additionally, the company notes for HNL indicated that B-777 airplanes were not allowed to perform land and hold-short operations (LAHSO) when landing on runway 4R.

Using information from the airport moving map (AMM), as allowed by UAL procedures, they also briefed their anticipated taxi route to the gate for landing runway 8R. Additionally, in case they were given runway 4R, they briefed the anticipated taxi plan which included possibly exiting at taxiway "K" or exiting at the end of the runway on taxiway "C." Furthermore, in her postincident statement, the first officer indicated that she briefed the published hot spot, referred to as HS2, (see figure 2) located at taxiway "K" in case they were given runway 4R for landing.

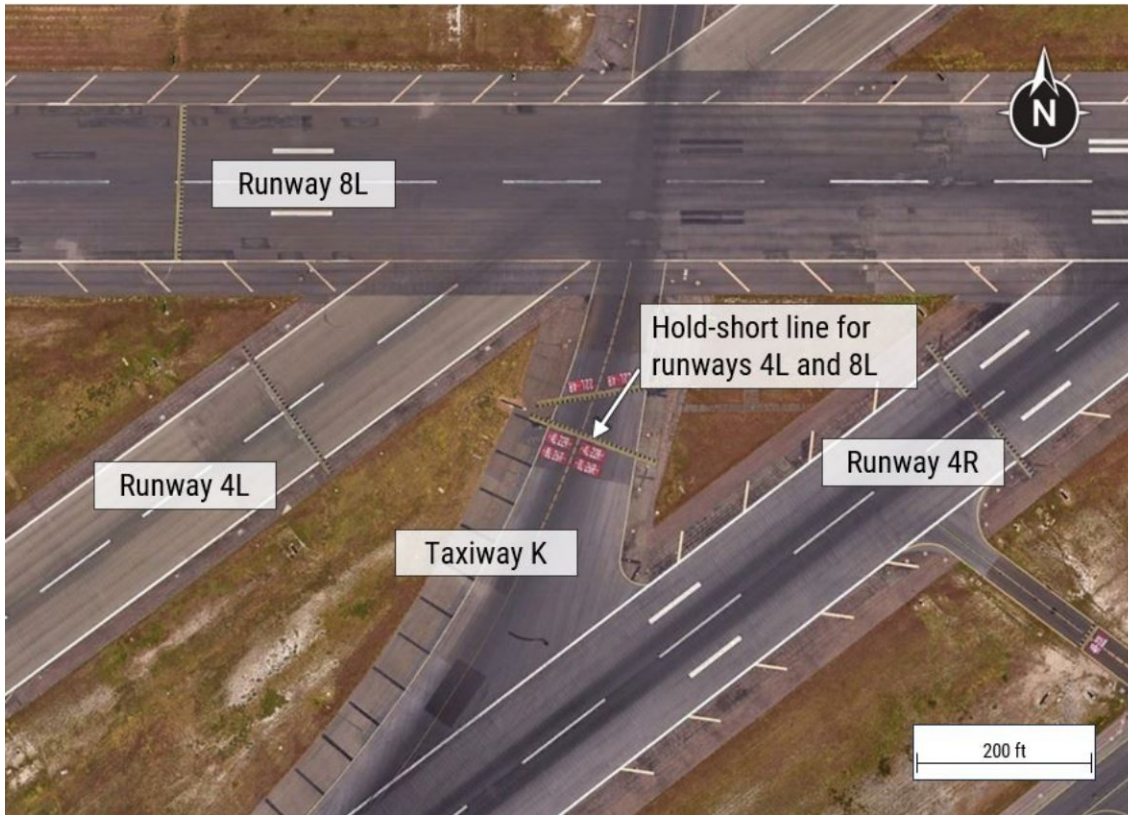


Figure 2. HS2 hot spot area involving taxiway K and surrounding runways. The arrow points to the hold-short line for runways 4L and 8L.

