

RUNWAY
INCURSION
AVOIDANCE

Lesson Outline

CONTENT

Runway Incursions
Challenges to Taxiing
LAHSO Operations
Cockpit Activities
Airport Signs
Airport Markings
Taxi Procedures
Controlled and Uncontrolled
Airports
Lighting and Night Ops

TIMEFRAME

30-35 MIN
approximately

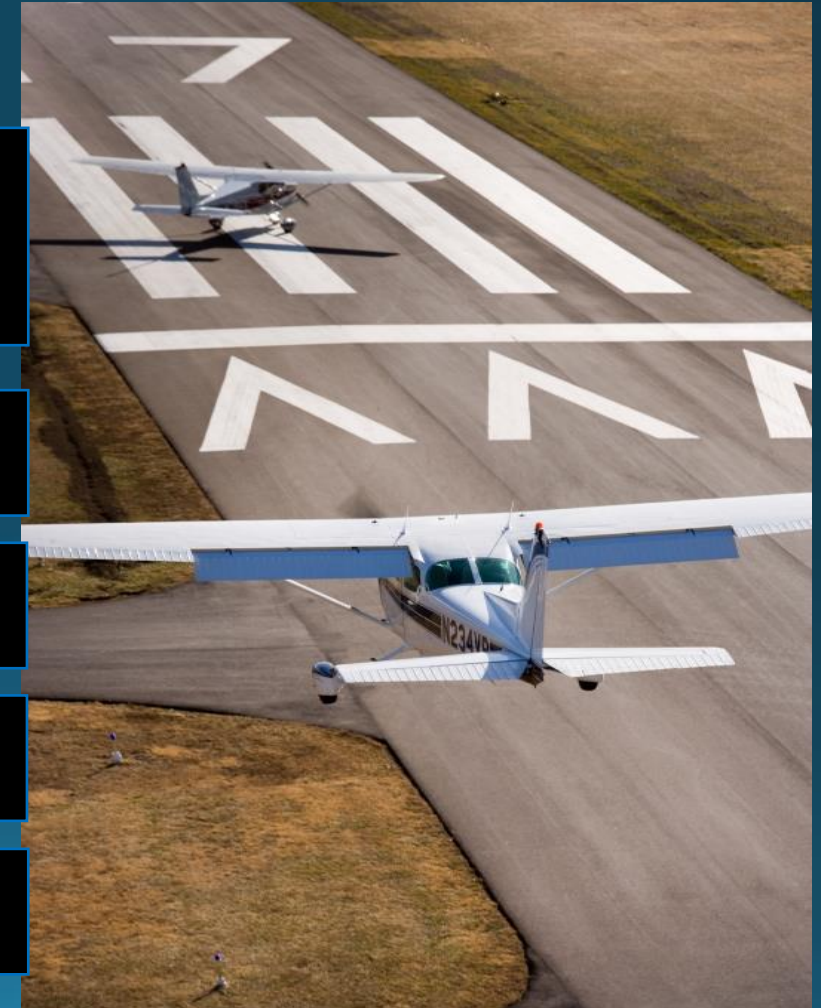
SOURCES

Advisory Circular 91-73
Aeronautical Information
Manual
Airplane Flying Handbook
FAA Safety Briefing on LAHSO
Operations

What is a Runway Incursion?

Definition

Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft.



Category A

Serious incident where collision was narrowly avoided,

Category B

Decreased separation with significant potential for collision.

Category C

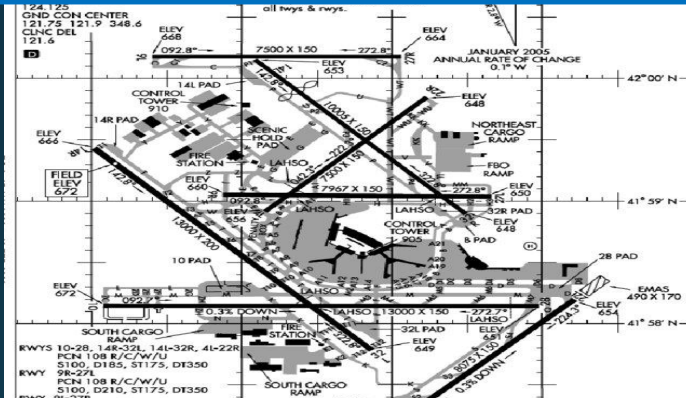
Ample time and/or distance to avoid the collision.

