



# The Pilot's Manual

# Private Pilot Syllabus

**Seventh Edition**

A Flight & Ground Training Course for  
Private Pilot Airplane Certification  
based on The Pilot's Manual *Ground School*  
**Meets Part 61 and 141 Requirements**  
by Jackie Spanitz



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**Includes an Appendix providing Aviation Training  
Device (ATD) integration with your existing  
instructional methods**



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Aviation Supplies & Academics, Inc.  
7005 132nd Place SE  
Newcastle, Washington 98059-3153  
(425) 235-1500  
Internet: [www.asa2fly.com](http://www.asa2fly.com)  
Email: [asa@asa2fly.com](mailto:asa@asa2fly.com)

Visit the ASA website often, as any updates due to FAA regulatory and procedural changes will be posted there:  
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# Contents

	About this Syllabus.....	v
	Compliance Tables.....	vii
	Enrollment/Graduation Certificates.....	ix
<b>Stage 1</b>	<b>Introduction to Flying .....</b>	<b>1</b>
	Module 1.....	3
	Module 2.....	4
	Module 3.....	5
	Module 4.....	6
	Module 5.....	7
	Optional Review.....	8
<b>Stage 2</b>	<b>Solo .....</b>	<b>9</b>
	Module 1.....	11
	Module 2.....	12
	Module 3.....	13
	Module 4.....	14
	Optional Review.....	15
	Module 5.....	16
	Solo Endorsements.....	17
	Module 6.....	18
<b>Stage 3</b>	<b>Cross-Country Flight .....</b>	<b>19</b>
	Module 1.....	21
	Alternate Airport Endorsement.....	22
	Module 2.....	23
	Module 3.....	24
	Optional Review.....	25
	Module 4.....	26
	Module 5.....	27
	Cross-Country Endorsements.....	28
<b>Stage 4</b>	<b>Prep for Checkride .....</b>	<b>29</b>
	Module 1.....	31
	Module 2.....	32
	Module 3.....	33
	Module 4.....	34
	Optional Review.....	35
	Module 5.....	36
	Private Pilot Endorsements.....	37
	Checkride List.....	37
	Airman Certificate Application (FAA Form 8710-1).....	39
<b>Appendices</b>	Stage Exams 1–4.....	Appendix 1–1 through 4–4
	Aviation Training Device (ATD) Syllabus.....	Appendix 5–1



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# About This Syllabus

## Course Objective:

The objective of this syllabus is for the student to gain the necessary aeronautical skill, knowledge and experience to meet the requirements of a Private Pilot certificate with an Airplane Category rating and a Single-Engine Land class rating.

## Prerequisites:

The student must be able to read, speak, and understand the English language, meet the physical standards for a third class medical certificate, and possess a valid student pilot certificate. Student must be 16 years old to solo, and 17 years old to gain certification.

## Experience Requirements for a Private Pilot Certificate Include:

35 hours of flight time (40 hours for §61 programs)

35 hours of ground training (No minimum time is specified for §61 programs.)

*Note:* Ground training consists of classroom + preflight + postflight briefings.

## Private Pilot Certification Course:

The Private License is made up of 2 requirements: Aeronautical Skill and Aeronautical Knowledge. This syllabus is written to satisfy 14 CFR §141 requirements. With the addition of 5 hours of flight, this syllabus will be equally effective for 14 CFR §61 programs. The syllabus is in four Stages, containing Modules. Each stage must be completed in \_\_\_\_ days, not to be more than 90 days. Each Module contains both a flight and ground lesson. This presents an integrated flight training process and will promote easier learning and a more efficient flight training program. Ideally, the ground lesson will be completed prior to the flight. Each flight lesson must include a pre- and post-flight briefing.

## Testing Procedures:

Each module contains a reading assignment associated with the ground training program. The review questions following each chapter will test the student's understanding of the material covered throughout the ground lesson, and must be answered prior to moving on to the next module. A Stage Exam is included with each stage, testing the student on both the ground and flight training material covered throughout the stage. This exam must be passed with a minimum score of 80%, and reconciled to 100%, in order to proceed to the next Stage.