This hot spot was depicted on the first officer's airport moving map (AMM) display, which was part of her electronic flight bag. The Jeppesen navigation chart for HNL (dated October 28, 2022) indicated that HS2 was considered to be a hot spot because aircraft landing on runway 4R and exiting left onto taxiway K "sometimes fail to hold short" of runways 4L/22R and 8L/26R.

The first officer further briefed that they planned to land on runway 8R with flaps 25 and an autobrake setting of 2; however, if air traffic control (ATC) assigned them runway 4R they would then land with flaps 30 and an autobrake setting of 3. After the briefing was complete, the flight crew accomplished the descent checklist.

According to air traffic control (ATC) voice recordings, at 15:54:40, the captain contacted the Hawaii Control Facility H sector approach controller. At that time, the airplane was descending through an altitude of 14,000 ft mean sea level. The approach controller provided instructions,

and subsequently a clearance, for a visual approach to runway 4R at HNL. The captain notified the approach controller that they would be unable to conduct a LAHSO in which the airplane would land on runway 4R and hold short of intersecting runway 8L. In their postincident statements, the flight crew members indicated that the first officer then briefed their approach and plan to land. The exit plan from runway 4R would be either "rolling to the end" or making a left turn onto taxiway K (the latter of which depended on the airplane decelerating as expected on the runway).

In his postincident statement, the captain stated that they were busy setting up for the new approach and he failed to open the hot spot note and read "Aircraft landing runway 4R and exiting left onto taxiway K sometimes fail to hold short of runway 4L/22R and runway 8L/26R". He also indicated that the first officer mentioned the hot spot note during the approach briefing but that it didn't register with him. He stated that his expectation bias was that they would probably be too fast to exit at taxiway K and that they would most likely roll to the end and exit at taxiway C.

According to their crew statements and follow-up answers, "neither pilot left the AMM" and were using the AMM version of the airport diagram and not the chart version of the Jeppesen 10-9. For a pilot to read the textual information from an associated hot spot in the AMM, they would have to touch the electronic flight bag screen on the hot spot, and it would expand the area and provide the textual depiction of the associated hot spot. The information on the AMM for HS2 did not have the following additional note, which is present in the Jeppesen 10-9: "Wide body and four engine turbojets landing runway 4R roll to end of runway, no left turn at taxiway K without tower approval."

At 1606:12, the captain contacted the HNL air traffic control tower and reported the airplane's altitude (1,500 ft) and the expected landing runway (4R). The local controller provided the UAL384 flight crew with wind information and cleared the airplane to land on runway 4R.

ATC provided the KMK145 pilot with vectors for runway 4L, and the pilot acknowledged that information. At 1606:27, the KMK145 pilot contacted the local controller and reported that the airplane was descending to 1,500 ft for a landing on runway 4L. The local controller instructed the KMK145 pilot to continue to runway 4L and informed the crew about traffic (the UAL384 Boeing 777) that would be landing on runway 4R. The pilot responded that the traffic was in sight. The controller then instructed the KMK145 pilot to maintain visual separation from the Boeing 777 and cleared the KMK145 airplane to land on runway 4L. The pilot acknowledged these instructions.

During a postincident interview, the pilot of KMK145 reported that, as the airplane entered the left downwind leg for the visual approach to runway 4L, he maintained visual contact with the UAL384 airplane and expected to exit runway 4L at taxiway E. The pilot also reported that the KMK145 airplane's approach speed was about 90 knots, which was "normal" for the approach.

At 1608:57, the local controller advised UAL384 that a Cessna Caravan was to the left and downwind of their airplane's position and that the Caravan crew would maintain visual

separation. The UAL384 captain acknowledged this instruction and asked for confirmation that the airplane was cleared to land runway 4R. The controller confirmed the landing clearance for runway 4R.

