



Runway Incursions

Flight Ops Safety

Jan 2013- September 2017

Statistics & Trends

Overview of Southwest Airlines Operations

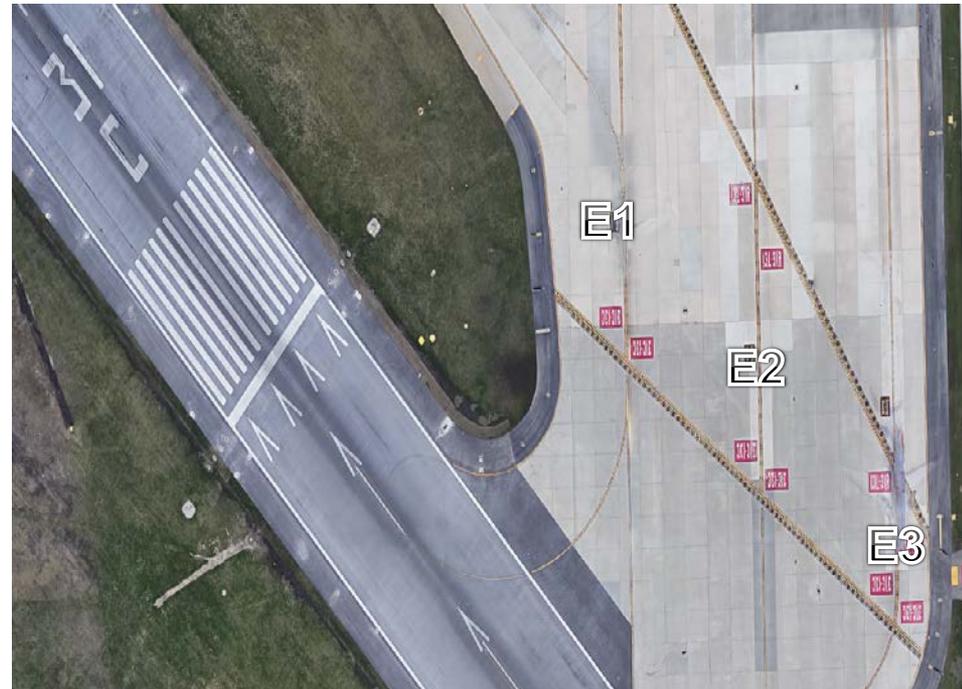
- About 4,000 flights per day, which equates to 1.4 million flights per year
- 400,000 people flown per day
- Fleet totals approximately 725 aircraft
- Between 150 and 250 aircraft are airborne during any given hour of the operational day
- Flown by 78,000 Crew pairings per day

ASAP Data

- Runway Incursions:
 - Effect
 - 21% of events caused a Go-Around
 - 1% of events caused a Rejected Takeoff
 - Occurrences/Location:
 - MDW
 - DAL
 - HOU
 - BUR
 - Causal Factors
 - Cockpit Distractions
 - Loss of Situational Awareness
 - Similar Call-sign Confusion
 - Timing of Before Takeoff Checklist

Chicago Midway

- Congestion between Taxiways E1, E2 and E3 at Runway 31C
 - Multiple Reports stated trying to maneuver around aircraft at TWY E1 and encroaching on hold short line for 31R
- Expectation Bias
 - Crews stated expectation bias led to their incursions due to familiarity with MDW and standard clearances they receive when landing at MDW
- Loss of Situational Awareness
 - Cockpit Distraction
 - Timing of Before Takeoff Checklist



Dallas Love Field

- Non Standard hold short marking for Runway 13R
 - Multiple events stated Crews were unaware the hold short for 13R were located before making the turn to Runway 13R
- Similar Call Sign Confusion
- Loss of Situational Awareness
 - Cockpit Distractions
 - Timing of Before Takeoff Checklist