Category D

An occurrence with no immediate safety consequences.

Challenges to Taxiing

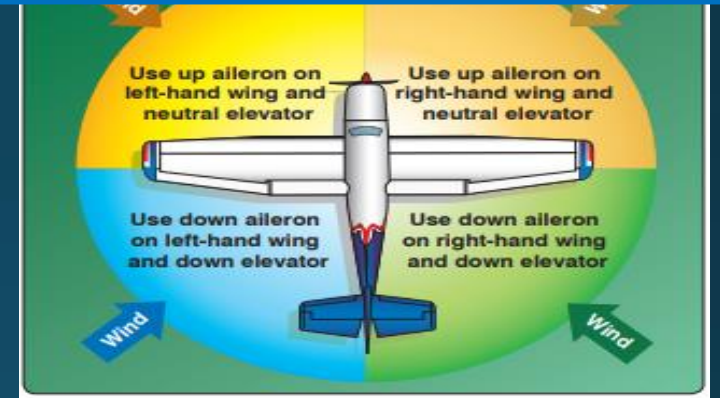
Complex Taxiway Layout



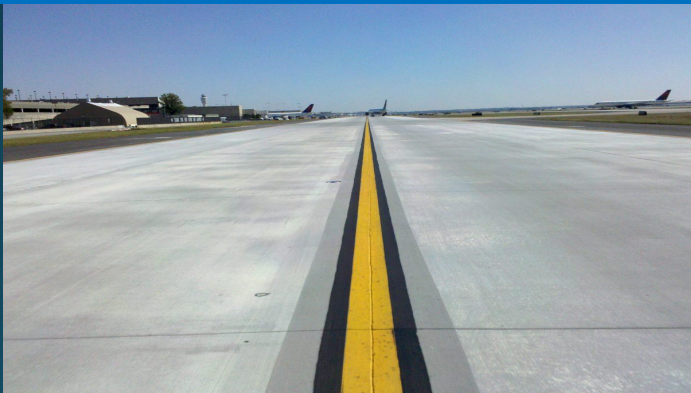
Low Visibility Taxiing



Wind Correction During Taxi



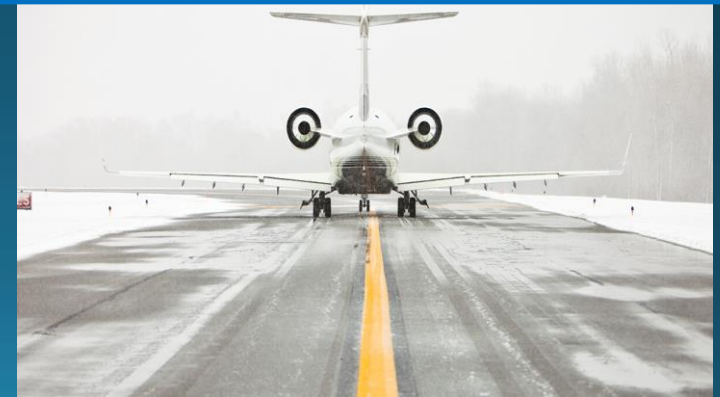
Staying on Centerline



Jet Blast



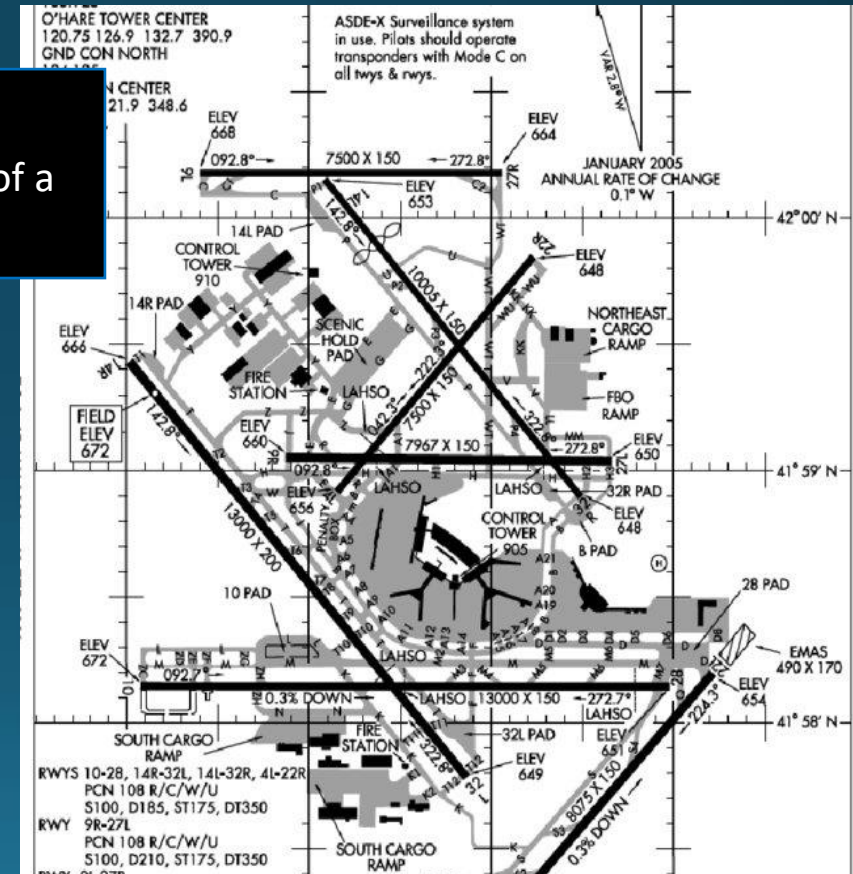
Snow or Ice Covered Taxiways



Challenges to Taxiing

Complex Taxiway Layout

Ensure that you properly write down and read back all taxi instructions. Pay close attention to routing and hold short instructions. If you are ever unsure of a taxi clearance ask ATC for clarification or request "Progressive Taxi."