According to FDR data, UAL384 landed on runway 4R at 1609:16. The first officer activated the thrust reversers and began manual braking when the airplane's speed had decreased to about 110 knots. As the airplane continued to decelerate, the first officer stowed the thrust reversers at about 80 knots. At that time, the first officer transferred control of the airplane to the captain as briefed. The captain stated that the transfer of airplane control occurred before taxiway K.

The captain asked the first officer to let the tower know they were turning onto "K". However, at 1609:37, the controller asked the flight crew, "have you got [taxiway] Kilo?" before the first officer could contact the tower. The first officer responded, "turn left on Kilo." About 1609:39, FDR data showed that the airplane's groundspeed when they exited onto taxiway K was about 46 knots. At that time, the KMK145 airplane was on short final approach to runway 4L.

The controller then instructed (at 1609:42) the UAL384 flight crew to hold-short of runway 4L on taxiway K, and the first officer acknowledged the hold-short instruction. At 1609:49, FDR data showed that the UAL384 airplane was traveling at a groundspeed of about 24 knots and was already on taxiway K and about 100 ft away from the hold-short line for runway 4L. In a postincident statement, the UAL384 captain reported that he was "surprised" by the hold-short instruction. (As previously stated, the airplane was precluded by company procedures from landing on runway 4R and holding short of runway 8L.)

The UAL384 airplane subsequently crossed runway 4L without stopping at the hold-short line on taxiway K. At 1609:57, ATC instructed the KMK145 airplane to hold short of runway 8L, and the pilot acknowledged the instruction. At that time, the UAL384 airplane was still on taxiway K past the hold-short line markings. At 1610:10, the controller instructed UAL384 to continue to cross runway 8L and contact ground control.

At 1610:21, the local controller instructed the KMK145 pilot to turn "right" onto taxiway E and cross "runway 4R." The pilot questioned the instruction to turn right at the taxiway, and the controller then advised the pilot to turn left on taxiway E and hold-short of runway 8L, and the pilot acknowledged those instructions.

UAL384 contacted ground control at 1610:41 and stated that the airplane was clear of runway 4L at taxiway K (which meant that the airplane was also clear of runway 8L). The ground controller instructed the crew to taxi the airplane to the assigned gate via taxiways K and Z.

Between 1615:23 and 1616:20, the ground controller and the KMK145 pilot communicated regarding taxi instructions to the airplane's assigned gate. Figure 3 shows the ground tracks of UAL384 and KMK145 along with the runway and taxiway environment.



Figure 3. Ground tracks for UAL384 and KMK145 in relation to runways 4L, 4R, and 8L and taxiways E and K.

In his postincident statement, the captain of UAL384 reported that he “lost situational awareness” as the airplane exited runway 4R. He thought that “there was more distance between the runways [4R and 4L] than there actually was.” The captain was concerned about clearing runway 4R and the hold-short line at taxiway K. The captain added that “there doesn’t appear to be enough room” for a 210-ft-long Boeing 777 airplane to “be fully clear of” runway 4R and “still hold short of” runway 4L. Figure 4 shows the airplane’s position when it was 100 ft from the hold-short line (at 1609:47).

