Private Pilot Syllabus

ASEL

Simulator Classroom. Airplane Showroom.

Flying is amazing and fun, but learning to fly, at times, has a lot going on. The cockpit of an airplane is not always the best place to learn new skills. It's noisy, it's expensive, and you're in constant motion, needing to stay ahead of the airplane. Through the integration of both the simulator and the airplane, this syllabus aims to remove those daunting and overwhelming parts of flight training and lead you to success. In addition to removing the distractions and required inefficiency (taxing, flying to the practice area) of the airplane, the simulator allows you to practice individual elements of flying. You can focus on one area at a time, then pause, get instant feedback and try again. The simulator allows you to learn the basics in less time, making flying the plane easier. By utilizing advanced simulators, you get the most effective training leading to quicker progress and less frustration. What you learn in the simulator, you master in the airplane.

With this syllabus, you will learn new concepts and tasks in the simulator and then after you are comfortable performing in the simulator, you will then be ready (and confident) to demonstrate in the airplane.

Lesson Format:

Explain: Discuss the task with your instructor
Sim: Practice in the simulator until you meet the standard
Fly: Demonstrate the task in the airplane

This syllabus is always a work in progress. Feedback, questions, and suggestions are welcome. Please email info@redbirdflight.com to share your thoughts or for more information.

How to Use This Syllabus

This syllabus is broken down into four stages. Each stage contains multiple lessons.
Below is an explanation of the components in each lesson.

Prerequisites – Lists the tasks that help form part of the foundation for a new task and therefore should have been introduced and practiced prior to the current lesson.

Home Study – Subject areas that should be read and reviewed prior to the lesson.

Primary Tasks – Maneuvers and tasks that you will practice during the sim and/or flight lessons.

Objective – A short description of the main goal(s) for the lesson.

Description – An explanation of the objectives and tasks for the lesson.

Preflight Discussion – Concepts that you will discuss with your instructor to ensure a full understanding of the tasks and maneuvers.

Ground Lesson – The section will present scenarios for discussion with your instructor to help you gain a well-rounded understanding of what you are learning. Some parts of the ground lesson may also be assigned as home study.

Sim Scenario/Mission – Guided instruction in the simulator to practice the lesson tasks to proficiency to prepare for the flight in the airplane.

Flight – A suggested format for the flight lesson and the tasks being performed.

Lesson Task and Completion Standards – A list of each new task broken down by components to ensure full understanding of what is being evaluated. Tasks that are being reviewed are also listed with paraphrased completion standards.

Grade Sheets– Fill out a Grade Sheet for each simulator or flight lesson.

The order of the lessons in each stage are not necessary fixed in stone. You and your instructor may choose to perform elements of one lesson before another, as appropriate. Within a stage, lessons and individual tasks may be combined or presented in a different sequence than how it is laid out in this document. For example, Lesson 15, "Flying when you can't see out the window", might be introduced, combined, and incorporated in to other flight lessons throughout Stage 3.

This syllabus is always a work in progress. Feedback, questions, and suggestions are welcome. Please email info@redbirdflight.com to share your thoughts or for more information.

Learner Centered Grading

You will be asked to assess your own performance on each lesson; this concept of *Learner Centered Grading* allows you to quickly determine if there is any difference in how you and your instructor perceive your progress and how best to customize your training. Your assessments, along with those of your instructor, should be discussed as you complete a grade sheet for each flight.

Grading Standards

An assessment of "Practice" will be given when you practice the task, but have not met the completions standards of the Stage. You will get an assessment of "Perform" when you have met the completion standards established for the Stage of training. You will get an assessment of "Manage/Decide" when you manage the available resources effectively and make sound decisions.

Proficiency Based Training

This syllabus is designed to accommodate your experience level and how fast you learn. You may proficiency advance in all Stages, and you may take the practical test when you have completed all the Phase requirements and met the standards prescribed by the applicable Practical Test Standards.

Grading Scale (Tasks)

Describe (D): Able to describe characteristics and cognitive elements of the task/scenario. Instructor assistance is required.
Explain (E): Describe the task/scenario and understand underlying concepts. Significant instructor effort is required.
Practice (Pr): Plan and execute the task/scenario. Verbal feedback from instructor to correct errors.
Perform (Pe): Perform task/scenario without assistance from CFI.
Not Observed (No): Not accomplished.

Grading Scale (Single Pilot Resource Management)
Explain (E): Needs prompting to identify risks and decisions.
Practice (Pr): Able to identify, understand, and apply SRM principles to the flight situation. The pilot in training is an active decision maker, with minor errors corrected by CFI.
Manage/Decide (Md): Can correctly gather the most important data available to evaluate the risks and make the appropriate decision. CFI intervention is not required for safe completion.
Not Observed (No): Not accomplished.

Home Study Abbreviations

POH: Pilots Operating Handbook

AFH: Airplane Flying Handbook, FAA-H-8083-3

PHAK: Pilots Handbook of Aeronautical Knowledge, FAA-H-8083-25

FAR: Federal Aviation Regulations

AIM: Aeronautical Information Manual

PTS: Private Pilot Practical Test Standards, FAA-S-8081-14

RMH: Risk Management Handbook, FAA-8083-2

AAH: Advanced Avionics Handbook, FAA-80803-6

NTSB: NTSB Regulation 830

W&B: Weight and Balance Handbook, FAA-8083-1

NTSB 830: Rules pertaining to the notification and reporting of aircraft accidents or incidents

Maneuvers Guide: Any recommended maneuvers or standardization guide for the airplane you are flying (commercially or individually produced)

Many of these publications are available for free at www.faa.gov/regulations_policies/handbooks_manuals/aviation/.

This syllabus is always a work in progress. Feedback, questions, and suggestions are welcome. Please email info@redbirdflight.com to share your thoughts or for more information.

Stage	Lesson	Student Lesson Name	ACS Areas of Operation	Simulator	Airplane	Ground
1	1	Getting to know your airplane.	Introduction and Familiarization	0.5	1.0	1.0
	2	Flying the airplane.	Fundamental Flight Maneuvers & Normal Takeoffs	1.0	1.0	1.0
	3	Flying Slow, Radios, and Your Local Area	Intro to Slow Flight, Radio Communications, and Basic Navigation	0.5	1.5	1.0
		Stage 1 Progress Check - SIMULATOR		0.5		0.5
2	4	How to Fly When the Wind Blows	Ground Reference Maneuvers	1.0	1.5	1.0
	5	Keeping Smooth Air Over Your Wings	Slow Flight, Stalls, and Spin Awareness	1.0	1.5	1.0
	6	Entering and Exiting the Airport Environment	Traffic Pattern Operations & Normal Landings	0.5	2.0	1.0
	7	Using Instruments to Fly and Navigate	VOR Use & Radial Tracking, Basic Instrument Flight	1.0	1.0	1.0
	8	Practicing for the "What Ifs"	Emergency Procedures	0.5	1.5	1.0
	9	Perfecting Your Landings	Takeoffs and Landings		2.0	1.0
		Stage 2 Progress Check - AIRPLANE			1.5	1.0
3	10	First Solo Flight! Flying as Pilot in Command	First Solo Flight		1.0	1.0
	11	Flying solo in the local area	Local Solo Operations*		5.0	1.0
	12	Flying at night	Night Operations	1.0	1.5	1.0
	13	Fly like a Bush Pilot	Short Field Takeoffs and Landings and Soft Field Takeoffs and Landings	0.5	2.0	1.0
	14	Go On A Flying Adventure	Dual Cross Country	1.0	1.5	2.0
	15	Flying when you can't see out the window.	Flight by Basic Instruments and Maneuver Review	1.0	1.5	1.0
	16	Getting from here to there	Dual Cross Country II		1.5	1.0
	17	Getting from here to there in the dark	Night Dual Cross Country		1.5	0.5
		Stage 3 Progress Check - AIRPLANE			1.5	1.0
4	18	Getting from here to there by yourself	Solo Cross Country*		2.0	1.0
	19	Getting from here to there by yourself, again	Solo Cross Country (>150 nm)*		3.0	1.0
	20	Getting Ready for the Big Day	Checkride Prep	1.0	2.0	2.0
		Stage 4 Progress Check - AIRPLANE			1.5	1.5
ORAL EXAM and CHECKRIDE						
			Totals	**11.0**	**40.0**	**25.5**
			Dual Airplane: 30.0 *Solo Airplane: 10.0			

*Under Part 61, 5 hours of solo XC is required, 10 hours of solo total

**A total of 3 hours flying by reference to instruments in an airplane is required. This can be spread out across numerous lessons.

PRIVATE PILOT CERTIFICATE

AERONATICAL EXPERIENCE REQUIREMENTS UNDER PART 61:

- ☐ 40 hours total (≤2.5 hrs in Aviation Training Device (ATD))
- ☐ 20 hours dual
  - 3 hrs dual cross country (XC)
  - 3 hrs instrument in airplane
  - 3 hrs night:
    - XC > 100 NM total
    - 10 takeoffs and full-stop landings
  - 3 hrs in last 2 calendar months before checkride
- ☐ 10 hours solo
  - 3 takeoffs and landings at a towered airport
  - 5 hrs solo XC
  - XC >150 NM total:
    - Landings at 3 points
    - A segment at least 50 NM

AERONATICAL EXPERIENCE REQUIREMENTS UNDER PART 141:

- ☐ 35 hours total (≤2.5 hrs in ATD)
- ☐ 20 hours dual
  - 3 hrs dual XC
  - 3 hrs instrument in airplane
  - 3 hrs night:
    - XC > 100 NM total
    - 10 takeoffs and full-stop landings
  - 3 hrs in last 2 calendar months before checkride
- ☐ 5 hours solo
  - 3 takeoffs and landings at a towered airport
  - XC >150 NM total:
    - Landings at 3 points
    - A segment at least 50 NM

GETTING TO KNOW YOUR AIRPLANE

PREREQUISITES

None

HOME STUDY

AFH: Chapters 1, 2, 3

RMH: Chapter 1

PRIMARY TASKS

Checklist Use

Preflight

Engine Starting

Taxiing

Straight & Level Flight

Climbs and Descents

Turns (Level, Climbing, & Descending)

OBJECTIVE

You're going to learn about the airplane you'll be training in. You will start by learning how to operate the airplane on the ground. In flight, you'll focus on how to control the airplane with visual cues from the horizon and other references outside the airplane.

DESCRIPTION

You will become familiar with the airplane as you and your instructor perform a preflight together. Then in flight, you'll gain an understanding of how to use the horizon and other outside visual references to help you maintain a straight and level attitude. When practicing climbs and descents, you'll begin to understand where to place the nose of the airplane and how much blue sky or green grass you want to see out your front window to obtain a smooth climb or descent. To turn the airplane, you will use the yoke and rudders to place the airplane in a nice, coordinated turn and use visual cues outside to maintain your altitude.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Preflight: environmental factors, aircraft preflight inspection
- Engine Starting: starting procedures for engine; proper positioning of the airplane
- Taxiing: airport markings, rules for entering and crossing runways
- Straight & Level Flight: aerodynamic factors related to maintaining straight and level flight
- Climbs & Descents: appropriate pitch, power and bank settings.
- Turns (Level, Climbing & Descending): appropriate pitch, power and bank settings

GETTING TO KNOW YOUR AIRPLANE

GROUND

With your instructor, review the weather for today's flight.

1. What online resources can you use to get an overview of the weather?
2. What direction is the wind coming from and why is that important?
3. Are the winds the same direction and speed on the ground versus at the altitude you'll be flying?

SIMULATOR PRACTICE SESSION

You're going to practice basic flight maneuvers in the simulator. These include straight and level flight, turns, climbs, and descents. Finally, you'll try a few, more complex maneuvers, including climbing turns and descending turns.

FLIGHT

Takeoff and depart from your home airport and become familiar with checklist procedures, the tasks listed for this lesson, and flying in the local area.

Departure	**Enroute/Practice Area**	**Return**
Together with your instructor, walk through the engine start checklist. After a demonstration from your instructor, try taxiing the airplane on the ground. Your instructor will talk you through a takeoff and then you will perform it together.	Your instructor will provide an introduction and demonstration of how to fly straight and level, turn to a heading, and climb and descend with a focus on visual references ("eyes outside"). You will then get to perform those maneuvers with assistance and guidance.	With your instructor assisting with navigation, you will fly back to the airport. Your instructor will perform the landing and explain the maneuver.

GETTING TO KNOW YOUR AIRPLANE

Lesson Tasks and Completion Standards

Task	Element	Completion Standards
Checklist Use	Use checklist procedures.	Practice
	Inspect the airplane with reference to an appropriate checklist.	Practice
	Utilize the checklist as appropriate during engine start.	Practice
	Accomplish the before takeoff checklist and departure briefing.	Practice
	Complete the After Landing checklist after the airplane is stopped.	Practice
	Complete the Engine Shutdown Checklist.	Practice
Preflight	Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations.	Practice
Engine Starting	Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property.	Practice
Taxiing	Exhibit procedures for steering, maneuvering, maintaining taxiway/runway alignment, and situational awareness to avoid runway incursions.	Practice
	Perform a brake check immediately after the airplane begins moving.	Practice
	Control direction and speed without excessive use of brakes.	Practice
Straight and Level Flight	Uses horizon and outside references to maintain straight and level flight.	Practice
	Appropriate pitch and power settings for airplane	Practice
	Use of trim in straight and level flight to relive control pressures.	Practice
Turns	Use of trim in a turn.	Practice
	Demonstrates understanding of coordinated flight.	Practice
	Appropriate pitch and power settings for airplane.	Practice
Climbs	Level off at assigned altitude +/- 200 feet; heading +/- 20 and airspeed +/- 10 knots.	Practice
	Appropriate pitch and power settings for airplane	Practice
Descents	Appropriate pitch and power settings for airplane	Practice
Climbing Turns	Level off at assigned altitude +/- 200 feet; heading +/- 20 and airspeed +/- 10 knots.	Practice
Descending Turns	Level off at assigned altitude +/- 200 feet; heading +/- 20 and airspeed +/- 10 knots.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Positive exchange of the flight controls • Propeller safety and awareness to include passenger briefing • Distractions during aircraft taxi	Practice

FLYING THE AIRPLANE

PREREQUISITES

Straight & Level Flight

HOME STUDY

AFH: Chapter 5 (excluding the sections on short and soft field takeoffs), Chapter 9-1

PHAK: Chapter 17

Maneuvers Guide

Weight and Balance Sheet

PRIMARY TASKS

Preflight

Engine Starting

Taxiing

Normal Takeoff (New)

Straight & Level Flight

Turns

Climbs & Descents

Climbing Turns

Descending Turns

Steep Turns (New)

Weight & Balance

OBJECTIVE

The objective of this lesson is to become more comfortable with controlling the airplane. You'll perform the takeoff with assistance from your instructor and then review the basics from your last flight. You will be introduced to steep turns.