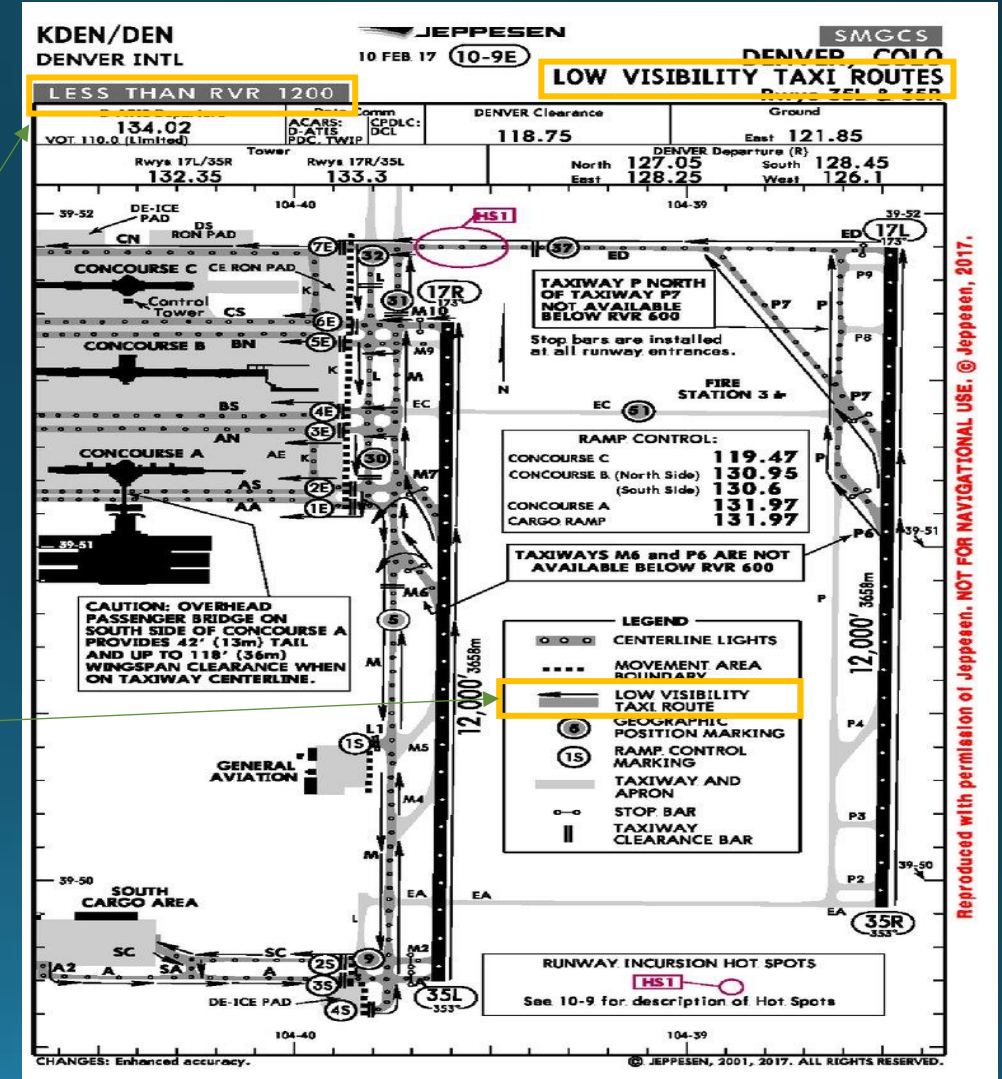
Challenges to Taxiing

Low Visibility Taxiing

If the visibility at the airport falls below a certain value, ATC may use Low Visibility Taxi charts to simplify aircraft taxiing operations.