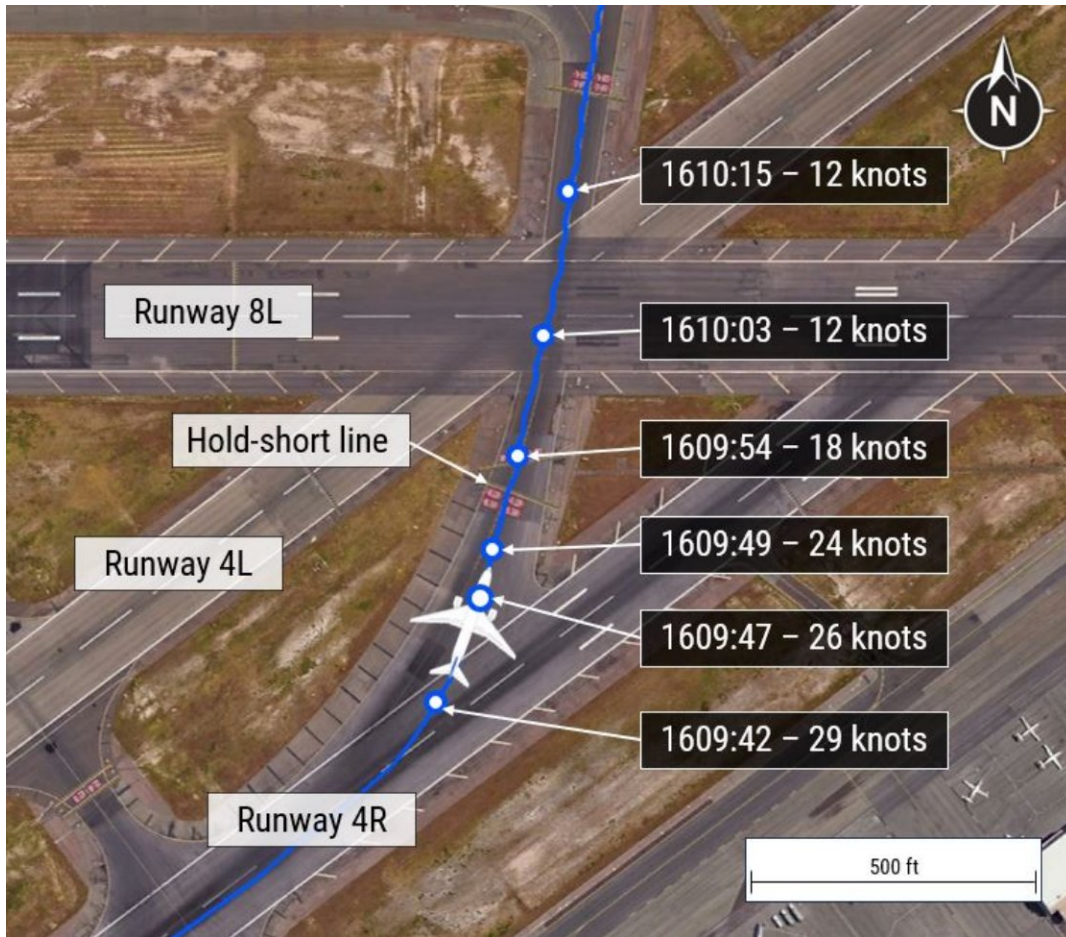


Figure 4. UAL384 airplane’s positions and groundspeeds after turning onto taxiway K.

By the time that the captain realized that the airplane was passing the hold-short line markings on taxiway K, the airplane had already crossed runway 4L and was on runway 8L. The captain stated that he was “startled by how quickly” the airplane reached runways 4L and 8L after exiting runway 4R.

In her postincident statement, the first officer reported that the airplane “could have rolled to the end of the runway and exited there,” which “would have prevented this runway incursion.” The first officer also reported that, similar to the captain, she “found it confusing that there was no way to be clear of 4R without being on 8L/4L.”

During a postincident interview, the pilot flying of KMK145 stated that no evasive action was needed or taken to avoid the UAL384 airplane. The pilot stated that he “always” exited runway 4L at taxiway E. (An airplane landing on runway 4L would reach taxiway E before intersecting runway 8L.)