*It is essential that the objective of each module be accomplished before moving on to the next module.*

## Minimum Requirements:

The time necessary for the syllabus to qualify for 141 operations includes meeting 35 hours of both ground and flight instruction (40 hours flight training for §61 programs). This is a *minimum* time—the national average for completion of the private certificate is 73 flight hours. Many factors play into the finishing flight time: frequency of flying, cooperative weather, airplane and instructor scheduling, and lapses in the flight training process. It is recommended the student fly at least twice a week. This type of schedule produces the most efficient training, and cuts down on review time. If there is a lapse in between flights, it may be necessary to review maneuvers; use the optional review flights accompanying each Stage for this purpose (this will allow the student to continue following the syllabus, which is necessary for a 141 program). The student should feel comfortable performing each task in all previous modules before progressing to the next stage. If student exceeds more than \_\_\_\_ hours of the minimum 141 recommended time allotted per module, the chief flight instructor must be informed.

*Note to Instructors:* Instructors are responsible for ensuring the completion standards have been. It may require multiple meetings and/or flights for the student to complete all tasks to the defined standards.

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Instruction in a full flight simulator that meets the requirements of §141.41 (a) may be credited for a maximum of 20% of the total flight training hours requirements of the approved course, or of this sections, whichever is less. Instruction in a flight training device that meets the requirement for §141.41 (b) may be credited for a maximum of 15% of the total flight training hour requirement of the approved course, or of this sections, whichever is less. When a flight training device (FTD) is used, the ideal sequence is to learn in the flight training device (FTD) and practice in the airplane.

### **Required Materials for the Private Pilot Certification Course:**

- The Pilot’s Manual *Ground School* (#ASA-PM-2)

### **Recommended Materials for the Private Pilot Certification Course:**

- The Pilot’s Manual *Flight School* (#ASA-PM-1)
- FAA Private Pilot Airman Certification Standards (referred to as ACS) (#ASA-ACS-6)
- ASA *FAR/AIM* (#ASA-FR-AM-BK, updated annually)
- ASA *Private Pilot Test Prep* (#ASA-TP-P, updated annually)
- ASA logbook (student’s choice)
- ASA flight computer (manual E6B or electronic CX-3)
- ASA plotter (student’s choice)
- ASA flight logs for cross-country flights (#ASA-FP)
- ASA *Private Oral Exam Guide* (#ASA-OEG-P)
- Sectional for local area
- Chart Supplement (previously Airport/Facility Directory or A/FD)

The syllabus uses “The Pilot’s Manual” series *Ground School* textbook for the ground training program. The review following each chapter should be finished with the assigned reading. *Flight School*, also in “The Pilot’s Manual” series, is recommended for use in enhancing the flight training program. Both books contain an index that will help pinpoint the material for the subject you are working on. ASA’s *Private Pilot Test Prep* is also recommended to enhance the program. Use of the test prep will ensure the student is completely prepared for the FAA Knowledge Exam upon completion of the course. Instructors using this syllabus must ensure current FAA standards are upheld and that *Airplane Flying Handbook* (FAA-H-8083-3) procedures are maintained at all times.

If you have any questions on how to best use this syllabus, please call ASA directly at 425-235-1500. We will be happy to provide suggestions on how to tailor this syllabus to specifically meet your training needs. *Note to Instructors:* Answers to the Stage Exams are available to instructors by calling 425-235-1500, or fax your request on letterhead to 1-425-235-0128.

Visit [www.asa2fly.com/register](http://www.asa2fly.com/register) to stay informed of industry and regulatory changes that may affect your §141 curriculum.

# Private Pilot Minimum Course Hours

## For Part 141, Appendix B Compliance

These course hours are for student/instructor guidance only. They are a suggested time schedule which will ensure minimum flight and ground training compliance with 14 CFR §141.