Visibility Threshold

Low Visibility Routing



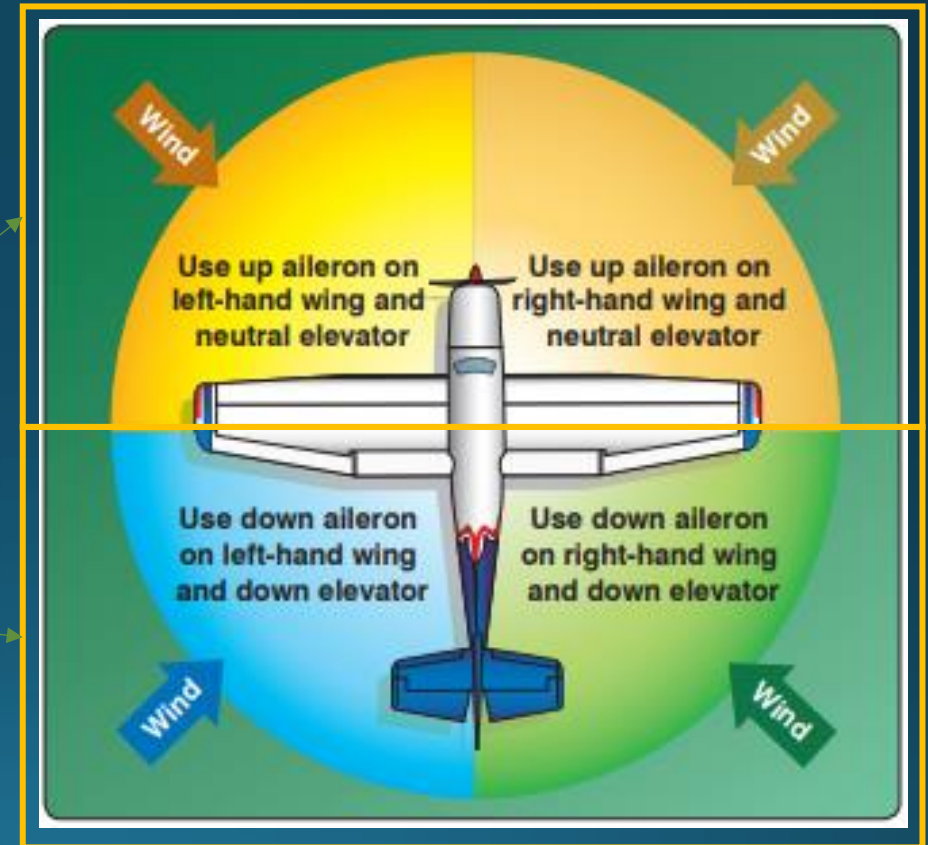
Challenges to Taxiing

Wind Correction During Taxi

During taxi it is important to know the wind direction to position the flight controls appropriately. This will help prevent wind from getting under the wing and disrupting aircraft control.

Quartering Headwinds

Quartering Tailwinds



Challenges to Taxiing

Staying on Centerline

Ensure you keep the aircraft on the Taxiway Centerline by steering with the rudder pedals.



