

V.D. Taxiing

Objectives	The student should develop knowledge of the elements related to taxiing an airplane as required in the necessary ACS.
Key Elements	<ul style="list-style-type: none">✈ Fast walk✈ Crosswind corrections✈ Taxi diagram
Elements	<ul style="list-style-type: none">✈ Taxiway markings✈ How taxiing works✈ Taxi clearance✈ Brake check✈ Taxi check✈ Wind corrections✈ Avoiding other aircraft and hazards✈ Avoiding incursions
Schedule	<ol style="list-style-type: none">1. Discuss objectives2. Review material3. Development4. Conclusion
Equipment	<ul style="list-style-type: none">✈ White board✈ Markers✈ References
Instructor's Actions	<ol style="list-style-type: none">1. Discuss lesson objectives2. Present lecture3. Questions4. Homework
Student's Actions	Participate in discussion Take notes
Completion Standards	The student can safely maintain positive control of the airplane with the proper crosswind corrections and understands the elements related to taxiing safely and effectively.

References

FAA-H-8083-3B, *Airplane Flying Handbook* (Chapter 2)
AIM (Chapter 4.3)

Instructor Notes

Introduction

Overview—review objectives and key ideas.

Why—the pilot must understand and be proficient in taxi procedures.

Taxiway markings

Used to help the pilot transition from the parking area to the runway.

✦ Continuous yellow centerline stripe

✦ Edge markings

Continuous line—the shoulder is not intended for use by an airplane.

Dashed marking—the airplane may use that portion of the pavement.

✦ Holding position markers

Hold short lines—do not cross until cleared to.

Four yellow lines—two solid and two dashed. Hold on solid lines side.

How taxiing works

Steer with rudder pedals and brakes.

✦ Apply rudder toward the desired turn.

✦ Use brakes as necessary to assist in turning.

✦ Hold rudder until just short of the point where the turn is to be stopped, then release pressure or apply opposite rudder to maintain centerline track.

✦ Use brakes to stop, slow, or assist in turning—apply brakes smoothly and evenly. Do not ride the brakes while taxiing—slow the airplane with the throttle.

CE—improper use of brakes.

Control speed with power and brake pressure.

✦ Power first, then brakes.

✦ Taxi at the speed of a fast walk—for safety and positive control; be able to stop and turn when desired.

✦ More power needed to get the airplane moving than to keep it moving—reduce power after you start moving.

✦ Stop with the nosewheel straight to prevent side load and to make moving again easy.

✦ Taxiing too fast can be dangerous—may cause ground loops, accidents, obstructions, loss of control, etc.

CE—hazards of taxiing too fast.

Taxi clearance

Obtain approval before moving onto the movement area while the tower is in operation.

Clearance required prior to crossing any runway (including inactive and closed runways)

ATC will specify:

✦ The runway or the point to taxi to.

- ✈ Taxi instructions.
- ✈ Hold short instructions or runway crossing clearances if the route will cross a runway.

Read back:

- ✈ The runway assignment.
- ✈ Any clearance to enter a specific runway.
- ✈ Any instruction to hold short of a specific runway or line up and wait instructions.

Before taxiing, make sure the instructions make sense, and contact ground if they don't. Repeat all clearances back and understand airport signs and markings.

CE—failure to comply with airport/taxiway surface marking, signals, and ATC clearances or instructions.

Brake check

Begin moving forward with gradual power, reduce the power to idle when rolling, and apply the brakes to ensure they work. If brakes operation is uncertain, shut down the airplane.

Taxi check

While taxiing, check that

- ✈ The attitude indicator does not indicate more than 5° of pitch or bank.
- ✈ The turn and slip indicator shows the wings moving with the turn and the ball moving against the turn and that the inclinometer is full of fluid.
- ✈ The magnetic compass and heading indicator are moving toward known headings and the magnetic compass has no cracks, leaks, or bubbles.