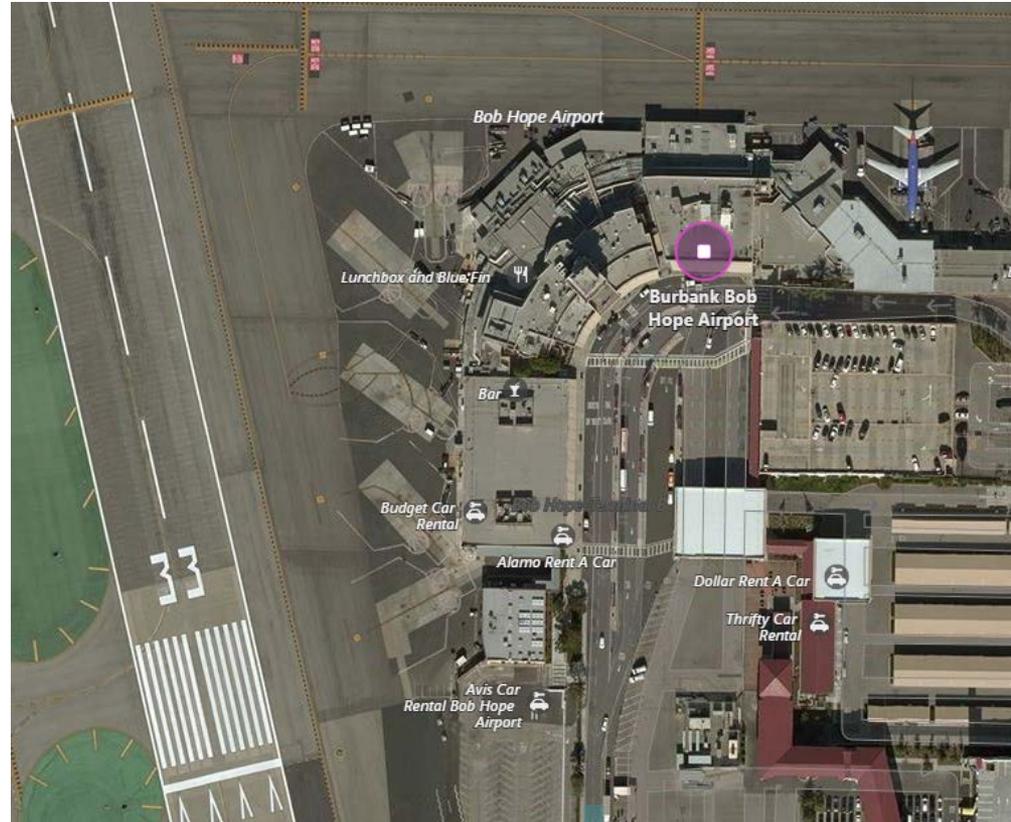
Houston Hobby

- Hot Spot 1 on Jeppesen Charts
 - During taxi to RWY 13R, after crossing RWY 13L, the hold short line for RWY 17 is quickly upon the Crew. Although Crews mentioned briefing the Hot Spot, it was a repeated factor in HOU runway incursions
- Loss of Situational Awareness
 - Cockpit Distractions
 - Timing of Before Takeoff Checklist



Burbank Bob Hope

- Runway 33
 - ATC Clearance
 - “Taxi via ramp to RWY 33”
 - “Taxi to RWY 33 hold short of second set of hold short bars”
- Congested Ramp
 - Crews distracted on taxi out with wingtip clearance and blocking gates for inbound aircraft



Mitigations

Procedures

- Briefings
 - Pre-departure
 - Review of:
 - NOTAMs
 - Company Cover and Station Information Pages (SIP)
 - ATIS
 - Route to RWY
 - Relevant Hotspots
 - Surface Movement Guidance Control System (SMGCS)

Procedures

- Pre-arrival
 - Review of:
 - NOTAMs
 - Company Cover, SIP, and Safety Alert pages
 - ATIS
 - Potential exits from RWY
 - Land and Hold Short Operations (LAHSO)
 - Route to Terminal Gate
 - Relevant Hotspots
 - SMGCS

Procedures

- Airport Diagram displayed
- Pilots repeat taxi instructions, document routing, and confirm between each other through use of the Verbalize, Verify, Monitor, and Intervene process
- Both Pilots direct attention outside
- Both Pilots verbally verify clearance to cross a runway and visually confirm that the runway is, in fact, clear
- All lighting on at night or during low visibility while in RWY safety area
- Suspension of discretionary tasks during dynamic situations such as taxi
- Sterile flight deck rules below 10,000 ft.

Publication Example – Cover Page

*****KBUR - NEW RAMP CONTROL MARKING*****

- Effective 0630L on June 22, a new ramp control marking will be implemented
- at KBUR for aircraft taxiing to RWY 33. The Ramp Control Marking will be
- a 12 ft. yellow circle with a 9 ft. inscription. The designation for this marking
- will be S1 (Sierra One). The marking will be installed just prior to the enhanced
- centerline for the Runway 15/33 hold position.

- A typical instruction from Ground Control will be: **Southwest 123, Runway 33,
- taxi via the terminal ramp, hold at Sierra One.** After a full read back is received,
- Ground will typically transfer radio communications to Tower. If needed, Tower
- may instruct aircraft to move up to and hold short of RWY 33 at the actual
- RWY 15/33 hold position marking: **Southwest 123, continue taxi, hold short
- of Runway 33, do not turn the corner. ** (This means stop straight ahead at the
- hold short line—do not angle to the left, as this may cause the right wing to
- encroach the runway safety area).