Brakes

Rudder Pedals



LAHSO Operations

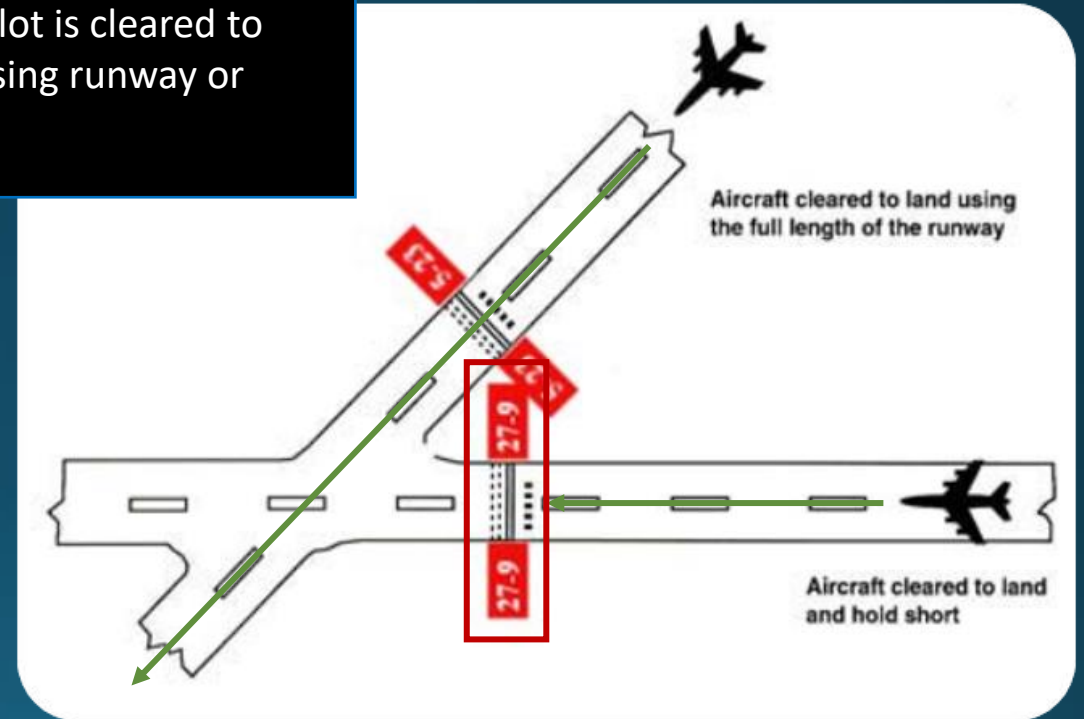
LAHSO stands for “Land and Hold Short Operations.” Essentially, a pilot is cleared to land on a Runway and must come to a complete stop prior to a crossing runway or taxiway for other traffic.

Are they Mandatory?

No

Can I do a Go Around?

Yes



Cockpit Activities

Sterile Cockpit Principle

No distractions or unnecessary conversations during critical phases of flight. Such as: Taxi, Takeoff, Approach, and Landing.