Pilot Information (A1)

Certificate:	Airline transport; Flight engineer; Flight instructor	Age:	62
Airplane Rating(s):	Single-engine sea	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	
Medical Certification:	Class 1 Without waivers/limitations	Last FAA Medical Exam:	March 29, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	February 24, 2022
Flight Time:	12000 hours (Total, all aircraft), 1020 hours (Total, this make and model), 9700 hours (Pilot In Command, all aircraft)		

Co-pilot Information (A1)

Certificate:	Airline transport	Age:	
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):		Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine	Toxicology Performed:	
Medical Certification:	Class 1 With waivers/limitations	Last FAA Medical Exam:	May 24, 2023
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	November 21, 2021
Flight Time:	7128 hours (Total, all aircraft), 907 hours (Total, this make and model), 3000 hours (Pilot In Command, all aircraft), 195 hours (Last 90 days, all aircraft), 85 hours (Last 30 days, all aircraft), 0 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information (A1)

Aircraft Make:	Boeing	Registration:	N774UA
Model/Series:	777-222	Aircraft Category:	Airplane
Year of Manufacture:	1996	Amateur Built:	
Airworthiness Certificate:	Transport	Serial Number:	26936
Landing Gear Type:	Retractable - Tricycle	Seats:	381
Date/Type of Last Inspection:	December 4, 2021 Continuous airworthiness	Certified Max Gross Wt.:	547000 lbs
Time Since Last Inspection:		Engines:	2 Turbo fan
Airframe Total Time:	99096 Hrs at time of accident	Engine Manufacturer:	Pratt & Whitney
ELT:	Installed	Engine Model/Series:	PW4077
Registered Owner:	UNITED AIRLINES INC	Rated Power:	70960 Lbs thrust
Operator:	UNITED AIRLINES INC	Operating Certificate(s) Held:	Flag carrier (121)

Aircraft and Owner/Operator Information (A2)

Aircraft Make:	Cessna	Registration:	N145KA
Model/Series:	208B	Aircraft Category:	Airplane
Year of Manufacture:	2008	Amateur Built:	
Airworthiness Certificate:	Unknown	Serial Number:	208B2019
Landing Gear Type:		Seats:	12
Date/Type of Last Inspection:		Certified Max Gross Wt.:	
Time Since Last Inspection:		Engines:	1 Turbo prop
Airframe Total Time:		Engine Manufacturer:	P&W CANADA
ELT:		Engine Model/Series:	PT6A-114A
Registered Owner:	KAMAKA AIR LLC	Rated Power:	675 Horsepower
Operator:	KAMAKA AIR LLC	Operating Certificate(s) Held:	On-demand air taxi (135)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	PHNL	Distance from Accident Site:	0 Nautical Miles
Observation Time:	04:09 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:		Visibility	11.5 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	10 knots / None	Turbulence Type Forecast/Actual:	None / None
Wind Direction:	210°	Turbulence Severity Forecast/Actual:	N/A / N/A
Altimeter Setting:	2997 inches Hg	Temperature/Dew Point:	28°C / 20°C
Precipitation and Obscuration:			
Departure Point:	Denver, CO (DEN) (A1)	Type of Flight Plan Filed:	IFR (A1)
Destination:	Honolulu, HI (A1); Honolulu, HI (A2)	Type of Clearance:	IFR (A1); Unknown (A2)
Departure Time:	12:20 Local (A1)	Type of Airspace:	Class D (A1); Unknown (A2)

Airport Information

Airport:	Daniel K. Inouye International Airport HNL	Runway Surface Type:	Asphalt
Airport Elevation:	12 ft msl	Runway Surface Condition:	Dry
Runway Used:	04R	IFR Approach:	Global positioning system;ILS;RNAV;Visual
Runway Length/Width:	9002 ft / 150 ft	VFR Approach/Landing:	Traffic pattern

HNL was located about 3 miles northwest of Honolulu. The airport was owned by the state of Hawaii. The Hawaii Control Facility (HCF), which was operated by the FAA, provided air traffic control services for the area of the Pacific Ocean surrounding the Hawaiian islands. HCF comprised the HNL air traffic control tower and the Honolulu Center Radar Approach Control/Terminal Radar Approach Control facility. The tower operated 24 hours each day.