DESCRIPTION

The more you practice various maneuvers, the more comfortable you'll be with them. Your instructor will help you to become aware of dividing your attention among different visual and physical cues that the airplane is giving you. You will also be introduced to a maneuver that is tested on the checkride called steep turns. Just like you feel yourself get "heavier" on a roller coaster when it changes direction, the same occurs in an airplane when it is in a steep turn. The steeper the turn, the heavier the airplane feels. In the lesson, you'll will learn how you can counter act the heavy feeling of the airplane and easily keep it flying at a level altitude.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Taxiing: positioning the aircraft controls for wind, visual indicators for wind
- Normal Takeoff: takeoff power, application of Vx or Vy, headwind, tailwind, crosswind component
- Steep Turns: coordinated flight, overbanking tendencies, use of trim in a turn

FLYING THE AIRPLANE

GROUND

You are planning to make a morning trip to an airport 50 miles away to eat breakfast at the onsite restaurant. You plan to bring your father (200 lbs) and brother (210 lbs). The aircraft you are flying has full fuel tanks.

1. What is the pilot in command's responsibility regarding weight and balance calculations?
2. How might full fuel tanks effect weight and balance?
3. If the flight is out of limits, how can you adjust?

SIMULATOR SCENARIO

Takeoff and depart from your home airport and practice the tasks listed for this lesson, while becoming familiar with flying in the local area.

FLIGHT

Takeoff and depart from your home airport and practice the tasks listed for this lesson, while becoming familiar with flying in the local area.

Departure	**Enroute/Practice Area**	**Return**
Practice the takeoff and transition to climbing out at Vy.	Review straight & level flight, turns, climbs, descents, climbing and descending turns. Your instructor will introduce and demonstrate steep turns and then you will give them a try.	You will fly back to the airport with guidance from your instructor. Your instructor will perform the landing, while talking through the maneuver and allowing you to follow along on the controls.

FLYING THE AIRPLANE

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Checklist Use	Use checklist procedures for all appropriate phases of flight.	Practice
Preflight	Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations.	Practice
Engine Starting	Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property.	Practice
Taxiing	Exhibit procedures for steering, maneuvering, maintaining taxiway/runway alignment, and situational awareness to avoid runway incursions. Perform break check. Control direction and speed without excessive use of brakes.	Practice
Straight and Level Flight, Turns, Climbs, Descents	Level off at assigned altitude +/- 200 feet; heading +/- 20 and airspeed +/- 10 knots. Use appropriate pitch and power settings.	Practice

New		
Task	Element	Completion Standards
Normal Takeoff	Verify ATC clearance and no aircraft is on final before crossing the Hold Line.	Practice
	Verify aircraft is on the assigned/correct runway.	Practice
	Ascertain wind direction with or without visible wind direction indicators.	Practice
	Determining if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations aircraft manufacture limitations.	Practice
	Position the flight controls for the existing wind conditions.	Practice
	Clear the area; taxi into the takeoff position and align the airplane on the runway center/takeoff path.	Practice
	Confirm takeoff power, and proper engine and flight instrument indications prior to rotation.	Practice
	Rotate and lift off at the recommended airspeed and accelerates to VY (or other speeds as appropriate for aircraft).	Practice
	Establish a pitch attitude that will maintain VY +10/-5 knots (or other speeds as appropriate for transport aircraft).	Practice
	Retract the landing gear and flaps in accordance with manufacturer's guidance or good operating practice.	Practice
	Maintain takeoff power and VY +10/-5 knots to a safe maneuvering altitude.	Practice
	Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
	Comply with noise abatement and published departure procedures.	Practice
	Complete the appropriate checklist.	Practice
Steep Turns	Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed maneuvering speed (Va).	Practice
	Rolls into a coordinated 360° steep turn with at least a 45° bank, followed immediately by a 360° steep turn in the opposite direction.	Practice
	Perform the task in the opposite direction, as specified by the instructor.	Practice
	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Go/no go decision making • Situational awareness of obstacles on departure path • Dividing attention between airplane control and orientation • Task Management	Practice

Flying Slow, Radios, and Your Local Area

Prerequisites

Checklist Usage

Straight & Level Flight

Climbs & Descents

Turns

Taxiing

Home Study

PHAK: Chapter 11, Chapter 12 & Chapter 14

RMH: Chapter 2 & 3

Maneuvers Guide

FAR 61.113

Primary Tasks

Preflight

Engine Starting

Normal Takeoff

Steep Turns

Slow Flight (New)

Use of the Radios & Radio Communications (New)

Basic GPS Use (New)

Local Pilotage & Sectional Chart Awareness (New)

OBJECTIVE

The objective of this lesson is to begin talking on the radio, learning to control the airplane in slow flight and to become familiar with the local area.

DESCRIPTION

After some practice on the ground, you will begin to make radio calls with guidance from your instructor. You will also learn how outside references and airplane controls look and feel different when flying the airplane at a slower airspeed. Additionally, you will begin to practice basic navigation via your sectional chart and the GPS.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Slow Flight: Relationship of angle of attack and attitude, Importance of reliance on aircraft performance indications (aircraft buffet) instead of artificial warning systems (stall horn), how environmental elements affect aircraft performance, maneuver relative to real-life portions of flight
- Radio Communications: How to obtain proper frequencies, standard ATC phraseology, communication procedures
- Basic GPS Use: Equipment, regulations, database currency
- Local Pilotage: Checkpoint selection, chart symbology, plotting a course, topography, altitude selection

FLYING SLOW, RADIOS, AND YOUR LOCAL AREA

GROUND

It is a beautiful day with clear skies. You have a work meeting today that is located just a few miles away from an airport. You plan to fly to the meeting to take advantage of th great weather and time savings by not being stuck in rush hour traffic. Even better, your boss says they will reimburse you for travel, just as they would have if you drove to the meeting.

1. Where can you find information about the airport you are flying to?
2. Are there any concerns about receiving reimbursement as a private pilot?
3. What are some good landmarks that you might pick as navigation check points as you fly to your destination?

SIMULATOR SCENARIO

"BAY TOUR"

Use the SFO TAC chart and fly from SFO to the Oakland Coliseum, then to the Golden Gate Bridge and back to SFO. To keep the airspace less confusing, NORCAL approach has approved you for this "Bay Tour" as long as you stay below 2,000 MSL. Depart SFO on RWY 1L, climb to 1800 and fly to the Oakland Coliseum (approximate heading 030). After flying over the Coliseum, fly to the Golden Gate Bridge (approximate heading 290). After the bridge fly an approximate heading of 175 towards SFO.

While SFO is certainly complex airspace, the main objective of this sim mission is to let you have some fun flying with visual references. Practice and rehearse basic radio calls. Your instructor may even call out "traffic" for practice and familiarization with terminology and scanning for traffic.

Departure	**Enroute/Practice Area**	**Return**
• Depart RWY 1L and level off at 1800. • ATC will ask you to stay below 2,000 ft. for this flight.	Navigating by looking outside and using the TAC chart for reference, fly to the coliseum and the to the golden gate bridge.	Head back to SFO for landing. If the practice is needed, try taxiing to a specified ramp for parking and practice ground communications.

(Flight lesson information continued on next page)

FLYING SLOW, RADIOS, AND YOUR LOCAL AREA

FLIGHT

Now that you are becoming comfortable with controlling the airplane and basic procedures, this third lesson may be a fun time to go and fly to another airport perhaps for breakfast or lunch.

Departure	**Enroute/Practice Area**	**Return**
As much as practical, try to perform the basic radio calls as you depart the airport (with instructor guidance). Perform the takeoff and maintain straight and level. Using the sectional as reference, your instructor will point out landmarks in the area as you head out to the practice area.	Practice the listed tasks for this lesson. Your instructor will introduce and demonstrate slow flight and then allow you to practice it.	As you head back, learn to program the GPS to navigate "direct to" the airport. As you approach the airport, your instructor will talk through as much of the approach and landing as possible and should allow you to line up the airplane for the approach to landing. With instructor assistance, try to make the basic radio calls as you approach the airport to land.

FLYING SLOW, RADIOS, AND YOUR LOCAL AREA

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Checklist Use	Use checklist procedures for all appropriate phases of flight.	**Perform**
Preflight	Aircraft preflight inspection including which items must be inspected, the reasons for checking each item, and how to detect possible defects, and the associated regulations.	Practice
Engine Starting	Position the airplane properly considering structures, other aircraft, and the safety of nearby persons and property.	Practice
Taxiing	Exhibit procedures for steering, maneuvering, maintaining taxiway/runway alignment, and situational awareness to avoid runway incursions. Perform break check. Control direction and speed without excessive use of brakes.	**Perform**
Straight and Level Flight, Turns, Climbs, Descents	Level off at assigned altitude +/- 200 feet; heading +/- 20 and airspeed +/- 10 knots. Use appropriate pitch and power settings.	**Perform**
Normal Takeoff	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	Practice
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	Practice
Risk Management	Positive exchange of flight controls, propeller safety, go/no go decision making.	**Perform**

New		
Task	Element	Completion Standards
Radio Communications	Selecting appropriate frequencies.	Practice
	Transmit using standard phraseology and procedures.	Practice
	Acknowledge radio communications and comply with instructions.	Practice
Slow Flight	Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL.	Practice
	Divide attention between airplane control, traffic avoidance and orientation.	Practice
Navigating by looking outside (Pilotage)	Identify landmarks by relating surface features to chart symbols.	Practice
	Situational awareness.	Practice
Navigation (GPS Basic Use)	Use of the "Direct To" function.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • the relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude • reliance on aircraft performance indications, such as aircraft buffet instead of artificial warning systems (stall horn) • the effect of environmental element on aircraft performance	Practice

How to Fly When the Wind Blows

Prerequisites

Straight & Level

Turns to a Heading

Home Study

AFH: Chapter 6

Maneuvers Guide

FAR 91.119, 61.113, 61.57

Primary Tasks

Normal Takeoff

Steep Turns

Slow Flight

Use of the Radios & Radio Communications

Basic Use of GPS

Sectional Chart Awareness

Rectangular Course (NEW)

Turns Around a Point (NEW)

S-Turns (NEW)

OBJECTIVE

You're going to learn about how the wind effects your airplane when you're in the air and what you can do to counteract or even use the wind to your advantage.

DESCRIPTION

When you're flying on a day with some wind, which is most days, your airplane is a lot like a boat in the Mississippi River. You're suspended in a moving body of air and you're going to be pushed downstream unless you take proactive steps to counteract the effect of wind. To help you understand this important fact of flight and how you can control it, your instructor will teach you three specific flight pattern that have been used since the Wright Brothers to teach pilots how to fly in the wind. These flight patterns are the Rectangular Course, Turns Around a Point, and S-Turns. Together these are known as ground reference maneuvers. In each one, you'll be using basic piloting techniques to keep a constant distance from a reference point on the ground while you maneuver your airplane to fly a specific pattern or shape. While these specific maneuvers are rarely flown in a normal flight, the skills and concepts you'll learn are used on every flight.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these new tasks:

- All three ground reference maneuvers: Effects of wind on the ground track and relation to ground reference point, effect of bank angle and groundspeed on rate and radius of turn, entry/exit requirements of maneuver, emergency landing considerations during conduct of the maneuver
- Rectangular Course: relation of maneuver to airport traffic pattern
- Turns Around a Point: relation of maneuver to create spacing in traffic pattern
- S-Turns: correlation of S-Turns as one option to increase separation from other aircraft

HOW TO FLY WHEN THE WIND BLOWS

San Marcos Airport (KHYI), southwest of Austin. You and a photographer have been asked to get aerial photographs of the leak. San Marcos and Austin airports are both towered and provide the opportunity to practice basic radio communications.

Departure	Enroute/Practice Area	Return
Depart from RWY 17L at KAUS. Climb to 2500 ft.	Navigate by pilotage to San Marcos (following I-35 highway). Perform three perfect right hand circles at 1500 ft. around the tank.	Head for KHYI to land on RWY 13.

FLIGHT

You may wish to relate this flight to the scenario presented for this lesson to emphasize the real world applications for ground reference maneuvers.

Departure	Enroute/Practice Area	Return
Radio Communications Normal Takeoff	Steep turns Slow flight Introduction to rectangular course, turns around a point, and s-turns.	Fly back to the airport navigating with the sectional and GPS direct with minimal help from the instructor. Student should perform and set up for the landing with assistance and verbal guidance from instructor.

HOW TO FLY WHEN THE WIND BLOWS

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Normal Takeoff	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	Practice
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	Practice
Radio Communications	Selecting appropriate frequencies. Transmit using standard phraseology and procedures. Acknowledge radio communications and comply with instructions.	Practice
Slow Flight	Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES). Divide attention between airplane control, traffic avoidance and orientation.	Practice
Navigating by looking outside (Pilotage)	Identify landmarks by relating surface features to chart symbols while maintaining situational awareness.	Practice
Navigation (GPS Basics)	Use of the "Direct To" function.	Practice

New		
Task	**Element**	**Completion Standards**
Preflight Prep	Use available aviation weather resources to obtain an adequate weather briefing.	Practice
	Identify, assess, and mitigate risks, encompassing limitations of aviation weather reports and forecasts.	Practice
Ground Reference Maneuvers	Demonstrates clearing the area of terrain, obstacles, possible airspace incursion and other aircraft. Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.	Practice
Rectangular course	Select a suitable ground reference.	Practice
	Enter a left or right pattern, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area, 45◦ to the downwind leg.	Practice
	Apply adequate wind-drift correction during straight-and-turning flight to maintain a constant ground track.	Practice
S-Turns	Enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area.	Practice
	Apply adequate wind-drift correction during straight-and-turning flight to maintain a constant radius turn on each side of the selected reference line.	Practice
	Reverse the turn directly over the selected reference line.	Practice
Turns Around a Point	Enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area.	Practice
	Apply adequate wind-drift correction during straight-and-turning flight to maintain a constant radius turn on each side of the selected reference line.	Practice
	Complete turns in either direction around selected reference point.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • collision avoidance • task management • wire strike avoidance • positive aircraft control	Practice

STAGE CHECK 1 – SIMULATOR

PHASE 1	PRIVATE PILOT AIRPLANE
STAGE 1	**FUNDAMENTALS OF FLIGHT**
Prereq.	You must have successfully practiced and been introduced to all tasks for this stage (lesson 1-3). You must demonstrate proficiency on tasks lists below prior to your Stage 1 Check.
Objective	Demonstrate proficiency in basic flight tasks by visual reference.
Scenario	In the simulator, you will perform a short flight in the local area. Prior to the evaluation, you will calculate weight and balance for yourself and the evaluator in an assigned aircraft. Obtain weather information for the day of the stage check.