Prior to Taxi Instructions

Have a current copy of the Airport Diagram handy. Review pre-designated taxi routes. Review the expected and possible routing.



Review and Brief

Write down the taxi instructions to prevent mistakes or forgetting. Ask ATC for help in times of confusion. Always conduct a taxi briefing.



Hot Spots

Hot Spots on Airport Diagrams are areas of common confusion (amongst pilots) and/or areas of high congestion. Be sure to look for these and brief your plan to deal with them during the Taxi Briefing.

Congestion

Confusion



Airport Signs

Taxiway/Runway Hold Position



4 - 22

A rectangular sign with a red background and white text. The text consists of the number '4', a hyphen, and the number '22'.

Runway Approach Hold Position



15-APCH

A rectangular sign with a red background and white text. The text consists of the number '15', a hyphen, and the word 'APCH'.

ILS Critical Area Hold Position



ILS

A rectangular sign with a red background and white text. The text consists of the letters 'ILS' in a large, bold, sans-serif font.

No Entry



Taxiway and Runway Location



A 2x1 grid of signs. The left sign has a black background with a yellow border and a large yellow letter 'A'. The right sign has a black background with a yellow border and a large yellow number '22'.

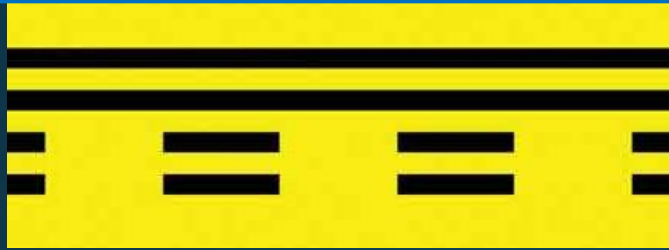
Runway Distance Remaining



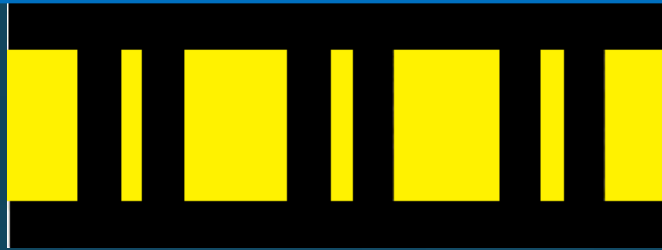
A square sign with a black background and a white number '7' in the center.