**Note: Ground Instruction should include classroom discussion, and pre- and post-flight briefings.**

Page		Dual Flight	Solo Flight	Dual Cross-Country	Solo Cross-Country	Dual Night	Solo Night	Instrument Instruction	** Ground Instruction
01	<b>Stage 1</b>								
03	Module 1	1.0							2.0
04	Module 2	1.0						.3	2.0
05	Module 3	1.0							1.5
06	Module 4	1.0						.3	1.5
07	Module 5	1.0 + Stage Check						.3	1.5 + Exam
08	* Review	1.0							1.5
09	<b>Stage 2</b>								
11	Module 1	1.0						.3	2.0
12	Module 2	1.0							2.0
13	Module 3	1.0						.3	1.5
14	Module 4	1.0							1.5
15	* Review	1.0							1.5
16	Module 5	.5	2.0						1.5 + Exam
18	Module 6	1.0 + Stage Check						.3	2.0
19	<b>Stage 3</b>								
21	Module 1	1.0	1.0					.3	1.5
23	Module 2		1.0*						1.5
24	Module 3	2.0		2.0				.3	2.0
25	* Review	1.5		1.5					1.0
26	Module 4		2.0		2.0				1.0
27	Module 5	1.0 + Stage Check	6.0*		6.0*				1.5 + Exam
29	<b>Stage 4</b>								
31	Module 1	1.0						.3	1.5
32	Module 2	3.0		1.5		3.0		.3	2.0
33	Module 3		2.0*		2.0		2.0		1.5
34	Module 4		1.0*						1.5
35	* Review	1.0							1.5
36	Module 5	1.5 + Stage Check						.3	2.0 + Exam
	<b>TOTALS</b>	20.0 + Stage Checks † 10 optional	5.0 † 10 optional	3.5	1 X/C more than 100 NM, 3 points	3.0	2.0	3.3	35.0 + Exams

\* Reviews are not necessary to meet §141 compliance, and are not counted in the TOTALS for the program. They are optional, and should be used if the student is not ready to move on to the next module.

\*\* Ground instruction consists of classroom + preflight + postflight briefings.

† 14 CFR §141 requires 20 hours of dual flight, 5 hours of solo flight, and a total of 35 hours of flight time for the Private Pilot Certificate. Those flights tagged with an asterisk (\*) indicate the flights which may be conducted either dual or solo, at the instructor's discretion.

These are the aeronautical knowledge subjects and flight tasks required for §141 compliance and where they are covered within this syllabus.

<b>Part 141 Appendix B — Ground Training</b>		<b>Covered in Syllabus</b>
<b>1</b>	Applicable Federal Aviation Regulations for private pilot privileges, limitations, and flight operations	Stage 1 Modules 4, 5
<b>2</b>	Accident reporting requirements of the National Transportation Safety Board	Stage 1 Module 5
<b>3</b>	Applicable subjects of the Aeronautical Information Manual and the appropriate FAA advisory circulars	Stage 1 Module 4
<b>4</b>	Aeronautical charts for VFR navigation using pilotage, dead reckoning, and navigation systems	Stage 2 Module 3, 5 Stage 3 Module 3, 4, 5
<b>5</b>	Radio communication procedures	Stage 2 Module 4
<b>6</b>	Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts	Stage 2 Module 2 Stage 3 Module 2 Stage 4 Module 2, 3
<b>7</b>	Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence	Stage 1 Module 3, 4 Stage 2 Module 1 Stage 3 Module 1
<b>8</b>	Effects of density altitude on takeoff and climb performance	Stage 2 Module 1 Stage 3 Module 1
<b>9</b>	Weight and balance computations	Stage 2 Module 6 Stage 3 Module 2
<b>10</b>	Principles of aerodynamics, powerplants, and aircraft systems	Stage 1 Module 2, 4
<b>11</b>	Stall awareness, spin entry, spins, and spin recovery techniques	Stage 1 Module 4
<b>12</b>	Aeronautical decision making and judgment	Stage 1 Module 5 Stage 2 Module 2
<b>13</b>	Preflight actions that include (1) how to obtain information on runway lengths at airports of intended use, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and (2) how to plan for alternatives if the planned flight cannot be completed or delays are encountered	Stage 3 Module 2

<b>Part 141 Appendix B – Flight Training</b>		<b>Covered in Syllabus</b>
35 hours of flight training		Stages 1-4, all modules
20 hours of dual instruction		Stage 1 Modules 1-5 Stage 2 Modules 1-6 Stage 3 Module 1, 3, 5 Stage 4 Modules 1, 2, 5
↳ 3 hours cross-country flight training		Stage 3, Module 3 Stage 4, Module 2
↳ 1 cross-country flight more than 100 NM total distance		Stage 4, Module 2
↳ 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport		Stage 3, Module 3 Stage 4, Module 2
↳ 3 hours of flight training in preparation for the practical test within 60 days preceding the date of the test		Stage 4, Module 2 Stage 4, Module 5

# Enrollment Certificate

This is to certify that

\_\_\_\_\_

*Student Name*

is enrolled in the Federal Aviation Administration approved  
**Private Pilot Certification Course**, conducted by

\_\_\_\_\_

*School and Certificate Number*

\_\_\_\_\_

*Chief Instructor*

\_\_\_\_\_

*Date of Enrollment*

# Graduation Certificate

This is to certify that

\_\_\_\_\_

*Pilot Name and Number*

has satisfactorily completed each required stage of the approved  
course of training including the tests for those stages, and has  
received \_\_\_\_\_ hours of cross-country training.