GROUND EVALUATION [:45 MINUTES]

Completion Standards: Demonstrates satisfactory knowledge and basic understanding of the topics and tasks listed below. (S=satisfactory; U=unsatisfactory)

S	U	Preflight Planning	S	U	Special Emphasis Areas
		Obtaining Weather Information			PAVE/IMSAFE Checklists (ADM)
		Computing Weight & Balance			Runway Incursion Avoidance
		Familiarity with Local Airspace			Collision Avoidance
		Familiarity with Aeronautical Chart			

AATD EVALUATION [:45 MINUTES]

Completion Standards: Maintain altitude within 200 feet, airspeed within 20 knots and heading within 20 degrees, with minimal assistance from the evaluator. (S=satisfactory; U=unsatisfactory)

S	U	General	S	U	Area of Operations
		Use of Checklists			Straight & Level Flight
		Engine Starting			Change of Airspeed
					Slow Flight
S	**U**	**Navigation**			Turnings to Headings
		Basic Pilotage			Climbs & Descents
		Program & Navigate “Direct To” an Airport			Turning Climbs & Descents

Keeping Smooth Air Over Your Wings

Prerequisites

Straight & Level

Turns to a Heading

Intro to Slow Flight

Home Study

AFH: Chapter 4

Maneuvers Guide

FAR 91.155

Primary Tasks

Normal Takeoff

Steep Turns

Rectangular Course

Turns Around a Point

S-Turns

Slow Flight

Use of the Radios & Radio Communications

Basic GPS Use

Sectional Chart Awareness

Power On Stalls (New)

Power Off Stalls (New)

OBJECTIVE

Your main objective for this lesson is to gain an understanding of when and why an airplane looses lift over its wings to result in a stall. You will begin to recognize the early warning signs of an impending stall and how to recover when a stall occurs.

DESCRIPTION

An airplane wing stalls when the angle in which it's traveling through the air is increased so much that the airflow over the wing is no longer smooth and causes the lift being created to decrease. When a stall occurs, you simply reduce the wing's angle, by lowering the nose, to get smooth air flowing once again.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these new tasks:

- Power-On Stall: Circumstances that can lead to an accelerated stall, rationale for power setting variances
- Power-Off Stall: Components of a stabilized descent, explain how the power off stall correlates to landing
- Power-On and Power-Off Stalls: Importance of the 1,500 (SEL) foot AGL minimum altitude, relating the maneuver to a real-life portion of a flight, approach to stall and full stall indications, determining which aircraft inputs are required to meet heading or bank angle requirements, determining the most efficient stall recovery procedure, importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so, aerodynamics associated with stalls and spins in various aircraft configurations and attitudes, circumstances that can lead to an inadvertent stall or spin

KEEPING SMOOTH AIR OVER YOUR WINGS

It is important to experience both "normal" and unusual stall situations. It is highly recommended that you fly this simulator mission several times before you move on to the flight portion of this lesson. You should have a good understand when a stall is likely to occur, how to recognize it, and most importantly, how to recover from a stall, before you attempt one in the real airplane.

Event	Starting Conditions	Event Profile
1	In Flight at 5,500 AGL	Your instructor will help you enter a normal Power-Off Stall. Once stalled you'll hold full back pressure and maintain the stall. Your instructor will help you enter what's called a "falling leaf" by release the back pressure on the yoke, recovering from the stall, and then increasing back pressure to reenter a stalled condition. You'll repeat this several times. Pay attention to how the controls respond and notice the general condition of the flight. The stall should feel unnatural but not violent or rough. After descending 2,000 in a falling leaf, your instructor will pause the flight. You can restart this event or move on to event 2.
2	In Flight at 5,500 AGL	Practice normal Power-Off and Power-On Stall entry and recovery procedures. Once comfortable with Power-Off and Power-On Stalls, pause the flight and start event 3.
3	In Flight at 5,500 AGL	Practice entering and recovering from a Power-Off Stall while in a 30^{o} left bank. Repeat at different bank angles and turn directions. Once comfortable with Power-Off Stalls while turning, try the same thing with the Power-On Stalls. When you're ready pause the flight and start event 4.
4	In Flight at 5,500 AGL	Your instructor is going to help you put the airplane in a stall-spin condition. Practice recovery from the stall. Focus on the steps you need to take to recovery versus what the spin looks or feels like in the sim.

SIMULATOR SCENARIO

You'll start in the air at 2,500 MSL, 7 nm west of San Marcos Airport (KHYI). It's not a great day for flying with an overcast sky at 3,800 MSL, 5 miles of visibility in rain. The wind is 130 at 22 knots. Unfortunately, runway 13 is closed, so you'll be entering left traffic for runway 17.

FLIGHT

Conduct a flight in your local practice area.

Departure	Enroute/Practice Area	Return
Radio Communications Normal Takeoff	Navigate by pilotage out to the practice area. Review slow flight, maneuvering slow flight & flight at minimum controllable airspeed. Introduce, demonstrate, and practice power-on and power-	Fly back to the airport navigating with the sectional and GPS direct with minimal help from the instructor. Student should perform and set up for the landing with

Keeping Smooth Air Over Your Wings

	off stalls. Practice and review additional tasks (steep turns, ground ref. maneuvers)	assistance and verbal guidance from instructor.

KEEPING SMOOTH AIR OVER YOUR WINGS

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Normal Takeoffs	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	Practice
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	Practice
Radio Communications	Selecting appropriate frequencies, transmit using standard phraseology and procedures, acknowledge radio communications and comply with instructions.	Practice
Rectangular Course	Enter a left or right pattern, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area, 45° to the downwind leg. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	Practice
Turns Around a Point	Enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	Practice
S- Turns	Enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	Practice
Navigation (GPS Basics)	Use of the "Direct To" function.	**Perform**

New		
Task	Element	Completion Standards
Slow Flight	Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL.	Perform
	Divide attention between airplane control, traffic avoidance, and orientation.	**Perform**
	Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.	Practice
	Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by instructor.	Practice
	Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	Practice
Power On Stalls	Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL.	Practice
	Establish the takeoff, departure, or cruise configuration as specified.	Practice
	Set power (as assigned) to no less than 65 percent available power.	Practice
	Transition smoothly from the takeoff or departure attitude to the pitch attitude that will induce a stall.	Practice

Keeping Smooth Air Over Your Wings

Lesson Tasks and Completion Standards

New		
Task	Element	Completion Standards
Power On Stalls (continued)	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall	Practice
	Recognize and recover promptly after a fully developed stall occurs	Practice
	Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established	Practice
	Accelerate to VX or VY speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator	Practice
Power Off Stalls	Select an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL (ASEL, ASES) OR 3,000 feet AGL (AMEL, AMES)	Practice
	Establish a stabilized descent in the approach or landing configuration, as specified by the evaluator	Practice
	Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall	Practice
	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°; if in turning flight, while inducing the stall	Practice
	Recognize and recover promptly after a full stall has occurred	Practice
	Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.	Practice
	Execute stall recovery in accordance with procedures set forth in the POH	Practice
	Accelerates to VX or VY speed before the final flap retraction; returns to the altitude, heading and airspeed specified by the examiner	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • The dynamic aerodynamic relationship between angle of attack, airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude. • Avoiding accelerated stalls	Practice

Entering and Exiting the Airport Environment

Prerequisites

Rectangular course
Turns Around a Point
S-Turns
Slow Flight
Power On & Off Stalls

Home Study

AFH: Chapter 7, Chapter 8 (excluding the section on short & soft field landings & emergency approaches and landings)

AIM Chapter 4, Section 3

FAR 91.113, FAR 91.126, FAR 91.127, & FAR 91.155

POH - cross wind component chart.

Primary Tasks

Traffic Pattern Radio Communications

Tower Controlled Operations

Non-tower Controlled Operations

Wake Turbulence

Runway & Taxiway Markings

Lost Procedures (New)

Traffic Pattern Operations (New)

Touch & Gos (New)

Normal & Crosswind landings (New)

Go Arounds (New)

Forward & Side Slips (New)

OBJECTIVE

In this lesson, you gain an understanding of how to safely operate to and from an airport and enter the traffic pattern and land safely.

DESCRIPTION

The airport traffic pattern represents a very standardized way to create organization and structure for how a pilot can approach an airport for landing. All airports, towered and non-towered, have traffic patterns. They manage the flow of aircraft in an orderly sequence. You are already familiar with flying a traffic pattern, as it is the same shape as a rectangular pattern ground reference maneuver. You will learn how to maintain a stabilized approach at the recommended airspeed, use an aim point for touchdown, and evaluate timing, distance, and height for round out, flare, and touchdown for the landing. You will also learn how to properly slow down the aircraft and maintain directional control after touchdown.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Traffic Pattern Operations: Towered and non-towered airport operations and runway selection, right-of-way rules, use of radio for proper communications
- Normal & Crosswind Landings: Available landing distance, stabilized approach, energy management, headwind, tailwind, and crosswind component, emergency procedures during approach and landing
- Go-Arounds: Communication procedures, wind conditions and effects
- Forward & Side Slips: When and why forward slips are used and differences between side and forward slips

ENTERING AND EXITING THE AIRPORT ENVIRONMENT

Event	Starting Conditions	Event Profile
1	In-flight at various altitudes and distances near your home airport if uncontrolled or a nearby uncontrolled airport.	With simulation paused, try to figure out how you would enter the pattern for a normal landing. Your instructor will un-pause the simulation and you'll enter the pattern as you planned. As soon as you turn downwind, your instructor will pause and relocate the simulator to a different location near the same airport and you'll need to enter the pattern again. Repeat until you're feeling comfortable with entering the pattern from many different locations, headings, and wind conditions.

FLIGHT

Practice touch and go procedures (if appropriate) and go-arounds in the traffic pattern at the airport of your choice. Review slow flight and stalls.

Departure	Enroute/Practice Area	Return
Fly to a nearby airport that will allow you to practice entry into the traffic pattern.	Practice traffic pattern operations and communications. Practice normal and crosswind landings.	As you fly back to your home airport, practice steep turns, slow flight, power-on stalls, and power-off stalls.

ENTERING AND EXITING THE AIRPORT ENVIRONMENT

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Normal Takeoffs	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	**Perform**
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	**Perform**
Radio Communications	Selecting appropriate frequencies, transmit using standard phraseology and procedures, acknowledge radio communications and comply with instructions.	Practice
Slow Flight	Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	**Perform**
Power On & Power Off Stalls	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. Recognize and recover promptly after a fully developed stall occurs. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.	Practice

New		
Task	**Element**	**Completion Standards**
Lost Procedures	Use navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate.	Practice
Traffic Patterns	Properly identify and interpret airport runways, taxiways, markings, and lighting.	Practice
	Comply with proper traffic pattern procedures.	Practice
	Maintain proper spacing from other aircraft.	Practice
	Correct for wind drift to maintain the proper ground track.	Practice
	Maintain orientation with the runway/landing area in use.	Practice
	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.	Practice
	Maintain an awareness of the position of other aircraft in the pattern.	
Normal Landings	Ensure the aircraft in on the correct/assigned runway.	Practice
	Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision.	Practice
	Complete the appropriate checklist.	Practice
	Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length.	Practice
	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.	Practice
	Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10/-5 knots, absence, not more than 1.3 VSO, with wind gust factor applied +10/-5 knots, or as recommended for the aircraft type and gust velocity.	Practice

ENTERING AND EXITING THE AIRPORT ENVIRONMENT

	Make smooth, timely, and correct control application during the round out and touchdown.	Practice
	Touch down smoothly at a speed that provides little or no aerodynamic lift.	Practice
	Touch down within the available runway, within 400 feet beyond a specified point with no drift and with the airplane's longitudinal axis aligned with and over the runway centerline.	Practice
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	Practice
	Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.	Practice
Forward Slip	Utilize after landing runway incursion avoidance procedures.	Practice
	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.	Practice
	Maintain a ground track aligned with the runway centerline and an airspeed, which results in minimum float during the round out.	Practice
	Make smooth, timely, and correct control application during the recovery from the slip, the round out, and the touchdown.	Practice
	Touch down within 400 feet beyond a specified point with no drift, and with the airplane's longitudinal axis aligned with and over the runway centerline.	Practice
	Maintain crosswind correction and directional control throughout the approach and landing sequence & correlate any cross wind effects with direction of forward slip and transition to side slip for landing.	Practice
	Complete the appropriate checklist.	Practice
Go Arounds	Make a timely decision to discontinue the approach to landing.	Practice
	Applies takeoff power immediately and transitions to climb pitch attitude for VX or VY as appropriate +10/-5 knots.	Practice
	Retract the landing gear in accordance with manufacturer's guidance.	Practice
	Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.	Practice
	Maintain takeoff power VY +10/-5 to a safe maneuvering altitude.	Practice
	Maintain directional control and proper wind-drift correction throughout the climb.	Practice
	Complete the appropriate checklist.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Collision avoidance, scanning, aircraft separation • Selection of runway based on wind, pilot capability and aircraft limitations • Sterile cockpit • Stall/spin awareness • Windshear • Wake Turbulence • Land and Hold Short Operations	Practice

Using Instruments to Fly and Navigate

Prerequisite

Chart Symbology

Basic Use of GPS

Home Study

PHAK: Chapter 15-22 through 15-28

FAR 91. 119

Primary Tasks

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Go-Arounds

Forward & Side Slips

Traffic Pattern Operations

Flying By Reference to Instruments (flying under the hood): straight and level, constant airspeed climbs and descents, and turns to a heading (New)

VOR Use (New)

Tracking a Radial (New)

VOR Triangulation (New)

OBJECTIVE

In this lesson, you will be introduced to navigating with tools and equipment inside the airplane, specifically your VOR. You'll learn how to locate where you are and how to continue heading where you want to go. You will also be introduced to flying solely by reference to instruments. Continue to practice takeoffs and landings.

DESCRIPTION

Spread across the country are VOR ground stations emitting signals that are received and displayed in your airplane. Those signals can help you navigate to and from any station, resembling electronic pathways and a highway system in the sky.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with new tasks:

- Straight & Level Flight, Constant Airspeed Climb & Descents, and Turns to a Heading (by reference to instruments): Flight instrument function and operation, flight instrument sensitivity, limitations, and potential errors in unusual attitudes, flight instrument correlation (pitch instruments/bank instruments), aerodynamic factors related to maintaining the specific flight attitude (straight & level, climb, descent, turning), vestibular illusions (leans) and spatial disorientation, appropriate pitch, bank, and power settings for airplane being flown
- VOR Use: Ground-based navigation (orientation, course determination, equipment, tests and regulations)
- Tracking a Radial & VOR Triangulation: How to use a VOR infrastructure to locate the airplane’s position

Using Instruments to Fly and Navigate

Ground

You're going to meet your friend for lunch and have rented an airplane without a GPS. The city and surrounding airspace is congested and you want to plan the trip with "back up" navigation other than pilotage, so you decide to fly on a victor airway. The weather is reporting some haze on departure.

1. What altitude will you fly?
2. What special considerations should be made when flying on victor airways and/or over a VOR?
3. Looking at your route of flight, knowing the weather, and assuming you know the active departure runway, what is your basic plan/heading/ after takeoff to intercept the VOR?
4. If you lose site of the horizon and inadvertently get yourself into thick haze, what should you do? Would you need to call ATC?

Simulator Scenario

Practice navigating with a VOR and fly from Champaign, IL (KCMI) to Peoria, IL (KPIA) via a victor airway (V343).