- As a reminder, TWY G is restricted for all 737 aircraft, therefore a full length
- departure on RWY 33 will require ATC clearance to backtaxi on RWY 33.

- If you have any questions on your taxi clearance or position relative to these
- new markings, stop the aircraft and query ATC

- Please see the updated diagram and Flight Safety Alert on the BUR Station
- Information Page. Also see the Letter to Airmen, LTA-BUR-2, located in My
- Mobile, My Publications, Collections, Special Issued Documents.

Publication Example – Safety Alert

Flight Safety Alert - BUR



Hold Short Line for RWY 33/15

Hold Short Line for RWY 8/26

ASAP reports have identified threats due to the unique location of runway hold short lines on the terminal ramp further complicated by night operations with a dimly lit ramp.

RWY 33 Departure:
When departing RWY 33, ATC will assign a westbound taxi from the Alpha gates to RWY 33. The taxi clearance may include a hold at Sierra One (S1). Crews will first encounter the RWY 8/26 hold short line (see graphic) located just west of Gate A1, followed by S1. From S1, Tower may instruct aircraft to move up to and hold short of RWY 33 at the actual RWY 33/15 hold position marking (see graphic). RWY 33/15 hold short line is NOT illuminated. Stop straight ahead at the hold short line—do not angle to the left, as this may cause the right wing to encroach the runway safety area. Expect clearance to BACK TAXI on RWY 33 for takeoff. Once cleared onto RWY 33, do not turn south on the terminal ramp due to insufficient wingtip clearance on the south terminal ramp.

RWY 15 Departure:
RWY 8/26 hold short line (see graphic) is located just west of Gate A1 and is illuminated. Crews shall hold short on the east side of the RWY 8/26 hold short line until cleared to cross RWY 8/26. Use extreme caution when turning northbound crossing RWY 8/26 for directional jetblast hazards to terminal gates.

Publication Example – Letter to Airmen

Page 1 of 3

DEPARTMENT OF TRANSPORTATION Federal Aviation Administration

Burbank Tower
2821 Hollywood Way
Burbank, CA 91505

Issued: 05/25/2017 2151 (UTC)Burbank Tower

Effective: 06/22/2017 1200 (UTC)
Letter to Airmen: LTA-BUR-2

Subject: Ramp Control Marking on Air Carrier Ramp

Cancellation: 06/21/2018 1200 (UTC)

Background: During Runway 33 take-off operations, aircraft are often directed to hold short of Runway 33 at the hold position marking on the Air Carrier Ramp and to not turn the corner, see Attachment 1. Some aircraft are failing to hold short at this location and are inadvertently entering the runway safety area for Runway 15/33.

To provide additional visual cues to prevent this issue, a new pavement marking will be installed prior to the Runway 15/33 hold position: a Ramp Control Marking.

Ramp Control Marking: The Ramp Control Marking will be a 12" yellow circle with a 9" inscription. The designation for this marking will be "S1" (Sierra One). The marking will be installed just prior to the enhanced centerline for the Runway 15/33 hold position, see Attachment 2.

This marking will be installed and ready for use on 6/22/2017 by 0630.

A typical ATC instruction from Burbank Ground will be:

Burbank Ground: "Aircraft ID, Runway 33 taxi via the terminal ramp, hold at Sierra One".

After a full and correct read back is received, Burbank Ground will typically transfer radio communications to Burbank Tower. If needed, Burbank Tower may instruct aircraft to move up to and hold short of Runway 33 at the actual Runway 15/33 hold position marking:

Burbank Tower: "Aircraft ID, continuing taxiing, hold short of Runway 33, do not turn the corner".

It is important to remember that there is no full length access for Runway 33 from the Air Carrier Ramp. A full length departure for Runway 33 will require aircraft to taxi full length via Taxiway G, or receive a "back taxi" instruction from Burbank Tower. If you have not received a clearance to cross Runway 33 to taxi full length via Taxiway G, or a clearance to "back taxi" on Runway 33, you cannot cross the Runway 33 hold bars, see Attachment 1.

John F Nelson
Air Traffic Manager, Burbank Tower

<https://notams.aim.faa.gov/ta/main/viewta?print=true&lookupid=1521990566244521206> 5/25/2017

Thank you!

george.hodgson@wnco.com

(469) 603-0630