Airport Signs

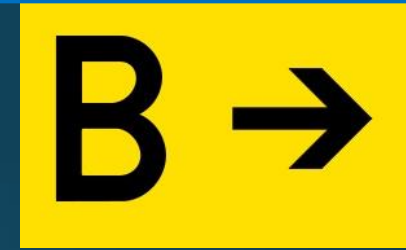
Runway Safety Area Boundary



ILS Critical Area Boundary



Taxiway Direction Sign



Outbound and Inbound Destination



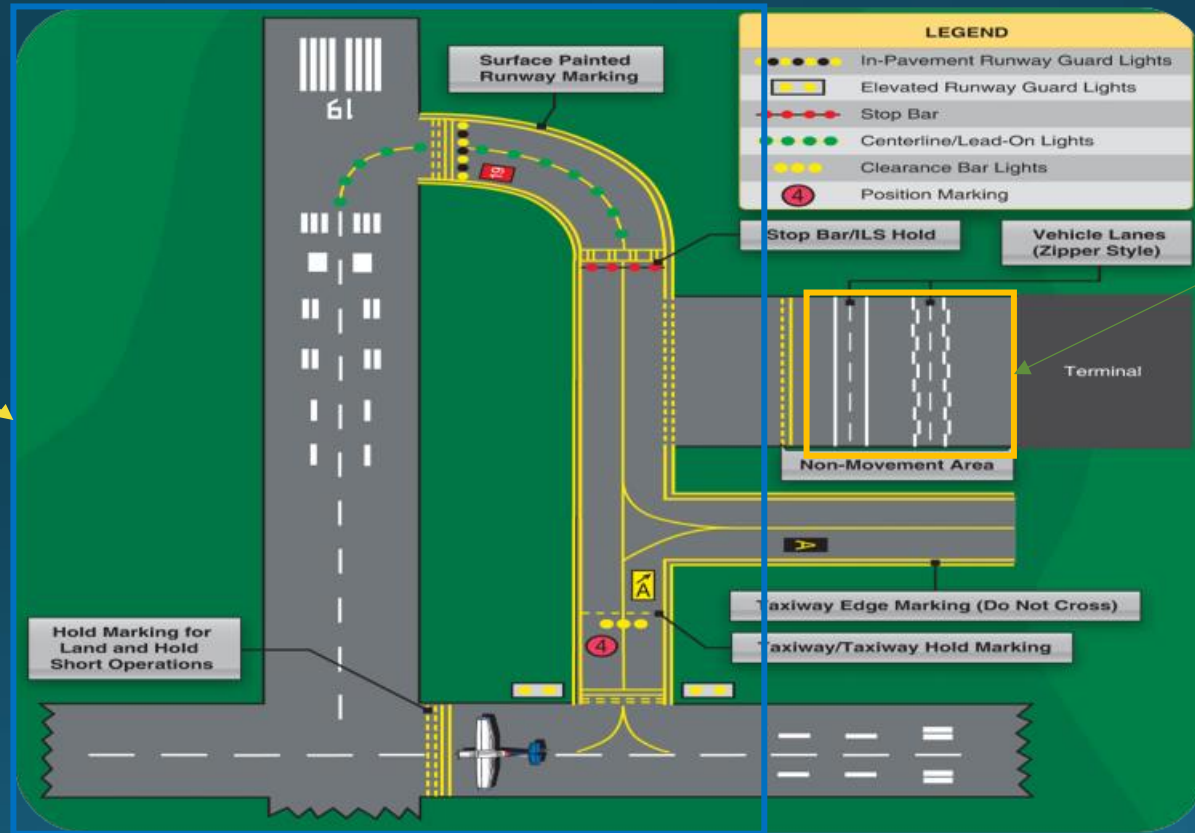
Taxiway Ending Marker



Taxiway Direction Sign Array



Airport Markings



Non-Movement Area

Movement Area

Taxi Lighting



Taxi Procedures

Steering and Control

- Use the rudder pedals to maintain centerline.
- Never ride the brakes while taxiing.
- Keep the speed to the pace of a brisk walk/jog.
- Only use as much power as needed.
- Test brakes after engine start with power reduced.



After Landing

- Brief the landing after receiving runway assignment.
 - Depart the runway once speed is under control.
- If stopped between parallel runways – do not cross until cleared.
 - Ensure the aircraft is completely clear of all hold short lines.
 - Do not attempt to exit the runway at high speed.

Controlled vs Uncontrolled Airports

Controlled Airports

- Use proper pilot/controller phraseology.
- Write down and review taxi instructions.
- Ask ATC if you are ever unsure.
- Properly readback ATC clearances.
- Follow ATC instructions.



Uncontrolled Airports

- Look for aircraft in the local traffic pattern. Be wary in calm winds.
 - Be alert. Communicate intentions clearly.
 - Maintain awareness of other aircraft positions.
- Continuously monitor and talk on the CTAF frequency.
 - Be aware of possible instrument approaches.

Aircraft Lighting and Night Ops

Exterior aircraft lights make the aircraft easier to see. It is also important that we know when to turn these lights on for night operations.