Departure	Enroute/Practice Area	Return
Your instructor will start you over KCMI at 4,500 MSL. Intercept and track the 297 radial from CMI. Fly at 4,500.	As you fly to KPIA, you will be introduced to basic instrument flying and maintaining straight and level. Introduce, demonstrate, and practice unusual attitudes when enroute.	You may end the flight once you reach KPIA.

Flight

Fly to another local airport to practice takeoffs and landings. While enroute, you will practice flying by reference to instruments with a “hood” to limit your view outside.

Departure	Enroute/Practice Area	Return
If applicable for local area, the instructor should demonstrate tuning and identifying the VOR and track a radial as you depart.	Put a “hood” on and practice flying straight and level as you head to a local airport. Practice takeoffs and landings (normal and with crosswinds).	As you head back to the airport, use triangulation to identify your position.

USING INSTRUMENTS TO FLY AND NAVIGATE

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Normal Takeoffs	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	**Perform**
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	**Perform**
Radio Communications	Selecting appropriate frequencies, transmit using standard phraseology and procedures, acknowledge radio communications and comply with instructions.	Practice
Slow Flight	Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	**Perform**
Power On & Power Off Stalls	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. Recognize and recover promptly after a fully developed stall occurs. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.	Practice
Traffic Patterns	Comply with proper traffic pattern procedures. Maintain proper spacing. Correct for wind drift to maintain proper ground track and situational awareness.	Practice
Normal Landings	Make smooth, timely, and correct control application during the round out and touchdown.	Practice
Forward Slip	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.	Practice
Go Arounds	Execute a timely go-around decision when the approach/landing cannot be made within the tolerances or for any other condition that that may result in an unsafe approach or landing. Apply and maintain take power and Vy to a safe altitude.	Practice

**To meet the requirements for a private pilot certificate you will need to log a minimum of 3 hours of flight training on controlling and maneuvering the airplane solely by reference to instruments (SI).*SI = Simulated Instrument*

New		
Task	Element	Completion Standards
VOR Use & Navigation	Intercept and track a given course, radial, or bearing, as appropriate.	Practice
	Recognize and describe the indication of station passage, if appropriate.	Practice
	Recognize signal loss and take appropriate action.	Practice
	Use proper communication procedures when utilizing radar services.	Practice
	Maintain the appropriate altitude, ±200 feet and headings ±15°.	Practice
	Locate the airplane's position using the VOR navigation system.	Practice
Basic Instrument Flight	Control the aircraft solely by reference to instruments.	Practice
	Perform an instrument scan and instrument cross-check.	Practice
Straight & Level (SI)	Control the aircraft solely by reference to instruments.	Practice
	Perform an instrument scan and instrument cross-check.	Practice
	Perform coordinated, smooth control application to correct for altitude, heading, airspeed, and bank deviations during straight-and-level flight.	Practice

USING INSTRUMENTS TO FLY AND NAVIGATE

	Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	Practice
Constant Airspeed Climbs & Descents (SI)	Control the aircraft solely by reference to instruments.	Practice
	Perform an instrument scan and instrument cross-check.	Practice
	Establish the climb configuration specified by the evaluator.	Practice
	Perform coordinated, smooth control application to correct for airspeed, heading and bank deviations during climb/descent and then for level off.	Practice
	Perform appropriate trimming to relieve control pressures.	Practice
	Level off at the assigned altitude and maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	Practice
Turns to a Heading (SI)	Control the aircraft solely by reference to instruments.	Practice
	Perform an instrument scan and instrument cross-check.	Practice
	Perform coordinated, smooth control application to establish a standard rate turn and to correct for altitude and bank deviations and rollout on turn and to correct for altitude and bank deviations and rollout on specified heading.	Practice
	Perform appropriate trimming to relieve control pressures.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Good cockpit management	Practice

Practicing for the "What Ifs"

Prerequisites

Ground Reference Maneuvers

Traffic Pattern Operations

Home Study

AFH: Chapter 8-25, Chapter 16

Airplane POH

Primary Tasks

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Go Arounds

Forward & Side Slips

Traffic Pattern Operations

Emergency Descent (New)

Emergency Approach & Landing (Power Off Landing) (New)

Emergency Communications (New)

Emergency Equipment & Survival Gear

Systems & Equipment Manlfunction

OBJECTIVE

In in this lesson, you are going to learn how to safely prepare the airplane for landing in case of an emergency.

DESCRIPTION

You will learn and practice the procedures involved in an emergency approach and landing, including selecting a safe and appropriate landing site. The practice and simulation of emergency procedures are meant to make it an automatic response and routine procedure, so that in the event of an actual emergency you will remain calm and decisive and ensure a safe outcome.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these new tasks:

- Emergency Descent: situations that would require an emergency descent, ATC clearance deviations, ELTs and/or emergency locating devices
- Emergency Approach & Landing: regulations pertaining to safe altitudes, selecting a landing location, hazards of other than hard surfaced runways, minimum fuel, glide speed and distance, communications, stabilized approach, energy management, wind conditions and effects, emergency procedures, radar assistance to VFR aircraft, transponder
- Emergency Equipment and Survival Gear: emergency equipment, climate extremes (hot/cold), mountainous terrain, overwater operations, gear to meet physical needs until rescue, ELT operation, limitations and testing requirements

(continued on the next page)

PRACTICING FOR THE "WHAT IFS"

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these new tasks: *(continued from previous page)*

- Systems & Equipment Malfunction: elements related to system and equipment malfunctions appropriate to the airplane, including the following:
  - partial or complete power loss
  - engine roughness or overheat
  - carburetor or induction icing
  - loss of oil pressure
  - fuel starvation
  - electrical malfunction
  - vacuum/pressure, and associated flight instrument malfunction
  - pitot/static system malfunction
  - landing gear or flap malfunction
  - inoperative trim
  - inadvertent door or window opening
  - structural icing
  - smoke/fire/engine compartment fire
  - any other emergency appropriate

GROUND

You are on a cross country flight, about 45 minutes from your destination and you notice your oil temp rising into the red area of the gauge.

1. What other indications can you cross reference to verify there is a problem with the engine and not just the gauge?
2. Should you land immediately? Where would you land?

PRACTICING FOR THE "WHAT IFS"

SIMULATOR SCENARIO

Your first takeoff (or 4) won't go so well, since your instructor will fail the engine at different points during and right after takeoff. It's your job to get the plane to a safe stop on the ground. Once you're comfortable with engine failures during takeoff, your instructor will relocate you to the practice area at 5,500 MSL. In the practice area, you will work on emergency procedures at altitude, pitching for the best glide airspeed, selecting a good forced landing location, and emergency communications. You'll repeat this several times.

Departure	Enroute/Practice Area	Return
Perform several takeoffs with engine failures happening at various times during the takeoff roll, right after rotation, and when you're still climbing on upwind.	Introduce, demonstrate, and practice pitching for best glide. Practice an emergency approach and landing, addressing full and partial power loss in flight. Repeat several times until you feel comfortable with emergency procedures.	As you fly back to your home airport, practice unusual attitudes. Practice entering the traffic pattern and landing at your destination airport.

FLIGHT

Departure	Enroute/Practice Area	Return
Perform a normal takeoff. Head out to the practice area.	Demonstrate and practice pitching for best glide, emergency approach and landing, addressing full and partial power loss in flight.	Under the hood, have the student program the GPS and/or VOR to allow them to navigate back to the airport. As time allows, practice takeoffs and landings in the traffic pattern.

PRACTICING FOR THE "WHAT IFS"

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Normal/Crosswind Takeoff	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	**Perform**
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	**Perform**
Radio Communications	Selecting appropriate frequencies, transmit using standard phraseology and procedures, acknowledge radio communications, and comply with instructions.	**Perform**
Slow Flight	Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	**Perform**
Power On & Power Off Stalls	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. Recognize and recover promptly after a fully developed stall occurs. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.	**Perform**
Traffic Patterns	Comply with proper traffic pattern procedures. Maintain proper spacing. Correct for wind drift to maintain proper ground track and situational awareness.	Practice
Normal/Crosswind Landings	Make smooth, timely, and correct control application during the round out and touchdown.	Practice
Forward Slip	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required	Practice
Go-Arounds	Execute a timely go-around decision when the approach/landing cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing. Apply and maintain takeoff power and Vy to a safe altitude.	Practice

New		
Task	**Element**	**Completion Standards**
Emergency Descent	Analyze the situation and select an appropriate course of action.	Practice
	Establish and maintain the appropriate airspeed and configuration for the emergency descent.	Practice
	Exhibit orientation, division of attention, and proper planning.	Practice
	Maintain positive load factors during the descent.	Practice
	Follow the appropriate checklist.	Practice
Emergency Approach and Landing	Analyze the situation and select an appropriate course of action.	Practice
	Establish and maintain the recommended best-glide airspeed, ±10 knots.	Practice
	Plan and follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions that would allow a safe landing.	Practice

PRACTICING FOR THE "WHAT IFS"

	Prepare for landing, or go-around, as specified by your instructor.	Practice
	Completes the appropriate checklist.	Practice
	Makes appropriate radio calls.	Practice
System and Equipment Malfunctions	Analyze the situation and take appropriate action for simulated emergencies appropriate to the airplane provided for at least three of the system and equipment malfunctions listed in the knowledge elements.	Practice
	Completes appropriate checklist or procedure.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • Avoiding hazardous attitudes • Energy management • Orientation, division of attention, and proper planning • Low altitude maneuvering • Difference between best glide speed (L/D) and minimum sink speed, and when each one is appropriate • Identify, assess, and mitigate risks of wind	Practice

Perfecting Your Landings

Prerequisites

Ground Reference Maneuvers

Slow Flight

Power On & Off Stalls

Home Study

PHAK: Chapter 10, Chapter 13

Pre-solo written practice

Primary Tasks

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Go-Arounds

Traffic Pattern Operations

OBJECTIVE

Practice takeoffs and landings and traffic pattern procedures. Review past maneuvers and tasks.

DESCRIPTION

To prepare for your solo flight, you will practice takeoffs and landings and become proficient acting as pilot in command of the airplane. Your instructor may also review all past maneuvers and tasks to help you prepare for the stage check and your first solo.

PREFLIGHT DISCUSSION

Prepare for your presolo written test.

- Review applicable Part 61 and 91 regulations
- Review airspace rules and procedures where solo flight will be preformed
- Review flight characteristics and operational limitations for the airplane

Ground

With your instructor, discuss how you would handle the following scenarios.

1. While flying in the traffic pattern, the airplane landing in front of you touches down and blows a tire and is now disabled on the runway.
2. You are performing touch and go's at a towered airport and as you approach short final, you realize that the controller has not cleared you to land.
3. As you turn final to land, you see that another airplane has cut you off by entering final ahead of you.

PERFECTING YOUR LANDINGS

SIMULATOR PRACTICE SESSION

You'll use the simulator to practice landing procedures, including power settings, sight pictures, and adjusting for different wind conditions. Try flying left and right patterns for several different runways. Since the key to a great landing is a great approach, don't try to land, instead focus on setting up the approach. Perform a go-around at 50 AGL on each approach and re-enter the pattern.

Event	Starting Conditions	Event Profile
1	Ready for Takeoff	Takeoff and enter left traffic. Fly an approach to a normal landing. Start a go-around at 50 feet AGL and enter left traffic. Repeat as required with different wind conditions.
2	Ready for Takeoff	Takeoff and enter right traffic. Fly an approach to a normal landing. Start a go-around at 50 feet AGL and enter right traffic. Repeat as required with different wind conditions.
3	On 45° Entry to Left Downwind	Enter left traffic on the downwind. Fly an approach to a normal landing. Start a go-around at 50 feet AGL and depart the area. Repeat as required with different wind conditions.
4	On 45° Entry to Right Downwind	Enter right traffic on the downwind. Fly an approach to a normal landing. Start a go-around at 50 feet AGL and depart the area. Repeat as required with different wind conditions.

FLIGHT

Depending on your home airport, stay in your local traffic pattern or fly to a nearby airport that will allow optimal practice for takeoffs and landings. Review any additional maneuvers and tasks as appropriate.

Departure	Enroute/Practice Area	Return
Normal takeoff and remain in the traffic pattern, or fly to a nearby airport and enter the pattern. Radio Communications	Perform takeoffs and landings as specified by your flight instructor.	

PERFECTING YOUR LANDINGS

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Traffic Patterns	Properly identify and interpret airport runways, taxiways, markings, and lighting.	**Perform**
	Comply with proper traffic pattern procedures.	**Perform**
	Maintain proper spacing from other aircraft.	**Perform**
	Correct for wind drift to maintain the proper ground track.	**Perform**
	Maintain orientation with the runway/landing area in use.	**Perform**
	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.	**Perform**
	Maintain an awareness of the position of other aircraft in the pattern.	**Perform**
Normal Takeoff	Verify ATC clearance and no aircraft is on final before crossing the Hold Line.	**Perform**
	Verify aircraft is on the assigned/correct runway.	**Perform**
	Ascertain wind direction with or without visible wind direction indicators.	**Perform**
	Determining if crosswind component exceeds pilot's ability or is beyond aircraft manufacturer.	**Perform**
	Position the flight controls for the existing wind conditions.	**Perform**
	Clear the area; taxi into the takeoff position and align the airplane on the runway center/takeoff path.	**Perform**
	Confirm takeoff power, and proper engine and flight instrument indications prior to rotation.	**Perform**
	Rotate and lift off at the recommended airspeed and accelerates to VY (or other speeds as appropriate for aircraft).	**Perform**
	Establish a pitch attitude that will maintain VY +10/-5 knots (or other speeds as appropriate for transport aircraft).	**Perform**
	Retract the landing gear and flaps in accordance with manufacturer's guidance or good operating practice.	**Perform**
	Maintain takeoff power and VY +10/-5 knots to a safe maneuvering altitude.	**Perform**
	Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	**Perform**
	Comply with noise abatement and published departure procedures.	**Perform**
	Complete the appropriate checklist.	**Perform**
Normal Landings	Ensure the aircraft in on the correct/assigned runway.	**Perform**
	Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision.	**Perform**
	Complete the appropriate checklist.	**Perform**
	Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length.	**Perform**
	Ensure the aircraft in on the correct/assigned runway.	**Perform**
	Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision.	**Perform**
	Complete the appropriate checklist.	**Perform**

PERFECTING YOUR LANDINGS

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Normal Landings (continued)	Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length.	**Perform**
	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.	**Perform**
	Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10/-5 knots, or as recommended for the aircraft type and gust velocity.	**Perform**
	Make smooth, timely, and correct control application during the round out and touchdown.	**Perform**
	Touch down smoothly at a speed that provides little or no aerodynamic lift.	**Perform**
	Touch down within the available runway, within 400 feet beyond a specified point with no drift and with the airplane's longitudinal axis aligned with and over the runway centerline.	**Perform**
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	**Perform**
	Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.	**Perform**
Forward Slip	Utilize after landing runway incursion avoidance procedures.	**Perform**
	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.	**Perform**
	Maintain a ground track aligned with the runway centerline and an airspeed, which results in minimum float during the round out.	**Perform**
	Make smooth, timely, and correct control application during the recovery from the slip, the round out, and the touchdown.	**Perform**
	Touch down within 400 feet beyond a specified point with no drift, and with the airplane’s longitudinal axis aligned with and over the runway centerline.	**Perform**
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	**Perform**
	Complete the appropriate checklist.	**Perform**
Go-Arounds	Make a timely decision to discontinue the approach to landing.	**Perform**
	Applies takeoff power immediately and transitions to climb pitch attitude for VX or VY as appropriate +10/-5 knots.	**Perform**
	Retract the landing gear in accordance with manufacturer’s guidance.	**Perform**
	Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.	**Perform**
	Maintain takeoff power VY +10/-5 to a safe maneuvering altitude.	**Perform**
	Maintain directional control and proper wind-drift correction throughout the climb.	**Perform**
	Complete the appropriate checklist.	**Perform**

Perfecting Your Landings

STAGE CHECK 2 – AIRPLANE

(3 Hour Block)

PHASE 1	PRIVATE PILOT AIRPLANE
STAGE 2	**PRE-SOLO PREPARATION**
Prereq.	You must have successfully practiced and been introduced to all tasks for this stage (lesson 4-9). You must demonstrate proficiency on tasks lists below prior to your Stage 2 Check.
Objective	Demonstrate proficiency and competency as pilot in command to successfully fly solo.
Scenario	You will perform a flight from your home airport to an appropriate practice area and return. Prior to the evaluation, you will calculate weight and balance for yourself and the evaluator in an assigned aircraft. Obtain weather information for the day of the stage check.