Wind corrections

Taxiing downwind will usually require less engine power after the initial ground roll begins. To avoid overheating the brakes, keep engine power at a minimum and only apply them occasionally. Wind corrections will minimize weathervaning and provide easier steering.

When taxiing with a quartering headwind, hold the elevator NEUTRAL and turn the ailerons into the headwind.

- ✈ Keep upwind aileron UP to reduce effect of lifting action (upwind wing may be lifted).

When taxiing with a quartering tailwind, hold the elevator DOWN and turn the ailerons to dive away from the tailwind.

- ✈ Keep upwind aileron DOWN.
- ✈ Keep elevator DOWN to reduce the tendency of the wind to nose the airplane over.

Avoiding other aircraft and hazards

Use the heading indicator to visualize the wind in relation to the airplane and position the controls accordingly.

CE—improper positioning of flight controls for various wind corrections.

- ✦ Maintain awareness of the location and movement of all other aircraft and vehicles. Visually scan the area, constantly looking for traffic/hazards.
- ✦ Monitor the appropriate frequency (Ground).
- ✦ Right-of-way rules apply. Maintain adequate spacing.
- ✦ Don't create hazards—make sure the wings will clear other airplanes, and be aware of propeller blast.
- ✦ Taxi at the appropriate speed—fast walk.
- ✦ Use yellow taxiway centerlines if available.
- ✦ Slow down before turning and avoid sharp, high speed turns, which place loads on the gear and can result in a swerve or ground loop.

Avoiding incursions

- ✦ Always use a taxi diagram.
- ✦ Read back all runway/taxiway crossing and hold instructions using proper phraseology and good discipline.
- ✦ Review NOTAMs and airport layouts prior to taxi, before landing, and while taxiing as needed.
- ✦ Be familiar with airport markings.
- ✦ Request a progressive taxi from ATC if unsure of route and write down complex instructions.
- ✦ Make sure aircraft position and taxi lights are used when moving.
- ✦ When landing, clear the runway in a timely fashion.

CE—failure to comply with airport/taxiway surface marking, signals, and ATC clearances or instructions.

Light gun signals

If a radio malfunctions, call ATC to request authorization to depart without two-way radio communications. If authorized, monitor a frequency and/or watch for light gun signals.

Common errors

- ✦ Improper use of brakes.
- ✦ Improper positioning of flight controls for various wind conditions.
- ✦ Hazards of taxiing too fast.
- ✦ Failure to comply with airport/taxiway surface markings, signals, and ATC clearances or instructions.

Conclusion

Brief review of main points.

To taxi safely, maintain positive control of the aircraft, recognize potential hazards in time to avoid them, be able to stop or turn where and when desired without relying on the brakes, be aware of other traffic and its movement, write down and read back all clearances, and maintain the proper wind corrections.

CFI PTS

Objective: To determine that the applicant:

1. Exhibits instructional knowledge of the elements of landplane taxiing by describing:
 - a. Proper brake check and correct use of brakes.
 - b. Compliance with airport/taxiway surface marking, signals, and ATC clearances or instructions.
 - c. How to control direction and speed.
 - d. Flight control positioning for various wind conditions.
 - e. Procedures used to avoid other aircraft and hazards.
 - f. Runway incursion avoidance procedures.
 - g. Procedures for eliminating pilot distractions.
 - h. Use of taxi chart during taxi.
 - i. Airport, taxiway, and runway position situational awareness.
 - j. Additional taxiing operations concerns at a non-towered airport.
2. Exhibits instructional knowledge of common errors related to landplane taxiing by describing:
 - a. Improper use of brakes.
 - b. Improper positioning of the flight controls for various wind conditions.
 - c. Hazards of taxiing too fast.
 - d. Hazards associated with the failure to comply with airport/taxiway surface marking, signals, and ATC clearances or instructions.
 - e. Hazards of becoming distracted while taxiing.
 - f. Hazards associated with failing to adhere to sterile cockpit procedures.
3. Demonstrates and simultaneously explains landplane taxiing from an instructional standpoint.
4. Analyzes and corrects simulated common errors related to landplane taxiing.