HNL had four paved landing surfaces; 4L/22R, 4R/22L, 8L/26R, and 8R/26L. Runway 4L/22R was 6,955 ft long and 150 ft wide. Runway 4L/22R and runway 4R/22L were closely spaced parallel runways that were separated by 500 ft (from centerline to centerline). Runway 4R/22L was 9,002 ft long and 150 ft wide. Runway 4L/22R and runway 4R/22L intersected runway 8L/26R at an angle. Hold-short markings appeared on runway 4R at taxiway K, as shown in figure 5.

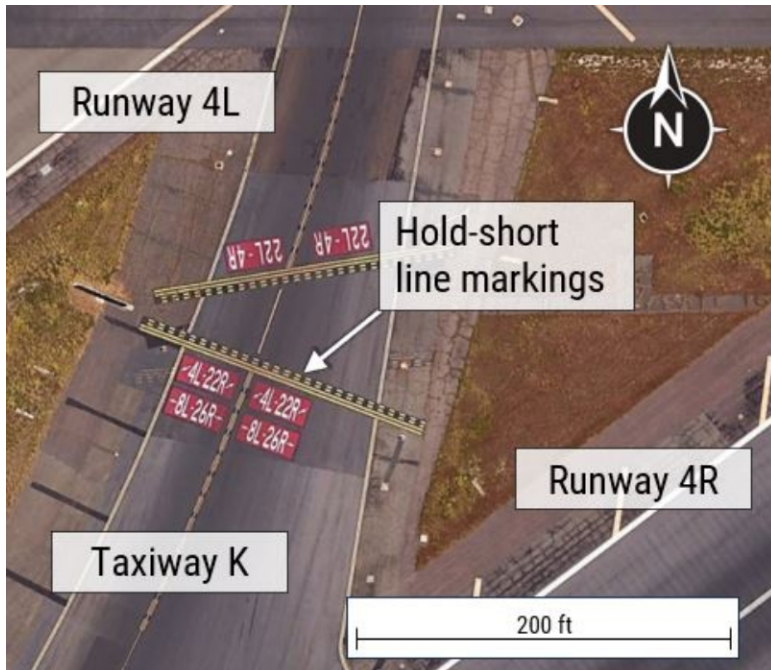


Figure 5. Close-up view of hold-short line markings on runway 4R at taxiway K. The hold-short line for runway 4L was located less than 200 ft from the edge of runway 4R at the widest point (from the west side of the hold-short line to the runway 4R centerline.) Taxiway K was an angled (45°) taxiway to the left of runway 4R; it was not a high-speed taxiway.

The FAA’s Letter to Airmen LTA-HCF-84, “Land and Hold Short Operations at Honolulu International Airport” was in effect at the time of the incident. The letter stated the following:

Land and Hold Short Operations (LAHSO) are conducted at Honolulu International Airport to Runways 4L/R and 8L. Pulsating white LAHSO lights on Runways 4L, 4R, and 8L identify the available landing distance (ALD) on each runway as follows:

- o ALD Runway 8L to hold short of Runway 4L is 9,300 feet.
- o ALD Runway 4L to hold short of Runway 8L is 3,700 feet.
- o ALD Runway 4R to hold short of Runway 8L is 6,250 feet.

An advisory will be broadcast on the ATIS...when LAHSO is in effect. Pilots unable to accept a LAHSO clearance should advise HCF Approach...on initial contact. When landing to hold short of a crossing runway, pilots may expect aircraft arriving on the crossing runway to roll through the intersection or taxiing aircraft or vehicles to proceed across the runway beyond the hold short point.

NOTE – Remember to read back all hold short instructions.

The Jeppesen airport diagram for HNL depicted five hot spots on the airport movement area. The hot spots were depicted by magenta-colored circles on the map and were described under

a “Runway Incursion Hot Spots” section of the chart. The hot spot labeled HS2 was located at the convergence of runways 4L/22R, 4R/22L, and 8L/22R and taxiway K, as shown in figure 2. (As previously mentioned, the text description of HS2 stated, “Aircraft landing Rwy 4R and exiting left onto Twy K sometimes fail to hold short of Rwys 4L/22R and 8L/26R.) The airport diagram had a ball note that stated the following: “Wide body and four engine turbojets landing rwy 4R roll to the end of rwy, no left turn at twy K without tower approval.”