GROUND EVALUATION [:45 MINUTES]

Completion Standards: Demonstrates satisfactory knowledge and basic understanding of the topics and tasks listed below. (S=satisfactory; U=unsatisfactory)

S	U	Preflight Planning	S	U	Special Emphasis Areas
		Obtaining Weather Information			PAVE/IMSAFE Checklists (ADM)
		Obtain NOTAMs/TFRs			Runway Signage
		Computing Weight & Balance			Runway Incursion Avoidance
		Familiarity with Local Airspace			Collision Avoidance
					General understanding of power plant operation
					Discuss in flight emergency scenarios

AIRPLANE EVALUATION [1H45]

Completion Standards: Maintain altitude within 150 feet, airspeed within 10 knots, heading within 10 degrees, and complete stable approaches and safe landings with minimal assistance from the evaluator. (S=satisfactory; U=unsatisfactory)

S	U	General	S	U	Area of Operations
		Use of Checklists			Traffic Pattern Ops., Entry, & Departure
		Engine Starting			Normal Takeoff
		Collision Avoidance			Normal Landing
S	**U**	**Navigation**			Slips
		Basic Pilotage			Go-Around
		Program & Navigate “Direct To” an Airport			Slow Flight
		Lost Procedures			Power-On Stall
					Power-Off Stall
					Ground Reference Maneuver(s)
					Emergency procedures & equipment malfunctions
					Emergency Descent
					Emergency Approach and Landing

1st Solo Flight! Flying as Pilot in Command.

Prerequisites

Presolo Written Test

Home Study

RMH: Chapter 4

Primary Tasks

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Go-Arounds (as needed)

Traffic Pattern Operations

OBJECTIVE

You will conduct a solo flight in the local traffic pattern.

DESCRIPTION

You've worked hard and now it's time to fly solo. You are ready to act as pilot in command and to be the sole operator of the airplane. Your instructor will endorse your logbook and send you off into the local traffic pattern for a short flight of takeoffs and landings. Congratulations!

Ground

With your instructor, discuss the following questions.

1. What are your personal wind and weather limits and how do you evaluate that?
2. Explain how you would correct for a high and fast approach to landing.
3. Without reference to the airspeed indicator, how might you determine that you're too slow on final?

Simulator Scenario

There is no sim mission for this lesson.

Flight

Conduct a flight in your local practice area.

Departure	Enroute/Practice Area	Return
Perform takeoffs and landings as specified by your flight instructor. Time to celebrate!		

Imagine Flight

1ST SOLO FLIGHT! FLYING AS PILOT IN COMMAND.

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Traffic Patterns	Properly identify and interpret airport runways, taxiways, markings, and lighting.	**Perform**
	Comply with proper traffic pattern procedures.	**Perform**
	Maintain proper spacing from other aircraft.	**Perform**
	Correct for wind drift to maintain the proper ground track.	**Perform**
	Maintain orientation with the runway/landing area in use.	**Perform**
	Maintain traffic pattern altitude, ±100 feet, and the appropriate airspeed, ±10 knots.	**Perform**
	Maintain an awareness of the position of other aircraft in the pattern.	**Perform**
Normal Takeoff	Verify ATC clearance and no aircraft is on final before crossing the Hold Line.	**Perform**
	Verify aircraft is on the assigned/correct runway.	**Perform**
	Ascertain wind direction with or without visible wind direction indicators.	**Perform**
	Determining if crosswind component exceeds pilot ability or is beyond aircraft manufacture limitations aircraft manufacture limitations.	**Perform**
	Position the flight controls for the existing wind conditions.	**Perform**
	Clear the area; taxi into the takeoff position and align the airplane on the runway center/takeoff path.	**Perform**
	Confirm takeoff power, and proper engine and flight instrument indications prior to rotation.	**Perform**
	Rotate and lift off at the recommended airspeed and accelerates to VY (or other speeds as appropriate for aircraft).	**Perform**
	Establish a pitch attitude that will maintain VY +10/-5 knots (or other speeds as appropriate for transport aircraft).	**Perform**
	Retract the landing gear and flaps in accordance with manufacturer's guidance or good operating practice.	**Perform**
	Maintain takeoff power and VY +10/-5 knots to a safe maneuvering altitude.	**Perform**
	Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	**Perform**
	Comply with noise abatement and published departure procedures.	**Perform**
	Complete the appropriate checklist.	**Perform**
Normal Landings	Ensure the aircraft in on the correct/assigned runway.	**Perform**
	Scan the landing runway/areas and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision.	**Perform**
	Complete the appropriate checklist.	**Perform**
	Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point prior to the 1000 foot distance markers (if available), or within the first 1/3 of the runway length.	**Perform**
	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.	**Perform**

1ST SOLO FLIGHT! FLYING AS PILOT IN COMMAND.

	Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10/-5 knots, with wind gust factor applied +10/-5 knots, or as recommended for the aircraft type and gust velocity.	**Perform**
	Make smooth, timely, and correct control application during the round out and touchdown.	**Perform**
	Touch down smoothly at a speed that provides little or no aerodynamic lift.	**Perform**
	Touch down within the available runway, within 400 feet beyond a specified point with no drift and with the airplane's longitudinal axis aligned with and over the runway centerline.	**Perform**
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	**Perform**
	Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.	**Perform**
Forward Slip	Utilize after landing runway incursion avoidance procedures.	**Perform**
	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.	**Perform**
	Maintain a ground track aligned with the runway centerline and an airspeed, which results in minimum float during the round out.	**Perform**
	Make smooth, timely, and correct control application during the recovery from the slip, the round out, and the touchdown.	**Perform**
	Touch down within 400 feet beyond a specified point with no drift, and with the airplane’s longitudinal axis aligned with and over the runway centerline.	**Perform**
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	**Perform**
	Complete the appropriate checklist.	**Perform**
Go-Arounds	Make a timely decision to discontinue the approach to landing.	**Perform**
	Applies takeoff power immediately and transitions to climb pitch attitude for VX or VY as appropriate +10/-5 knots.	**Perform**
	Retract the landing gear in accordance with manufacturer’s guidance.	**Perform**
	Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.	**Perform**
	Maintain takeoff power VY +10/-5 to a safe maneuvering altitude.	**Perform**
	Maintain directional control and proper wind-drift correction throughout the climb.	**Perform**
	Complete the appropriate checklist.	**Perform**

Flying Solo in the Local Area

Prerequisites

Complete first solo flight in the traffic pattern.

Home Study

AFH: 1, 2, 3

Primary Tasks

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Go-Arounds (as needed)

Traffic Pattern Operations

Review Any Maneuvers and/or Tasks

OBJECTIVE

You will conduct a solo flight (or multiple solo flights as appropriate) in the local traffic pattern and/or local area to review and practice maneuvers, takeoffs and landings.

DESCRIPTION

A local solo flight(s) will provide you the opportunity to practice takeoffs and landings and any maneuvers you'd like, to reinforce your skills and confidence flying as pilot in command.

Ground

You will use this local solo time to practice maneuvers and gain confidence flying as pilot in command. You and your instructor will discuss what maneuvers and tasks are most appropriate for you to practice during your local solo flights.

Simulator Scenario

There is no sim mission for this lesson.

Flight

Departure	Enroute/Practice Area	Return
Normal Takeoffs. At your instructor's guidance, remain in traffic pattern or head out to local practice area.	Practice maneuvers and tasks as discussed with your instructor.	Normal Landings.

FLYING SOLO IN THE LOCAL AREA

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Normal/Crosswind Takeoff	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	**Perform**
Normal/Crosswind Landings	Make smooth, timely, and correct control application during the round out and touchdown.	**Perform**
Forward Slip	Establish the slipping attitude at the point from which a landing can be made using the recommended approach and landing configuration and airspeed; adjust pitch attitude as required.	**Perform**
Go-Arounds	Execute a timely go-around decision when the approach/landing cannot be made within the tolerances or for any other condition that that may result in an unsafe approach or landing. Apply and maintain take power and Vy to a safe altitude.	**Perform**
Radio Communications	Selecting appropriate frequencies, transmit using standard phraseology and procedures, acknowledge radio communications and comply with instructions.	**Perform**
Slow Flight	Select an entry altitude so that the task is completed no lower than 1,500 feet AGL. Divide attention between airplane control, traffic avoidance and orientation. Maneuver in various land gear and flap configurations. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	**Perform**
Power On & Power Off Stalls	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. Recognize and recover promptly after a fully developed stall occurs. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.	**Perform**
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	**Perform**
Rectangular Course	Enter a left or right pattern, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area, 45° to the downwind leg. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	**Perform**
Turns Around a Point	Enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	**Perform**
S- Turns	Enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area. Apply adequate wind drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	**Perform**
Emergency Descent, Approach, & Landing	Establish and maintain best glide speed +/- 10 knots. Plan and follow a flight pattern to selected landing area to allow for a safe landing. Follow appropriate checklists and make appropriate radio calls.	**Perform**
Navigation	Able to navigate to and from home airport with all available resources.	**Perform**
Risk Management	Identify, assess, and mitigate risks encompassing: • Collision avoidance • Wind direction • Situational awareness	**Mange/Decide**

Flying at Night

Prerequisites

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Home Study

AFH: Chapter 10

AFH: Chapter 10

FAR 1.1 (definition of night)

FAR 61.57(b)

FAR 91.209

Primary Tasks

Night Preparation (New)

Preflighting at Night (New)

Taxiing at Night (New)

Takeoffs at Night (New)

Landings at Night (to full stop) (New)

Go-Arounds at Night (New)

Parking and Securing at Night (New)

OBJECTIVE

In this lesson you will gain an understanding of the differences between flying during the day and flying at night.

DESCRIPTION

Flying at night is a different experience compared to flying in the daytime. Night flights often require some additional preparation and attention to detail. You will learn and experience the physiological attributes that occur when flying at night.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Night Preparation: physiological aspects of night flying as it relates to vision, night orientation, somatogravic illusion and black hole approach illusion, navigation and chart reading techniques
- Taxiing: procedures unique to night operations
- Airworthiness requirements: equipment requirements for night flight including flying with inoperative equipment

Ground

You are volunteering for a pilots-n-paws mission to bring two dogs to their forever home in Charleston, SC. The pick-up of the dogs took longer than expected and now some of your 2-hour flight will occur after sunset. As you get ready to depart, you notice that your landing light is inoperative.

1. How do you turn the runway lights on at this airport?
2. Can you make this flight with your landing light out? What if your green navigation light was out instead?
3. What are some visual illusions that you might encounter when flying at night?
4. How do you adjust and transition for flying at night?
5. What time can you officially start logging night flight in your logbook?

FLYING AT NIGHT

SIMULATOR SCENARIO

A long straight-in approach at night over featureless terrain in a well-proven prescription for controlled flight into terrain. This situation a called a “black hole approach” and one airport that is well known for this is Charleston Executive Airport (KJZI) where the final approach course to runway 9 passes over miles and miles of swamp and river. You will fly a 6 mile straight-in visual approach at night landing into this infamous runway. Be sure to pay attention to the approach lights. This is a non-towered airport and you will be able to practice your non-towered radio communications. You instructor can set you up on the landing

Departure	Enroute/Practice Area	Return
For this mission, you instructor will set you on a 6 mile final approach to KJZI.	Practice a nice stable approach to land. Practice your radio nontowered communications.	

FLIGHT

Stay in your local traffic pattern or visit a nearby airport to practice operations at night, specifically takeoffs and full stop landings.

Departure	Enroute/Practice Area	Return
Practice takeoffs and landings at night.		

FLYING AT NIGHT

Lesson Tasks and Completion Standards

To meet the requirements for a private pilot certificate you will need to log 3 hours of training at night and a minimum of 10 takeoffs and landings to a full stop. These can be performed during both local night flights and cross country night flights.

New		
Task	**Element**	**Completion Standards**
Preflight/Postflight Procedures at Night	Inspect the airplane with reference to an appropriate checklist while making adjustments unique to night time operations.	Practice
	Demonstrate parking and securing procedures unique to night operations.	Practice
Taxiing at Night	Exhibit procedures for steering, maneuvering, maintaining taxiway/runway alignment, and situational awareness to avoid runway incursions during night time operations.	Practice
Takeoffs at Night	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	Practice
Landings at Night	Make smooth, timely, and correct control application during the round out and touchdown.	Practice
	Counteract somatogravic illusion and black hole approach illusion by using electronic glide slope or visual approach slope indicator.	Practice
	Perform landings to a full stop at night.	Practice
Go-Arounds at Night	If at any time the pilot is unsure of his or her position or attitude, as go-around should be executed.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • Collision avoidance • Task management • Environmental considerations at night • Maintaining VFR at night underneath airspace	Practice

Fly like a Bush Pilot

Prerequisites

Normal/Crosswind Takeoffs

Normal/Crosswind Landings

Traffic Pattern Operations

Home Study

AFH: Chapter 5-8 through 5-10, 8-17, 8-19

Primary Tasks

Soft-Field Takeoff (New)

Soft-Field Landing (New)

Short-Field Takeoff (New)

Short-Field Landing (New)

OBJECTIVE

The objective of this lesson is to develop an understanding of short and soft field takeoffs and landings including the proper procedure and when and why to perform these.

DESCRIPTION

On a short field takeoff, you will control the airplane so that you have the shortest ground roll and steepest angle of climb to allow you to depart from airports with short runways or when the takeoff area is restricted by obstructions.