Taxi Light
Prior to Taxi

Position Lights
Prior to Taxi

Beacon Light
Prior to Engine Start

Strobe Lights
Prior to Takeoff/Crossing Runway

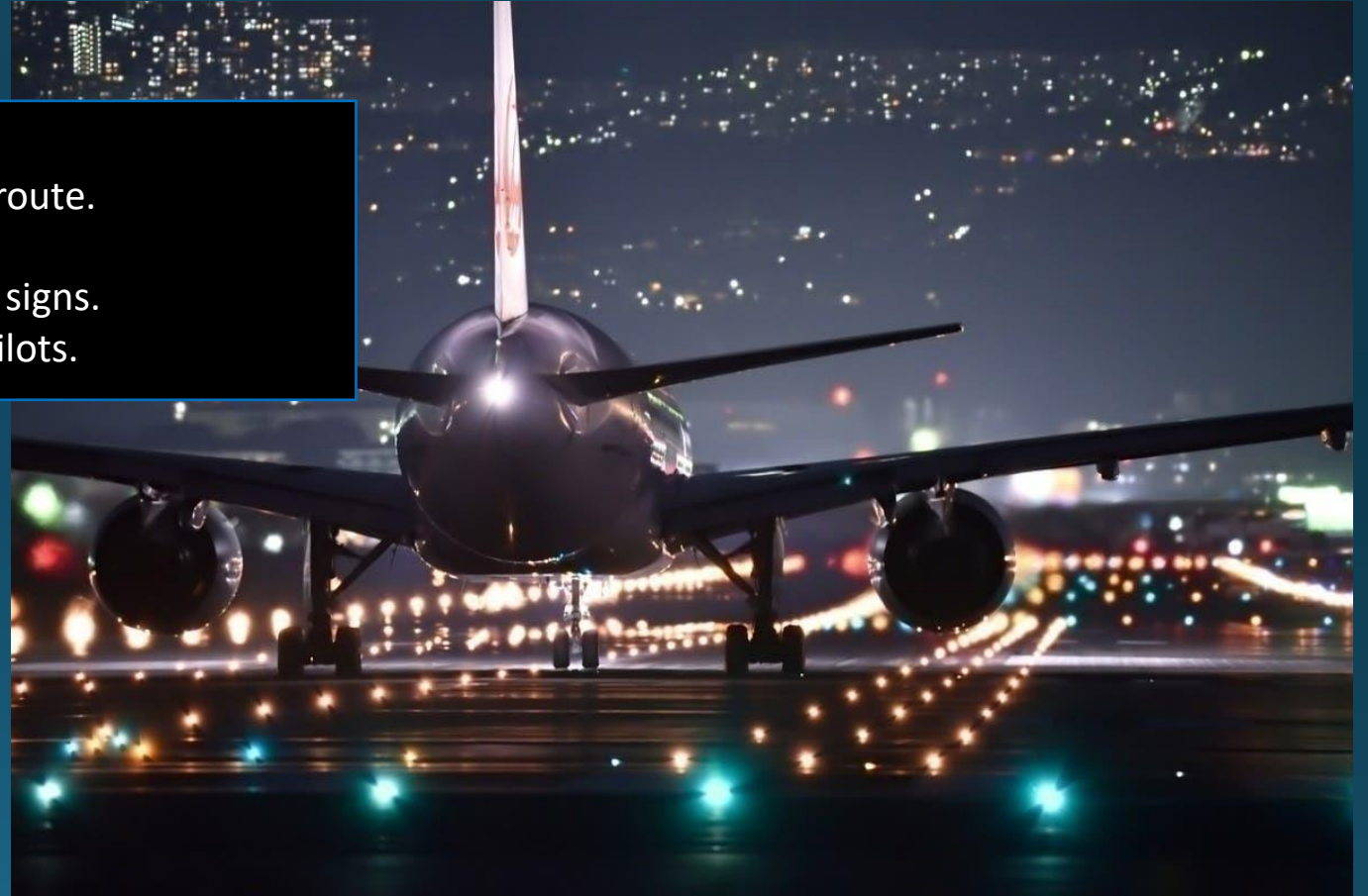
Landing Light
Prior to Takeoff/Crossing Runway



Other Night Considerations

Taxiing at Night

- Be more cautious due to reduced visibility.
- Maintain situational awareness and stay on your route.
- Taxi at a slower speed.
- Look closely at taxiway and runway markings and signs.
- Use aircraft exterior lights to be visible to other pilots.



Lesson Summary

In this lesson we discussed proper and safe taxi operations, runway signs and markings, ground operations at controlled and uncontrolled airports, and night operations. Runway incursions are on the rise and it is important that we understand these principles and apply them to maintain our situational awareness when operating on the airport surface.