According to a May 2023 email from the FAA, the “specific geometric configuration” of the area around HS2 “does not currently conform to FAA Airport Design Standards,” which was “similar to other legacy complex airfield layouts.” The FAA also stated, “it is the desire and intent of [the] FAA to continue to work with airport operators to bring non-standard geometry into compliance with future airport development opportunities, wherever possible.” The FAA added that HNL “completed a comprehensive taxiway planning study that is being evaluated to ultimately enhance geometry in the Taxiway K complex to address this non-standard configuration.”

Wreckage and Impact Information (A1)

Crew Injuries:	10 None	Aircraft Damage:	None
Passenger Injuries:	291 None	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	301 None	Latitude, Longitude:	21.318701,-157.92199

Wreckage and Impact Information (A2)

Crew Injuries:	2 None	Aircraft Damage:	None
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:		Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	21.318701,-157.92199

Additional Information

Airport Moving Maps

According to Jeppesen, airport moving maps “improve pilot situational awareness during ground movements through...depiction on dynamic terminal maps.” The moving map depiction for HNL was similar to the Jeppesen airport diagram chart, both of which displayed the hot spots on the airport movement area.

To access the description (in text form) about a hot spot depicted on the airport moving map, pilots would need to touch the hot spot indication on the display screen, which would open a secondary window that included an enlarged area with a description of the hot spot. Pilots could also access the Jeppesen airport diagram chart (in their electronic flight bag) for that information, which included the ball note. The hot spot description did not advise pilots of the proximity of the runway 4L hold-short line after landing on runway 4R.

The airport moving map display did not include the Jeppesen airport diagram ball note stating that wide-body and four-engine turbojet airplanes landing on runway 4R should roll to the end of the runway and that a left turn at taxiway K was not allowed without tower approval.

Advisory Circular 150/5300-13A and 13B

FAA Advisory Circular (AC) 150-5300-13A, which was canceled when version 13B was issued on March 31, 2022, included a figure of four “taxiway designs that are not recommended.” This figure was not incorporated into version 13B but was relevant to the circumstances of this incident. Specifically, the figure depicted a design with a “taxiway intersecting multiple runways,” which was similar to the design of HNL taxiway K.

AC 150/5300-13B “Airport Design,” chapter 4, “Taxiway and Taxilane Design,” stated the following:

Complex intersections increase the possibility of pilot error and confusion which can lead to a runway incursion. Proper airport design practices keep taxiway intersections simple by reducing the number of taxiways intersecting at a single location, thus allowing for proper placement of airfield markings, signage, and lighting. The “three-path concept”...means that a pilot has no more than three choices at an intersection – left, right, and forward.

The AC included the following recommended practice, noting that each airport “has the discretion [whether] to implement a recommended practice to address a site-specific condition”:

Reconfigure all existing taxiway intersections (even those not designated as hot spots) in accordance with the three-path concept when the associated taxiway is subject to reconstruction or rehabilitation.

Taxiway Geometry Study

In January 2018, the FAA published a study on taxiway geometry as part of a 10- to 15-year improvement program “to identify and correct high-incident locations on airport taxiways/runways” (DOT/FAA/TC-18/2). The study results were to be used to develop a database inventory that included problematic taxiway geometry (PTG) locations and areas designated as hot spots.

The study focused on various PTG locations “to obtain the 19 most common geometry elements associated with a runway/taxiway intersection.” The geometry elements included “short taxiways (stubs) between runways,” “greater than three-node taxiway intersection,” “taxiway connection to V-shaped runways,” and “taxiway coinciding with the intersection of two runways,” all of which were present at HNL. The study also included a cost-estimating tool that was developed to provide “preliminary program costs for redesign and/or construction for taxiways.” The study concluded that the database information and the approximate program cost provided by the cost-estimating tool would aid the FAA’s fund allocation and planning efforts to mitigate each high-incident taxiway location.