To land on short runways or when an approach is made over obstacles, a short-field landing requires solid control of the rate of descent and airspeed to produce an approach that will clear any obstacles, result in little or no floating during round out, and permit the airplane to be stopped in the shortest possible distance.

A soft field takeoff is performed when you are departing from rough or soft surfaces. The goal is to reduce the drag on the wheels caused by the rough surface as soon as possible by rotating and become airborne early and holding the airplane in ground effect.

The goal of a soft field landing is to touch down as smoothly as possible and at the slowest possible landing speed to allow you to land on rough or soft surfaces.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Soft-Field and Short-Field Takeoffs: effects and hazards of runway surface, density altitude, effects of aircraft configuration, obstruction clearance, takeoff distance and power
- Soft-Field and Short-Field Landings: stabilized approach, energy management, obstruction clearance, landing distance

FLY LIKE A BUSH PILOT

GROUND

Today you plan to go do some solo pattern work to keep up for currency and to enjoy a nice short flight. At your home airport there is a NOTAM that closes the last 1500 ft. of the runway.

1. Where can a pilot look for NOTAMs applicable to his/her flight?
2. Does the last 1,500 ft being closed mean that you should cancel your flight today?
3. Where in your POH should you look to find information about your takeoff and landing roll (how must distance is needed)?

SIMULATOR SCENARIO

Departure	**Enroute/Practice Area**	**Return**
1. Practice soft-field takeoffs and landings at Rainey Pass, AK (6Ak) 2. Practice short-field takeoffs and landings at San Diego, CA (KSAN)		

FLIGHT

You may also choose to review past maneuvers and tasks in this lesson.

Departure	**Enroute/Practice Area**	**Return**
1. Practice soft-field takeoffs and landings at your home or nearby airport. 2. Practice short-field takeoffs and landings at your home or nearby airport.		

FLY LIKE A BUSH PILOT

Lesson Tasks and Completion Standards

New		
Task	**Element**	**Completion Standards**
Soft-Field Takeoffs	Verify ATC clearance and no aircraft is on final before crossing the Hold Line.	Practice
	Ensure the aircraft is properly configured.	Practice
	Ensure the aircraft is on the correct takeoff runway.	Practice
	Ascertain wind direction with or without visible wind direction indicators	Practice
	Calculate the crosswind component and determine if it is above his or her ability or that of the aircraft's capability.	Practice
	Position the flight controls for the existing wind conditions.	Practice
	Clear the area; taxi into the takeoff position and align the airplane on the runway center without stopping while advancing the throttle smoothly to takeoff power.	Practice
	Confirm takeoff power, and proper engine and flight instrument indications prior to rotation.	Practice
	Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.	Practice
	Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate.	Practice
	Establish a pitch attitude for VX or VY, as appropriate, and maintain selected airspeed +10/-5 knots during the climb.	Practice
	Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.	Practice
	Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude.	Practice
	Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
	Comply with noise abatement and published departure procedures.	Practice
	Complete the appropriate checklist.	Practice
	Comply with manufacturer's recommended emergency procedures relating to the takeoff sequence.	Practice
Soft-Field Landings	Scan the landing runway and adjoining areas for possible wildlife, vehicular or other aircraft to avoid collision.	Practice
	Complete the appropriate checklist.	Practice
	Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point.	Practice
	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.	Practice
	Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots.	Practice
	Make smooth, timely, and correct control application during the round out and touchdown and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness.	Practice
	Touch down softly with minimum sink rate and no drift, with the airplane's longitudinal axis aligned in the runway center.	Practice
	Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface.	Practice
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	Practice

FLY LIKE A BUSH PILOT

	Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.	Practice
	Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface .	Practice
Short-Field Takeoffs	Verify proper aircraft configuration.	Practice
	Verify ATC clearance and ensure that no conflicting traffic before crossing the Hold Line.	Practice
	Ensure the aircraft is on the correct takeoff runway.	Practice
	Ascertain wind direction with or without visible wind direction indicators.	Practice
	Determining if crosswind component exceeds pilot ability or is beyond aircraft manufacturer's limitations.	Practice
	Position the flight controls for the existing wind conditions.	Practice
	Clear the area; taxi into takeoff position utilizing maximum available takeoff area and align the airplane on the runway center line.	Practice
	Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance.	Practice
	Confirm takeoff power prior to brake release and proper engine and flight instrument indications prior to rotation.	Practice
	Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX.	Practice
	Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface.	Practice
	After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb.	Practice
	Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.	Practice
	Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude.	Practice
	Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
	Comply with noise abatement and published departure procedures.	Practice
	Complete the appropriate checklist.	Practice
	Comply with manufacturer's recommended emergency procedures relating to the takeoff sequence.	Practice
Short-Field Landings	Ensure the aircraft is on the correct/assigned runway.	Practice
	Scan the landing runway and adjoining areas for possible wildlife, vehicular traffic or other aircraft to avoid collision.	Practice
	Complete the appropriate checklist.	Practice
	Consider the wind conditions, landing surface, obstructions, and select a suitable touchdown point.	Practice
	Establish the recommended approach and landing configuration and airspeed, and adjust pitch attitude and power as required.	Practice
	Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5knots.	Practice
	Make smooth, timely, and correct control application during the round out and touchdown.	Practice
	Touch down smoothly at manufacturer's recommended airspeed.	Practice
	Touch down within the available runway, at or within 200 feet beyond a specified point, threshold markings or runway numbers, with no side drift,	Practice

FLY LIKE A BUSH PILOT

	minimum float, and with the airplane's longitudinal axis aligned with and over the runway center line.	
	Maintain crosswind correction and directional control throughout the approach and landing sequence.	Practice
	Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.	Practice
	Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • Collision avoidance, scanning, aircraft separation • Operating from other than hard-surfaced runway • Determining whether crosswind component exceeds pilot ability or is beyond aircraft manufacturer limitations • Selection of runway based on wind, pilot capability and aircraft limitations • Recognition of need for go-around/rejected landing • Sterile cockpit	Practice

Go On a Flying Adventure

Prerequisites

Completed Stage One & Stage Two Lessons

Home Study

PHAK: Chapter 14 & Chapter 15

Airplane POH

Primary Tasks

Soft-Field Takeoffs & Landings

Short-Field Takeoffs & Landings

Cross-Country Flight Planning (New)

Flight Performance (New)

VFR Flight Following (New)

Pilotage (New)

Dead Reckoning (New)

Make a Pilot Report (New)

Opening & Closing a Flight Plan (New)

Lost Procedures (New)

Diversion (New)

Refueling (New)

OBJECTIVE

Learn how to plan, conduct, and safely fly cross country flights to other airports using GPS, pilotage, dead reckoning, and radio navigation.

DESCRIPTION

You have entered an exciting phase of flight training that will allow you to gain further understanding of your privileges as a private pilot, allowing you to gain access to the more than 5,000 public use airports in the U.S. You will practice your flight planning and navigation skills using a variety of tools and resources.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Cross-Country Flight Planning: Route planning, including consideration of special use airspace, fuel planning, altitude selection, elements of a VFR flight plan
- Pilotage & Dead Reckoning: Navigation process selection, determining heading speed, and course, estimating time, speed, and distance, true airspeed and density altitude
- Lost Procedures: Using radar services and communication procedures for assistance, declaring an emergency
- Diversion: Avoiding automation distractions, deviating from the flight plan and/or ATC instructions.

Go On a Flying Adventure

Ground

You are taking your significant other for a long weekend getaway to hike and relax in nature. You'll be gone for four days and so far the weather looks almost perfect, but there is a chance of late afternoon Thunderstorms on your return flight home. Additionally, you noticed that the airport you plan to land at does not have an FBO or self-serve fuel.

1. How can you get updated weather for the day of departure?
2. How might you adjust the trip to avoid the thunderstorms?

Simulator Scenario

Plan and fly your assigned cross country from your home. Practice planning how you approach the airport for landing.

Flight

Departure	**Enroute/Practice Area**	**Return**
Practice short-field and soft-field takeoffs and landings at each airport. Open your flight plan and/or request flight following.	Practice pilotage and dead reckoning as you fly your cross country and complete the navigation log. When appropriate, discuss lost procedures and communications. Your instructor will provide a scenario that will require you to perform a diversion.	Practice short-field and soft-field takeoffs and landings at each airport. Close your flight plan.

GO ON A FLYING ADVENTURE

Lesson Tasks and Completion Standards

Review		
Task	**Element**	**Completion Standards**
Soft-Field Takeoffs	Set proper aircraft configuration. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate. Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude. Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
Soft-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Touch down softly with minimum sink rate and no drift, with the aligned in the runway center. Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface. Maintain crosswind correction and directional control throughout the approach and landing sequence and taxi on the soft surface.	Practice
Short-Field Takeoffs	Set proper aircraft configuration. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb to safe maneuvering altitude.	Practice
Short-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Make smooth, timely, and correct control application during the round out and touchdown. Touch down within the available runway, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane aligned with and over the runway center line. Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice

New		
Task	**Element**	**Completion Standards**
Cross Country Flight Planning	Update fuel planning/manage fuel.	Practice
	Select appropriate routes, altitudes, and checkpoints.	Practice
	Recalculate fuel reserves based on scenario.	Practice
	Create and file a VFR flight plan.	Practice
	Interpret departure, enroute, arrival route with reference to proper charts.	Practice
	Explain or demonstrate diversion to alternate.	Practice
	Applies pertinent information from A/FD; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.	Practice
Pilotage & Dead Reckoning	Prepare a document or electronic equivalent to be used in flight for comparisons with planned fuel usages and times over waypoints while dead reckoning.	Practice
	Follow the preplanned course by reference to landmarks.	Practice

GO ON A FLYING ADVENTURE

	Identify landmarks by relating surface features to chart symbols.	Practice
	Navigate by means of pre-computed headings, groundspeeds, and elapsed time.	Practice
	Demonstrate use of magnetic direction indicator in navigation, to include turns to headings.	Practice
	Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined enroute.	Practice
	Verify the airplane's position within 3 nautical miles of the flight-planned route.	Practice
	Arrive at the enroute checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate.	Practice
	Maintain the selected altitude, ±200 feet and headings, ±15°.	Practice
	Determine compass heading based on wind, magnetic variation, and deviation.	Practice
Navigation & Radar Services	Demonstrate the ability to use installed electronic navigation system.	Practice
	Locate the airplane's position using the navigation system.	Practice
	Intercept and track a given course, radial, or bearing, as appropriate.	Practice
	Recognize and describe the indication of station passage, if appropriate.	Practice
	Recognize signal loss and take appropriate action.	Practice
	Use proper communication procedures when utilizing radar services.	Practice
	Maintain the appropriate altitude, ±200 feet and headings ±15°.	Practice
Diversion	Select an appropriate diversion airport and route.	Practice
	Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport.	Practice
	Maintain the appropriate altitude, ±200 feet and heading, ±15°.	Practice
Lost Procedures	Select an appropriate course of action.	Practice
	Maintain an appropriate heading and climbs, if necessary.	Practice
	Identify prominent landmarks.	Practice
	Use navigation systems/facilities and/or contacts an ATC facility for assistance, as appropriate.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Avoiding/recovering from misidentification of landmarks • Situational awareness • Maintaining airmanship during diversion • Recognizing a deteriorating situation and seeking assistance • Task management	Practice

Flying When You Can't See Out the Window

Prerequisites

Completed Stage One & Stage Two Lessons

Home Study

PHAK: Chapter 7

Primary Tasks

GPS Use

VOR Use

Autopilot Use (if equipped) (New)

Basic instrument flying under the hood: Straight & Level, Turns to a Heading, Climbs & Descents

Unusual Attitudes (New)

***Tasks from this lesson may be performed in conjunction with and integrated into other lessons in Stage 3.**

OBJECTIVE

The objective of this lesson is to gain confidence controlling the airplane by reference to instruments only.

DESCRIPTION

Continue to practice flying by reference to the airplane instruments and using resources available to help you practice recovering safely from inadvertent flight into areas of marginal weather and reduced visibility.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- Unusual attitudes: flight instrument sensitivity, limitations, and potential errors in unusual attitudes, flight instrument correlation (pitch instruments/bank instruments), vestibular illusions (leans) and spatial disorientation, aerodynamic factors related to unusual pitch and bank attitudes and returning to level flight, appropriate pitch, power and bank settings for airplane being flown, hazards of inappropriate control response
- GPS, VOR and Autopilot use: normal operations of the system and common mistakes made by pilots

Flying When You Can't See Out the Window

Ground

You have rented an airplane from your flight school to fly to a business meeting for the day. You are flying solo and plan to leave very early in the morning. Unfortunately, some fog developed over your local area as the sun came up; visibility is 1 mile.

1. When can you depart from your home airport?
2. Are you allowed to fly over an overcast (or broken) cloud layer?
3. If you inadvertently fly into a foggy area, how do you get yourself out of the situation?
4. What are the hazards of an inappropriate control response in an unusual attitude?
5. Once in flight, how can you make a pilot report?

Simulator Scenario

Departure	**Enroute/Practice Area**	**Return**
	Fly from one VOR to another, practicing straight & level flight, climbs & descents, turns to headings and tracking a radial. Then your instructor will set you in configurations that will allow you to practice several variations of unusual attitudes.	

Flight

Departure	**Enroute/Practice Area**	**Return**
Continue to practice short-field and soft-field takeoffs and landings.	Fly to the practice area and review maneuvers. Practice recovering from various unusual attitudes.	Continue to practice short-field and soft-field takeoffs and landings and emergency approach to landings and equipment malfunctions, such as a no flap landing.