\_\_\_\_\_ has graduated from the  
Federal Aviation Administration approved **Private Pilot  
Certification Course** conducted by

\_\_\_\_\_

*School and Certificate Number*

\_\_\_\_\_

*Chief Instructor*

\_\_\_\_\_

*Date of Graduation*



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# Stage 1

## Introduction to Flying

### Objective

The objective of Stage 1 is for the student to become proficient in, and have an understanding of the following:



### Ground Training

- Course objective
- School requirements, procedures, regulations
- Grading criteria
- Forces acting on an airplane
- Stability and control
- Training airplane (airframe, engine, systems, flight instruments)
- Basic flight maneuvers
- Flight information
- Flight physiology
- Regulations



### Flight Training

- Flight training process
- Training airplane
- Preflight
- Taxiing
- Four basics of flight (straight and level, turns, climbs, descents)
- Use of sectional
- Collision avoidance
- Slow Flight
- Stall series
- Steep Turns
- Instrument scan

### Completion Standards

Stage 1 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 1 Exam, and all deficient areas shall be reconciled to 100%. Student shall have third-class medical and student pilot certificate upon completion of this stage.



# Stage 1 / Module 1



## Ground Training

### Objective:

For the student to be introduced to the Private Pilot Certification program, and learn the flight school requirements, procedures, regulations, and grading criteria. Student shall also become familiar with stability, control, and the forces acting on an airplane.

### Content:

- \_\_\_ Review of course and objectives
- \_\_\_ School requirements, procedures, regulations
- \_\_\_ Grading criteria, expectations of student
- \_\_\_ Review objective of Stage 1

#### *The forces acting on an airplane*

- \_\_\_ Weight
- \_\_\_ Lift
  - \_\_\_ streamline/turbulent flow
  - \_\_\_ Bernoulli's Principle
  - \_\_\_ dynamic/static pressure
  - \_\_\_ airspeed
  - \_\_\_ airfoil shape
  - \_\_\_ aerodynamic force
  - \_\_\_ pressure distribution and CP movement
- \_\_\_ Drag
  - \_\_\_ total drag
  - \_\_\_ parasite drag
  - \_\_\_ skin-friction drag
  - \_\_\_ form drag
  - \_\_\_ interference drag
  - \_\_\_ induced drag
  - \_\_\_ angle-of-attack
  - \_\_\_ wing design
  - \_\_\_ lift/drag ratio
  - \_\_\_ wing flaps
  - \_\_\_ leading-edge devices
  - \_\_\_ spoilers
- \_\_\_ Thrust
  - \_\_\_ propeller motion
  - \_\_\_ forces on a propeller blade
  - \_\_\_ propeller efficiency
  - \_\_\_ controllable-pitch propellers
  - \_\_\_ takeoff effects of propellers
  - \_\_\_ propeller torque effect
  - \_\_\_ gyroscopic effect
  - \_\_\_ P-factor

#### *Stability and control*

- \_\_\_ Stability
  - \_\_\_ static/dynamic stability
  - \_\_\_ stability vs. maneuverability
  - \_\_\_ airplane equilibrium
  - \_\_\_ pitching moments
  - \_\_\_ longitudinal/directional/lateral stability
- \_\_\_ Control
  - \_\_\_ elevator
  - \_\_\_ ailerons
  - \_\_\_ rudder
  - \_\_\_ control effectiveness

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 1 and 2

**Minimum 141 Requirements:** Dual  
1.0 hour flight  
2.0 hours ground instruction



## Flight Training

### Objective:

For the student to be introduced to and become familiarized with preflight inspections, checklist operations, starting and taxi procedures, and the function and use of the airplane controls.

### Content:

- \_\_\_ Preflight inspection and aircraft documents (certificates and documents, aircraft logbooks, airplane servicing)
- \_\_\_ Starting procedures
- \_\_\_ Taxi
- \_\_\_ Control effects on ground and in flight
- \_\_\_ Checklist introduction and use
- \_\_\_ Normal takeoff
- \_\_\_ Four Basics: straight and level, climbs, descents, turns
- \_\_\_ Collision avoidance procedures
- \_\_\_ Normal approach and landing
- \_\_\_ Postflight procedures

### Completion Standards:

This lesson is complete when the student can conduct the preflight with minimum assistance, properly use all checklists, start the airplane, taxi, and operate the controls.