PPL ACS

Task	D. Taxiing (ASEL, AMEL)
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM; AC 91-73; Chart Supplements; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with safe taxi operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of:
<i>PA.II.D.K1</i>	Current airport aeronautical references and information resources including Chart Supplements, airport diagram, and appropriate references.
<i>PA.II.D.K2</i>	Taxi instructions/clearances.
<i>PA.II.D.K3</i>	Airport markings, signs, and lights.
<i>PA.II.D.K4</i>	Visual indicators for wind.
<i>PA.II.D.K5</i>	Aircraft lighting.
<i>PA.II.D.K6</i>	Procedures for:
<i>PA.II.D.K6a</i>	a. Appropriate flight deck activities prior to taxi, including route planning and identifying the location of Hot Spots
<i>PA.II.D.K6b</i>	b. Radio communications at towered and nontowered airports
<i>PA.II.D.K6c</i>	c. Entering or crossing runways
<i>PA.II.D.K6d</i>	d. Night taxi operations
<i>PA.II.D.K6e</i>	e. Low visibility taxi operations
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.II.D.R1</i>	Inappropriate activities and distractions.
<i>PA.II.D.R2</i>	Confirmation or expectation bias as related to taxi instructions.
<i>PA.II.D.R3</i>	A taxi route or departure runway change.
Skills	The applicant demonstrates the ability to:
<i>PA.II.D.S1</i>	Receive and correctly read back clearances/instructions, if applicable.
<i>PA.II.D.S2</i>	Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness.
<i>PA.II.D.S3</i>	Position the flight controls for the existing wind conditions.
<i>PA.II.D.S4</i>	Complete the appropriate checklist.
<i>PA.II.D.S5</i>	Perform a brake check immediately after the airplane begins moving.
<i>PA.II.D.S6</i>	Maintain positive control of the airplane during ground operations by controlling direction and speed without excessive use of brakes.
<i>PA.II.D.S7</i>	Comply with airport/taxiway markings, signals, and ATC clearances and instructions.
<i>PA.II.D.S8</i>	Position the airplane properly relative to hold lines.

CPL ACS

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Knowledge	The applicant demonstrates understanding of:
CA.II.D.K1	Current airport aeronautical references and information resources including Chart Supplements, airport diagram, and appropriate references.
CA.II.D.K2	Taxi instructions/clearances.
CA.II.D.K3	Airport markings, signs, and lights.
CA.II.D.K4	Visual indicators for wind.
CA.II.D.K5	Aircraft lighting.
CA.II.D.K6	Procedures for:
CA.II.D.K6a	a. Appropriate flight deck activities prior to taxi, including route planning and identifying the location of Hot Spots
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CA.II.D.K6c	c. Entering or crossing runways
CA.II.D.K6d	d. Night taxi operations
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Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.II.D.R1	Inappropriate activities and distractions.
CA.II.D.R2	Confirmation or expectation bias as related to taxi instructions.
CA.II.D.R3	A taxi route or departure runway change.
Skills	The applicant demonstrates the ability to:
CA.II.D.S1	Receive and correctly read back clearances/instructions, if applicable.
CA.II.D.S2	Use an airport diagram or taxi chart during taxi, if published, and maintain situational awareness.
CA.II.D.S3	Position the flight controls for the existing wind conditions.
CA.II.D.S4	Complete the appropriate checklist.
CA.II.D.S5	Perform a brake check immediately after the airplane begins moving.
CA.II.D.S6	Maintain positive control of the airplane during ground operations by controlling direction and speed without excessive use of brakes.
CA.II.D.S7	Comply with airport/taxiway markings, signals, and ATC clearances and instructions.
CA.II.D.S8	Position the airplane properly relative to hold lines.