Flying When You Can't See Out the Window

Lesson Tasks and Completion Standards

**To meet the requirements for a private pilot certificate you will need to log a minimum of 3 hours of flight training on controlling and maneuvering the airplane solely by reference to instruments (SI).*

Review		
Task	Element	Completion Standards
Soft-Field Takeoffs	Set proper aircraft configuration. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate. Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude. Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
Soft-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Touch down softly with minimum sink rate and no drift, with the aligned in the runway center. Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface. Maintain crosswind correction and directional control throughout the approach and landing sequence and taxi on the soft surface.	Practice
Short-Field Takeoffs	Set proper aircraft configuration. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb to safe maneuvering altitude.	Practice
Short-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Make smooth, timely, and correct control application during the round out and touch down. Touch down within the available runway, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane aligned with and over the runway center line. Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice
Emergency Procedures	Analyze the situation and select an appropriate course of action. If performing an emergency descent, approach and landing, establish and maintain the recommended best-glide airspeed, ±10 knots then follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions that would allow a safe landing.	Practice
Steep Turns	Maintain the entry altitude, ±200 feet, airspeed, ±10 knots, bank, and ±10°; and roll out on the entry heading, ±15°. Perform one turn right after the other.	**Perform**
Slow Flight	Accomplish coordinated straight and level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator. Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed, +10/-0 knots; and specified angle of bank, ±10°.	**Perform**

Flying When You Can't See Out the Window

Power-On & Power-Off Stalls	Maintain a specified heading, ±10°, if in straight flight; maintain a specified angle of bank not to exceed 20°, ±10°, if in turning flight, while inducing the stall. Recognize and recover promptly after a fully developed stall occurs. Retract the flaps to the recommended setting; retract the landing gear if retractable, after a positive rate of climb is established.	**Perform**
Ground Reference Maneuvers	Enter maneuver at appropriate altitude and distance from reference point. . Apply adequate wind-drift correction while properly dividing attention. Maintain altitude, ±100 feet; maintain airspeed, ±10 knots.	**Perform**
VOR Use & Navigation	Intercept and track a given course, radial, or bearing, as appropriate. Locate the airplane's position using the VOR navigation system. Recognize indication of station passage. Recognize signal loss. Maintain altitude ±200 feet and headings ±15°.	**Perform**
Straight & Level (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Constant Airspeed Climbs & Descents (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Establish proper configuration. Perform appropriate trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Turns to a Heading (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Perform coordinated, smooth control application to establish a standard rate turn. Correct for altitude and bank deviations and rollout on specified heading. Perform appropriate trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Risk Management	Identify, assess, and mitigate risks encompassing: • Good cockpit management • Collision avoidance, scanning, aircraft separation (when not under the hood) • Selection of runway based on wind, pilot capability, and aircraft limitations • Sterile cockpit • Stall/spin awareness	**Perform**

New		
Task	Element	Completion Standards
Unusual Attitudes (SI)	Perform timely recognition of the nature of the unusual attitude.	Practice
	Perform correct, coordinated, and smooth control application to resolve unusual pitch and bank attitudes while staying within the airplane's limitations and flight parameters.	Practice
	Perform appropriate trimming to relieve control pressures	Practice
	When level, maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	Practice
Risk Management	Identify, assess, and mitigate risks encompassing: • Correlating the relationship between recovery techniques and load factor	Practice

Getting From Here to There

Prerequisites

Lesson 14

Home Study

Airplane POH

NTSB Part 830

Primary Tasks

Soft-Field Takeoffs & Landings

Short-Field Takeoffs & Landings

Cross Country Flight Planning

Flight Performance

VFR Flight Following

Pilotage

Dead Reckoning

Opening & Closing a Flight Plan

Lost Procedures

Diversion

Refueling

Emergency Procedures

OBJECTIVE

In this lesson, you will become more comfortable with cross country flight planning and further solidify the tasks that were introduced during your first cross country.

DESCRIPTION

Enhance your skills for planning, conducting, and safely flying cross country flights to other airports using GPS, pilotage, dead reckoning and radio navigation. Increase proficiency of performing lost procedures and diverting to another airport. You will enhance your decision making skills concerning when and why you would divert from your flight plan.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these tasks:

- The difference between flight following and filing flight plans
- Diversions: how to select an alternate, discuss why you would divert on a flight
- Navigation: planned vs. actual flight plan calculations and required corrections, proper communication procedures
- NTSB Part 830: notification and reporting of incidents and accidents

Ground

While on an extended work trip in Arizona, you decide to take a few flight lessons to learn about flying at higher altitudes and a high density altitude environment. You and the instructor plan to go “airport hopping” at nearby airports.

1. How might aircraft performance be different at this location?
2. How do you adjust for this?
3. You are climbing out towards right terrain and hear the stall warning horn. What should you do?
4. When airport hopping in this new, unfamiliar area, you accidently clip a corner of class C airspace. What would you do once you realized this?

(Simulator scenario on next page)

Getting From Here to There

Simulator Scenario

There is no simulator for this lesson.

Flight

You and your instructor will fly a cross country flight to enhance your skills. If appropriate, also include a simulated engine fire in flight or other types of emergencies and perform the appropriate checklist.

Departure	**Enroute/Practice Area**	**Return**
Practice short-field and soft-field takeoffs and landings at each airport. Open your flight plan.	Practice pilotage and dead reckoning as you fly your cross country and complete the navigation log. When appropriate, discuss lost procedures and communications. Your instructor will provide a scenario that will require you to perform a diversion. Practice basic instrument flight and unusual attitudes.	Practice short-field and soft-field takeoffs and landings at each airport. Close your flight plan.

GETTING FROM HERE TO THERE

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Soft-Field Takeoffs	Set proper aircraft configuration. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate. Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude. Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
Soft-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Touch down softly with minimum sink rate and no drift, with the aligned in the runway center. Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface. Maintain crosswind correction and directional control throughout the approach and landing sequence and taxi on the soft surface.	Practice
Short-Field Takeoffs	Set proper aircraft configuration. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb to safe maneuvering altitude.	Practice
Short-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Make smooth, timely, and correct control application during the round out and touchdown. Touch down within the available runway, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane aligned with and over the runway center line. Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice
Emergency Procedures	Analyze the situation and select an appropriate course of action. If performing an emergency descent, approach and landing, establish and maintain the recommended best-glide airspeed, ±10 knots then follow a flight pattern to the selected landing area considering altitude, wind, terrain, and obstructions that would allow a safe landing.	**Perform**
VOR Use & Navigation	Intercept and track a given course, radial, or bearing, as appropriate. Locate the airplane's position using the VOR navigation system. Recognize indication of station passage. Recognize signal loss. Maintain altitude ±200 feet and headings ±15°.	**Perform**
Straight & Level (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Constant Airspeed Climbs & Descents (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Establish proper configuration. Perform appropriate	**Perform**

GETTING FROM HERE TO THERE

	trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	
Turns to a Heading (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Perform coordinated, smooth control application to establish a standard rate turn. Correct for altitude and bank deviations and rollout on specified heading. Perform appropriate trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Unusual Attitudes (SI)	Practice timely recognition of the nature of the unusual attitude. Perform correct, coordinated, and smooth control application to resolve unusual pitch and bank attitudes while staying within the airplane's limitations and flight parameters.	Practice
Cross Country Flight Planning	Update fuel planning/manage fuel. Select appropriate routes, altitudes, and checkpoints. Create and file a VFR flight plan. Interpret departure, enroute, arrival route with reference to proper charts. Applies pertinent information relative to airport(s) from variety of flight publications.	Practice
Pilotage & Dead Reckoning	Follow the preplanned course by reference to landmarks. Identify landmarks by relating surface features to chart symbols. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined enroute. Verify the airplane's position within 3 nautical miles of the flight-planned route. Arrive at the enroute checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate. Maintain the selected altitude, ±200 feet and headings, ±15°.	Practice
Navigation & Radar Services	Demonstrate the ability to use installed electronic navigation systems. Locate the airplane's position using the navigation system. Recognize signal loss and take appropriate action. Use proper communication procedures when utilizing radar services. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	Practice
Diversion	Select an appropriate diversion airport and route. Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	Practice
Lost Procedures	Select an appropriate course of action. Maintain appropriate heading and climbs, if necessary. Use prominent landmarks, navigation systems/facilities and/or contact an ATC facility for assistance.	Practice
Risk Management	Identify, assess and mitigate risks encompassing: • Collision avoidance • Avoiding/recovering from misidentification of landmarks • Situational awareness • Maintaining airmanship during diversion • Recognizing a deteriorating situation and seeking assistance • Task management	Practice

Getting From Here to There in the Dark

Prerequisites

Lesson 14

Home Study

AFH: Chapter 10

FAR 1.1 (definition of night)

FAR 61.57(b)

FAR 91.209

Primary Tasks

Night Preparation

Preflighting at Night

Taxiing at Night

Takeoffs at Night

Landings at Night (to full stop)

Go-Arounds at Night

Parking & Securing at Night

Emergency procedures at Night (New)

OBJECTIVE

Your objective is to fly a cross country at night that is over 100 nautical miles total distance.

DESCRIPTION

You will conduct a cross country at night. This will allow you to continue to improve your cross country flight planning skills and to learn the additional skills necessary for flying a cross country at night.

PREFLIGHT DISCUSSION

Develop and demonstrate an understanding of characteristics associated with these new tasks:

- Night Preparation: Physiological adjustments for scanning for traffic at night compared to in the daytime, disorientation experienced in unusual attitudes at night, hazards of inadvertent IMC
- Cross Country Flight Planning: Choosing waypoints appropriate when flying at night
- Emergency procedures: Considerations that may be different when flying at night

Ground

Review your cross country planning with your instructor and discuss what waypoints you chose and why. Discuss and review what equipment is required for flight at night and the different applications where the definition of “night” may be different depending on the scenario.

GETTING FROM HERE TO THERE IN THE DARK

SIMULATOR SCENARIO

There is no simulator scenario for this lesson.

FLIGHT

During the night cross country, learn how to operate installed lighting, as well as, how to dim the radio, navigation and GPS lights.

Departure	**Enroute/Practice Area**	**Return**
Practice takeoffs and full stop landings takeoffs and landings at each airport. Open your flight plan.	Practice pilotage and dead reckoning as you fly your cross country and complete the navigation log. When appropriate, discuss lost procedures and communications. Your instructor will provide a scenario that will require you to perform a diversion. Practice basic instrument flight and unusual attitudes. With your instructor's guidance, practice making a pilot report.	Practice takeoffs and full stop landings takeoffs and landings at each airport. Close your flight plan.

GETTING FROM HERE TO THERE IN THE DARK

Lesson Tasks and Completion Standards

To meet the requirements for a private pilot certificate you will need to log 3 hours of training at night and a minimum of 10 takeoffs and landings to a full stop. These can be performed during both local night flights and cross country night flights. **The night cross country must be over 100 nautical miles total distance.

New		
Task	Element	Completion Standards
Preflight/Postflight Procedures at Night	Inspect the airplane with reference to an appropriate checklist while making adjustments unique to night time operations. Demonstrate parking and securing procedures unique to night operations.	**Perform**
Taxiing at Night	Exhibit procedures for steering, maneuvering, maintaining taxiway/runway alignment, and situational awareness to avoid runway incursions during night time operations.	**Perform**
Takeoffs at Night	Rotate and lift off at the recommended airspeed and accelerate to Vy and establish a pitch attitude to maintain that airspeed. Maintain directional control and proper wind-drift correction throughout the take off and climb.	**Perform**
Landings at Night	Make smooth, timely, and correct control application during the round out and touchdown. Counteract somatogravic illusion and black hole approach illusion by using electronic glide slope or visual approach slope indicator. Perform landings to a full stop at night.	**Perform**
Go-Arounds at Night	If at any time the pilot is unsure of his or her position or attitude, a go-around should be executed.	**Perform**
Straight & Level (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Constant Airspeed Climbs & Descents (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Establish proper configuration. Perform appropriate trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Turns to a Heading (SI)	Control the aircraft solely by reference to instruments. Perform an instrument scan and cross-check. Perform coordinated, smooth control application to establish a standard rate turn. Correct for altitude and bank deviations and rollout on specified heading. Perform appropriate trimming to relieve control pressures. Maintain altitude ±200 feet, heading ±20°, and airspeed ±10 knots.	**Perform**
Unusual Attitudes (SI)	Perform timely recognition of the nature of the unusual attitude. Perform correct, coordinated, and smooth control application to resolve unusual pitch and bank attitudes while staying within the airplane's limitations and flight parameters.	**Perform**
Cross Country Flight Planning	Update fuel planning/manage fuel. Select appropriate routes, altitudes, and checkpoints. Create and file a VFR flight plan. Interpret departure, enroute, arrival route with reference to proper charts. Applies pertinent information relative to airport(s) from variety of flight publications.	**Perform**
Pilotage & Dead Reckoning	Follow the preplanned course by reference to landmarks. Identify landmarks by relating surface features to chart symbols. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined enroute. Verify the airplane's position within 3 nautical miles of the flight-planned route. Arrive at the enroute checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate. Maintain the selected altitude, ±200 feet and headings, ±15°.	**Perform**

GETTING FROM HERE TO THERE IN THE DARK

Navigation & Radar Services	Demonstrate the ability to use installed electronic navigation systems. Locate the airplane's position using the navigation system. Recognize signal loss and take appropriate action. Use proper communication procedures when utilizing radar services. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	**Perform**
Diversion	Select an appropriate diversion airport and route. Make an accurate estimate of heading, groundspeed, arrival time, and fuel consumption to the divert airport. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	**Perform**
Lost Procedures	Select an appropriate course of action. Maintain appropriate heading and climbs, if necessary. Use prominent landmarks, navigation systems/facilities and/or contact an ATC facility for assistance.	**Perform**
Risk Management	Identify, assess and mitigate risks encompassing: • Avoiding/recovering from misidentification of landmarks • Situational awareness • Maintaining airmanship during diversion • Recognizing a deteriorating situation and seeking assistance • Task management • Collision avoidance • Environmental considerations at night • Maintaining VFR at night underneath airspace	**Perform**

STAGE CHECK 3 – AIRPLANE

(4 Hour Block)

PHASE 1	PRIVATE PILOT AIRPLANE
STAGE 3	**PRE-SOLO CROSS COUNTRY AND ADVANCED MANEUVERS**
Prereq.	You must demonstrate proficiency on all Stage 3 tasks in an AATD or airplane prior to the Stage 3 Check.
Objective	You will demonstrate proficiency in all flight tasks learned to date, with emphasis on cross-country flying and night operations.
Scenario	You will perform a flight from your home airport to an appropriate practice area and return. Prior to the evaluation, you will calculate weight and balance for yourself and the evaluator in an assigned aircraft. Obtain weather information for the day of the stage check.

GROUND EVALUATION [1 HOUR]

Completion Standards: Demonstrates satisfactory knowledge and basic understanding of the topics and tasks listed below. (S=satisfactory; U=unsatisfactory)

S	U	Preflight Planning	S	U	Special Emphasis Areas
		Obtaining Weather Information			PAVE/IMSAFE Checklists (ADM)
		Obtain NOTAMs/TFRs			Runway Signage
		Computing Weight & Balance			Runway Incursion Avoidance
		Familiarity with Local Airspace			Collision Avoidance
S	**U**	**Cross-Country Planning**			Hazards: Collisions / CFIT / Wake Turb.
		Calculations: Headings / Times / Fuel			Discuss in flight emergency scenarios
		En Route Checkpoints / Hazards	**S**	**U**	**Operations of Systems**
		NOTAMs / TFRs			Primary Flight Controls / Trim
		Resources: Aeronautical Chart			Powerplant / Propeller
		Resources: Airport / Facility Directory			Electrical / Avionics
		Resources: Flight Service / Flight Watch			Pitot-Static / Vacuum
S	**U**	**National Airspace System**	**S**	**U**	**Aeromedical Factors**
		Class C			Hypoxia / CO Poisoning / Hyperventilation
		Class D			Stress / Fatigue / Dehydration
		Class E			Alcohol / Drugs / Medication / Scuba
					Night Preparation
					Spatial Disorientation / Motion Sickness

(Continue to next page for airplane flight evalution)

AIRPLANE EVALUATION [1H45]					
Completion Standards: You will successfully complete this stage check when you can maintain altitude within 100 feet, airspeed within 10 knots, heading with 10 degrees, and make takeoffs and landings and navigate with minimal assistance from your evaluator. (S=satisfactory; U=unsatisfactory)					
S	**U**	**General**	**S**	**U**	**Area of Operations**
		Use of Checklists			Slow Flight
		Engine Starting			Power On Stall
		Collision Avoidance			Power Off Stall
		Parking & Securing			Ground Reference Maneuver(s)
S	**U**	**Navigation**			Emergency Descent
		Pilotage and Dead Reckoning			Emergency Approach and Landing
		Program & Navigate “Direct To” an Airport (GPS and/or VOR)			Emergency procedures & equipment malfunctions
		Lost Procedures	**S**	**U**	**Single Pilot Resource Management**
S	**U**	**Takeoffs, Landings & Go-Arounds**			Decision Making
		Normal & Cross Wind Takeoffs			Situational Awareness
		Normal & Cross Wind Landings			Resource Management
		Go-Around			Task Management
S	**U**	**Airport Operations**			Automation Management
		Communications (& Light Gun)			
		Traffic Pattern Operations			

Getting From Here to There By Yourself

Prerequisites

Lesson 14 and Lesson 16

Home Study

Knowledge Exam Prep
Oral Exam Prep
Checkride Prep

Primary Tasks

Soft-Field Takeoffs & Landings

Short-Field Takeoffs & Landings

Cross-Country Flight Planning

Flight Performance

VFR Flight Following

Pilotage

Dead Reckoning

Opening & Closing a Flight Plan

Lost Procedures

Diversion

Refueling

Emergency Procedures

OBJECTIVE

Take your first solo cross country flight to land at an airport at least 50 nm away from your departure.