Amendment to HCF Air Traffic Control Standard Operating Procedures (SOP)

On June 13, 2023, the Honolulu control facility (HCF) air traffic manager issued a Notice (HCF N 7110.188, SUBJ: HNL RWY 4R Arrivals Exiting TWY K) to all HCF operational personnel that HCF Order 7110.1F (SOP) Change 2 dated September 23, 2022, was amended to add: “Jet aircraft landing RWY 4R must not hold on taxiway K unless issued a LAHSO clearance and are a small or large weight category.”

The notice contained the following background information: The intersection of taxiway K and runway 4L/8L has been identified as a hotspot for the Honolulu Airport. This procedure was collaboratively established as part of a safety mitigation plan to ensure aircraft exiting taxiway K have been previously issued a LAHSO clearance, are expecting to hold short of runway 8L, or are allowed to cross the runways without holding short in this hotspot section of the airport. Controllers must now adjust and plan their traffic flow around the expectation that aircraft landing on runway 4R and exiting at taxiway K will be afforded a clearance to cross both runways.

On October 31, 2024, the HCF 7110.1G (SOP) change 1, incorporated the amendment in Chapter 5, Honolulu Terminal, paragraph 5-4-4 Control instructions, which stated in part:

...Jet aircraft landing runway 4R must not hold on taxiway K unless issued a LAHSO clearance and are a small or large weight category.

Hot Spots

On the day of the event, the HNL airport diagram depicted 5 hot spots, which were described in the FAA Chart Supplement, Hot Spots. The applicable hot spot in this incident, hot spot 2 (HS2), was described as:

HS2 - Aircraft landing runway 04R and exiting left onto Taxiway K sometimes fail to hold short of runway 04L– 22R and runway 08L– 26R.

On November 24, 2023, the HNL airport diagram was amended and depicted 4 hot spots. The applicable hot spot (HS2) at the time of the incident was amended to HS1 and the description in the Chart Supplement, Hot Spots was amended to:

HS1 - Aircraft landing runway 04R and exiting left onto taxiway K sometimes fail to hold short of runway 04L– 22R and runway 08L– 26R. When holding short, ATC is aware the aircraft tail is encroaching the landing runway.

Changes to FAA From the Flight Deck Website for HNL Airport

On April 2, 2024, the FAA website, From the Flight Deck, Daniel K. Inouye International Airport (HNL) (<https://www.faa.gov/hnl>) and the enclosed link to the HNL Pilot Handbook https://www.faa.gov/flight_deck/pilot_info/hnl.pdf provided an excerpt of the HNL airport diagram depicting the amended hot spots and provided descriptions of those hot spots in the pilot handbook, respectively.

From the Flight Deck website was developed to educate pilots about potential runway safety concerns at different airports and a video series provides pilots with actual runway approach and airport taxiway footage captured with aircraft-mounted cameras, combined with diagrams and visual graphics to clearly identify hot spots and other safety-sensitive items at airports.

Pilot Handbooks include details such as airport-specific cautions, information local controllers want pilots to know, airport communications, airspace details and other preflight planning resources. The information from local controllers is particularly unique and allows controllers to directly communicate information they want pilots to know when operating at their facility.

Administrative Information

Investigator In Charge (IIC):	Hauf, Michael
Additional Participating Persons:	Ryan Hurling; United; Chicago, IL Matthew Cabak; FAA; DC, WA Dan Carrico; NATCA Nathan Williams; Boeing Commercial Airplanes
Original Publish Date:	February 26, 2025
Last Revision Date:	
Investigation Class:	Class 3
Note:	The NTSB did not travel to the scene of this incident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=106632

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties ... and are not conducted for the purpose of determining the rights or liabilities of any person” (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available [here](#).