### Recommended Reading:

*Flight School*

Stage 1 / **Module 1**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 1 / Module 2



## Ground Training

### Objective:

For the student to have an understanding of the airplane's airframe, engine, and system.

### Content:

#### Airframe

- Fuselage
- Wings
- Empennage
- Flight controls
- Landing gear
- Engine and propeller

#### Engine

- Description and principles
- Four-stroke engine cycle
- Ignition
- Starter
- Exhaust system
- Carburetor
- Accelerator pump
- Idling system
- Fuel/air mixture control
- Abnormal combustion
  - detonation
  - preignition
- Carburetor ice
  - impact ice
  - fuel ice
  - throttle ice
- Carburetor heat
- Fuel injection systems

#### Systems

- Fuel system
- Oil system
- Cooling system
- Electrical system
- Vacuum system

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 4, 5, and 6

### Minimum 141 Requirements:

- Dual
- 1.0 hour flight,
- 0.3 instrument work
- 2.0 hours ground instruction



## Flight Training

### Objective:

For the student to become proficient with the four basics of flight: straight and level, climbs, turns, and descents; and collision avoidance procedures.

### Content:

- Preflight
- Radio communications
- Normal takeoff and climbout
- Collision avoidance procedures
- Climbs
- Straight and level
- Turns: 90, 180, 360 degrees, and turns to headings
- Descents: with and without power and flaps
- Scanning procedures
- Normal approach and landing
- Postflight procedures

### Completion Standards:

This lesson is complete when the student has an understanding of the four basics of flight, and can maintain altitude within 200 feet, airspeed within 20 knots, and heading within 20 degrees, while performing the maneuvers listed in the content of this module.

### Recommended Reading:

*Flight School*

Stage 1 / **Module 2**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 1 / **Module 3**

**Minimum 141 Requirements:** Dual  
1.0 hour flight  
1.5 hours ground instruction



## **Ground Training**

### **Objective:**

For the student to understand how to properly operate the engine, and have an understanding of the flight instruments.

### **Content:**

#### *Engine operation*

- \_\_\_ Starting the engine
- \_\_\_ Stopping the engine
- \_\_\_ Changing power setting with a constant-speed propeller
- \_\_\_ Engine handling
- \_\_\_ Rough running
- \_\_\_ Cross-checking engine instruments
- \_\_\_ Taxiing
- \_\_\_ Engine failure in flight
- \_\_\_ Engine fire in flight
- \_\_\_ Engine fire on startup

#### *Flight instruments*

- \_\_\_ Pressure Instruments
  - \_\_\_ static pressure
  - \_\_\_ dynamic pressure
  - \_\_\_ total pressure
  - \_\_\_ pitot-static system
  - \_\_\_ airspeed indicator
  - \_\_\_ altimeter
  - \_\_\_ vertical speed indicator
- \_\_\_ Gyroscopic Instruments
  - \_\_\_ turn coordinator/turn indicator
  - \_\_\_ attitude indicator
  - \_\_\_ heading indicator
- \_\_\_ Magnetic compass

### **Completion Standards:**

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### **Assignment:**

*Ground School*, Chapters 6 and 7



## **Flight Training**

### **Objective:**

For the student to become proficient in postflight and trimming procedures. The student will also be introduced to Slow Flight and become oriented with the practice area.

### **Content:**

- \_\_\_ Preflight
- \_\_\_ Use of sectional
- \_\_\_ Radio communications
- \_\_\_ Normal takeoff and departure
- \_\_\_ Review of four basics
- \_\_\_ Trimming
- \_\_\_ Outline of practice area and reference to airport
- \_\_\_ Slow Flight
- \_\_\_ Collision avoidance
- \_\_\_ Normal approach and landing
- \_\_\_ Postflight procedures

### **Completion Standards:**

This lesson is complete when the student can maintain flight within 200 feet altitude, 20 degrees heading, and 20 knots airspeed, while performing the maneuvers listed in the content of this module. Also the student must be proficient in the art of trimming, postflight operations, be oriented to the practice area and airport, and be familiarized with Slow Flight.

### **Recommended Reading:**

*Flight School*

Stage 1 / **Module 3**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 1 / Module 4



## Ground Training

### Objective:

For the student to gain knowledge of the basic flight maneuvers required for the private pilot certificate, and the tools available for obtaining flight information.