DESCRIPTION

You are ready for another important milestone in your flying career… your first solo cross country! You will prepare a thorough flight plan and have it reviewed and signed off by your flight instructor. You will safely navigate to your destination by pilotage, dead reckoning, and use of the GPS and/or VOR equipment.

PREFLIGHT DISCUSSION

There is no specific preflight discussion for this lesson. You and your instructor will work together to make sure that you are prepared and ready to complete your stage check and your private pilot practical test.

Ground

Review topics, discuss various situations and scenarios, and prep for your oral exam and check ride.

Sim

There is no sim mission for this lesson.

Flight

After your instructor reviews and endorses your planning, you will perform a cross country flight.

Departure	Enroute/Practice Area	Return
Practice short-field and soft-field takeoffs and landings at each airport. Open your flight plan.	Practice pilotage and dead reckoning as you fly your cross country and complete the navigation log. Use flight following.	Practice short-field and soft-field takeoffs and landings at each airport. Close your flight plan.

GETTING FROM HERE TO THERE BY YOURSELF

Lesson Tasks and Completion Standards

Review		
Task	Element	Completion Standards
Soft-Field Takeoffs	Set proper aircraft configuration. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate. Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude. Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
Soft-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Touch down softly with minimum sink rate and no drift, with the aligned in the runway center. Maintain full up elevator during rollout and exit the “soft” area at a speed that would preclude sinking into the surface. Maintain crosswind correction and directional control throughout the approach and landing sequence and taxi on the soft surface.	Practice
Short-Field Takeoffs	Set proper aircraft configuration. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb to safe maneuvering altitude.	Practice
Short-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Make smooth, timely, and correct control application during the round out and touch down. Touch down within the available runway, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane aligned with and over the runway center line. Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice
Cross-Country Flight Planning	Update fuel planning/manage fuel. Select appropriate routes, altitudes, and checkpoints. Create and file a VFR flight plan. Interpret departure, enroute, arrival route with reference to proper charts. Applies pertinent information relative to airport(s) from variety of flight publications.	**Perform**
Pilotage & Dead Reckoning	Follow the preplanned course by reference to landmarks. Identify landmarks by relating surface features to chart symbols. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined enroute. Verify the airplane’s position within 3 nautical miles of the flight-planned route. Arrive at the enroute checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate. Maintain the selected altitude, ±200 feet and headings, ±15°.	**Perform**
Navigation & Radar Services	Demonstrate the ability to use installed electronic navigation systems. Locate the airplane’s position using the navigation system. Recognize signal loss and take appropriate action. Use proper communication procedures when utilizing radar services. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	**Perform**

GETTING FROM HERE TO THERE BY YOURSELF

Lost Procedures	Select an appropriate course of action. Maintain appropriate heading and climbs, if necessary. Use prominent landmarks, navigation systems/facilities and/or contact an ATC facility for assistance.	**Perform**
Risk Management	Identify, assess, and mitigate risks encompassing: • Collision avoidance • Avoiding/recovering from misidentification of landmarks • Situational awareness • Maintaining airmanship during diversion • Recognizing a deteriorating situation and seeking assistance • Task management	**Perform**

Getting From Here to There By Yourself, Again

Prerequisites

Lesson 14, Lesson 16, & Lesson 18

Home Study

Knowledge Exam Prep
Oral Exam Prep
Checkride Prep

Primary Tasks

Soft-Field Takeoffs & Landings

Short-Field Takeoffs & Landings

Cross-Country Flight Planning

Flight Performance

VFR Flight Following

Pilotage

Dead Reckoning

Opening & Closing a Flight Plan

Lost Procedures

Diversion

Refueling

Emergency Procedures

OBJECTIVE

You will fly another solo cross country assigned by your instructor.

DESCRIPTION

Fly a solo cross country flight at least 150 NM total distance with full stop landing at 3 airports. One segment must be a straight line distance of at least 50 NM.

PREFLIGHT DISCUSSION

There is no specific preflight discussion for this lesson. You and your instructor will work together to make sure that you are prepared and ready to complete your stage check and your private pilot practical test.

Ground

Review topics, discuss various situations and scenarios, and prep for your oral exam and check ride.

Sim

There is no sim mission for this lesson.

Flight

After your instructor reviews and endorses your planning, you will perform a cross country flight.

Departure	Enroute/Practice Area	Return
Practice short-field and soft-field takeoffs and landings at each airport. Open your flight plan.	Practice pilotage and dead reckoning as you fly your cross country and complete the navigation log. Use flight following.	Practice short-field and soft-field takeoffs and landings at each airport. Close your flight plan.

GETTING FROM HERE TO THERE BY YOURSELF, AGAIN

Review		
Task	Element	Completion Standards
Soft-Field Takeoffs	Set proper aircraft configuration. Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible. Lift off at the lowest possible airspeed consistent with safety and remains in ground effect while accelerating to VX or VY, as appropriate. Maintain takeoff power and VX or VY +10/-5 knots to a safe maneuvering altitude. Maintain directional control and proper wind-drift correction throughout the takeoff and climb.	Practice
Soft-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Touch down softly with minimum sink rate and no drift, with the aligned in the runway center. Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface. Maintain crosswind correction and directional control throughout the approach and landing sequence and taxi on the soft surface.	Practice
Short-Field Takeoffs	Set proper aircraft configuration. Apply brakes (if appropriate), while configuring aircraft power setting to achieve maximum performance. Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX. Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface. After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb to safe maneuvering altitude.	Practice
Short-Field Landings	Establish the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required. Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied,+10/-5 knots. Make smooth, timely, and correct control application during the round out and touch down. Touch down within the available runway, at or within 200 feet beyond a specified point, with no side drift, minimum float, and with the airplane aligned with and over the runway center line. Apply brakes as necessary, to stop in the shortest distance consistent with safety.	Practice
Cross-Country Flight Planning	Update fuel planning/manage fuel. Select appropriate routes, altitudes, and checkpoints. Create and file a VFR flight plan. Interpret departure, enroute, arrival route with reference to proper charts. Applies pertinent information relative to airport(s) from variety of flight publications.	**Perform**
Pilotage & Dead Reckoning	Follow the preplanned course by reference to landmarks. Identify landmarks by relating surface features to chart symbols. Navigate by means of pre-computed headings, groundspeeds, and elapsed time. Correct for and record the differences between preflight groundspeed, fuel consumption, and heading calculations and those determined enroute. Verify the airplane's position within 3 nautical miles of the flight-planned route. Arrive at the enroute checkpoints within 5 minutes of the initial or revised ETA and provide a destination estimate. Maintain the selected altitude, ±200 feet and headings, ±15°.	**Perform**
Navigation & Radar Services	Demonstrate the ability to use installed electronic navigation systems. Locate the airplane's position using the navigation system. Recognize signal loss and take appropriate action. Use proper communication procedures when utilizing radar services. Maintain the appropriate altitude, ±200 feet and heading, ±15°.	**Perform**

GETTING FROM HERE TO THERE BY YOURSELF, AGAIN

Lost Procedures	Select an appropriate course of action. Maintain appropriate heading and climbs, if necessary. Use prominent landmarks, navigation systems/facilities and/or contact an ATC facility for assistance.	**Perform**
Risk Management	Identify, assess, and mitigate risks encompassing: • Collision avoidance • Avoiding/recovering from misidentification of landmarks • Situational awareness • Maintaining airmanship during diversion • Recognizing a deteriorating situation and seeking assistance • Task management	**Perform**

Getting Ready For the Big Day

Prerequisites

Completion of Stage 1, Stage 2 & Stage 3

Home Study

Knowledge Exam Prep
Oral Exam Prep
Checkride Prep

Primary Tasks

Maneuvers covered in all previous lessons (refer to the Stage 4 grade sheet and the Airmen Certification Standards)

Mock Oral Test

Mock Checkride

OBJECTIVE

Meet the requirements laid out in the Airmen Certification Standards of all required tasks to ensure a successful private pilot practical test.

DESCRIPTION

You are nearing the final flights of your private pilot flight training. This is your opportunity to fine tune your flying and to prepare for your checkride. During these flights, you should treat your instructor as an observer and continue to gain confidence as pilot in command. The key to a successful Checkride is to properly prepare and have confidence in your abilities as a pilot.

PREFLIGHT DISCUSSION

There is no specific preflight discussion for this lesson. You and your instructor will work together to make sure that you are prepared and ready to complete your stage check and your private pilot practical test.

Ground

Review topics, discuss various situations and scenarios, and prep for your oral exam and check ride.

Sim

Practice and perform to proficiency tasks as needed, determined by you and your flight instructor.

Flight

Tasks as needed, determined by you and your flight instructor. Perform a mock checkride.

Lesson Tasks and Completion Standards

The completion standards for this lesson is satisfactory completion of a mock checkride and grade of perform and manage/decide for all tasks listed in the Stage 4 Grade sheet. Reference the Airmen Certification Standards for mock checkride.

Imagine Flight

STAGE CHECK 4 – AIRPLANE

(5 Hour Block)

PHASE 1	PRIVATE PILOT AIRPLANE
STAGE 4	**FINAL STAGE CHECK**
Prereq.	You must demonstrate proficiency in all tasks and meet FAA Part 61/ 141 minimum training requirements prior to the Final Stage Check (Stage 4).
Objective	You will perform all tasks to FAA Practical Test Standards (PTS) and/or Airmen Certification Standards (ACS).
Scenario	You will perform a flight from your home airport to your planned cross-country destination. Calculate weight and balance and performance based on the scenario given by the evaluator. Obtain weather information and calculate performance data for the day of the stage check.
GROUND EVALUATION [2H30]	
Completion Standards: Demonstrates satisfactory knowledge and basic understanding of the topics and tasks listed below. (S=satisfactory; U=unsatisfactory)	

U	S	**Preflight Prep**
		Pilot Qualifications
		Weather Information
		Airworthiness Requirements
		Cross Country Flight Planning
		National Airspace System
		Performance & Limitations
		Operation of Systems
		Human Factors

U	S	**Preflight/Postflight Procedures**
		Preflight Assessment
		Cockpit Management
		Engine Starting
		Taxiing
		Before Takeoff Check
		Parking & Securing

U	S	**Takeoffs, Landings & Go-Arounds**
		Normal & Cross Wind Takeoffs
		Normal & Cross Wind Landings
		Soft-Field Takeoff & Climb
		Soft-Field Approach & Landing
		Short-Field Takeoff & Climb
		Short-Field Approach & Landing
		Forward and Side Slips
		Go-Arounds

U	S	**Airport Operations**
		Communications (& Light Gun)
		Traffic Pattern Operations

U	S	**Navigation**
		Pilotage & Dead Reckoning
		Nav. Systems & Radar Services
		Diversion
		Lost Procedures

U	S	**Slow Flight and Stalls**
		Slow Flight
		Power-Off Stalls
		Power-On Stalls
		Spin Awareness

U	S	**Performance Maneuvers**
		Steep Turns
		Turns Around a Point
		Rectangular Course
		S-Turns

U	S	**Basic Instrument Maneuvers**
		Straight & Level Flight
		Constant Arspd. Climbs & Descents
		Turn to Headings
		Unusual Attitude Recovery

U	S	**Emergency Operations**
		Emergency Descent
		Emergency Approach & Landing
		Systems & Equipment Malfunction
		Emergency Eqpmnt. & Survival Gear

U	S	**Night Operation**
		Night Preparation

U	S	**Resource/Risk Management**
		Decision Making
		Situational Awareness
		Resource Management
		Task Management
		Automation Management

AIRPLANE EVALUATION [2 HOURS]
Completion Standards: You will successfully complete this stage check when you can perform all tasks to Practical Test Standards (PTS) and/or Airmen Certification Standards (ACS) with no assistance from your evaluator. (S=satisfactory; U=unsatisfactory)

U	S	**Preflight Prep**
		Pilot Qualifications
		Weather Information
		Airworthiness Requirements
		Cross Country Flight Planning
		National Airspace System
		Performance & Limitations
		Operation of Systems
		Human Factors

U	S	**Preflight/Postflight Procedures**
		Preflight Assessment
		Cockpit Management
		Engine Starting
		Taxiing
		Before Takeoff Check
		Parking & Securing

U	S	**Takeoffs, Landings & Go-Arounds**
		Normal & Cross Wind Takeoffs
		Normal & Cross Wind Landings
		Soft-Field Takeoff & Climb
		Soft-Field Approach & Landing
		Short-Field Takeoff & Climb
		Short-Field Approach & Landing
		Forward and Side Slips
		Go-Arounds

U	S	**Airport Operations**
		Communications (& Light Gun)
		Traffic Pattern Operations

U	S	**Navigation**
		Pilotage & Dead Reckoning
		Nav. Systems & Radar Services
		Diversion
		Lost Procedures

U	S	**Slow Flight and Stalls**
		Slow Flight
		Power-Off Stalls
		Power-On Stalls
		Spin Awareness

U	S	**Performance Maneuvers**
		Steep Turns
		Turns Around a Point
		Rectangular Course
		S-Turns

U	S	**Basic Instrument Maneuvers**
		Straight & Level Flight
		Constant Arspd. Climbs & Descents
		Turn to Headings
		Unusual Attitude Recovery

U	S	**Emergency Operations**
		Emergency Descent
		Emergency Approach & Landing
		Systems & Equipment Malfunction
		Emergency Eqpmnt. & Survival Gear

U	S	**Night Operation**
		Night Preparation

U	S	**Resource/Risk Management**
		Decision Making
		Situational Awareness
		Resource Management
		Task Management
		Automation Management