### Content:

#### *Basic flight maneuvers*

- Straight-and-level
- Climbing and descending
  - climbs
  - descent
- Turning and load factor
- Forces in a turn
  - thrust in a turn
  - steep turns
  - stalling in a turn
- Stalling
  - awareness of the stall
  - recovery from the stall
  - factors affecting stall speed
  - stall warning devices
  - wing design and the stall
- Spinning
  - spin entry
  - spins
  - spin recovery

#### *Flight information*

- NOTAMs
- Chart Supplement U.S.
- Aeronautical Information Manual
- Federal Aviation Regulations
- Pilot/Controller Glossary
- Advisory Circulars

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 3

### Minimum 141 Requirements:

- Dual
- 1.0 hour flight,
- 0.3 instrument work
- 1.5 hours ground instruction



## Flight Training

### Objective:

For the student to become proficient in the use of sectionals, and to be introduced to Power-on Stalls, Power-off Stalls, and Steep Turns.

### Content:

- Preflight
- Radio communications
- Normal takeoff and landing
- Use of sectional
- Collision avoidance procedures
- Four basics
- Steep Turns
- Slow Flight
- Power-on Stalls
- Power-off Stalls
- Normal approach and landing
- Postflight procedures

### Completion Standards:

This module is complete when the student can maintain flight within 200 feet altitude, 20 degrees heading, 20 knots airspeed, while performing the maneuvers listed in the content of this module. The student must also be able to orient himself/herself with use of the sectional, and be introduced to Power-on and Power-off Stalls, and Steep Turns.

### Recommended Reading:

*Flight School*

Stage 1 / **Module 4**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 1 / Module 5 and Stage Check



## Ground Training

### Objective:

For the student to understand the factors which affect the physiology of flight, and to become familiar with the regulations which govern the student and private pilot, and general aviation flight.

### Content:

#### *Flight physiology*

- \_\_\_ Am I Fit to Fly?
  - \_\_\_ physical fitness
  - \_\_\_ mental fitness
  - \_\_\_ medical checks
  - \_\_\_ medication
  - \_\_\_ upper respiratory tract problems
  - \_\_\_ corrective lenses
  - \_\_\_ food poisoning
  - \_\_\_ alcohol
  - \_\_\_ smoking
  - \_\_\_ fatigue and sleep deprivation
  - \_\_\_ blood donation
- \_\_\_ Low Temperatures
- \_\_\_ Respiration
  - \_\_\_ increased altitude
  - \_\_\_ hypoxia
  - \_\_\_ carbon monoxide poisoning
  - \_\_\_ hyperventilation
  - \_\_\_ decompression sickness
- \_\_\_ Balance
  - \_\_\_ sensing acceleration
  - \_\_\_ inner ear balance mechanism
  - \_\_\_ motion sickness
  - \_\_\_ vertigo
  - \_\_\_ spatial disorientation
  - \_\_\_ sensory illusions
- \_\_\_ Vision
  - \_\_\_ structure of the eye
  - \_\_\_ adaptation of eyes to darkness
  - \_\_\_ scanning for aircraft
  - \_\_\_ visual illusions on approach
- \_\_\_ Aeronautical decision making and judgment
- \_\_\_ Discuss and obtain medical and student pilot certificate
- \_\_\_ 14 CFR §1
- \_\_\_ 14 CFR §61
- \_\_\_ 14 CFR §91
- \_\_\_ NTSB 830

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading. Stage 1 Exam must be passed with a minimum score of 80%, and reconciled to 100%.

### Assignment:

*Ground School*, Chapters 12 and 19  
Stage 1 Exam

**Minimum 141 Requirements:** Dual  
1.0 hour flight,  
0.3 instrument work  
Stage check  
1.5 hours ground instruction  
Stage exam



## Flight Training

### Objective:

For the student to be introduced to the instrument scan, and gain proficiency in Steep Turns, Slow Flight, and stalls. Student should have medical certificate or self-certification equivalent at the completion of this stage. For the Stage Check, student should demonstrate skill in the following areas according to the completion standards.

### Content:

- \_\_\_ Verify medical and student pilot certificate
- \_\_\_ Preflight
- \_\_\_ Radio communications
- \_\_\_ Normal takeoff and departure
- \_\_\_ Four basics
- \_\_\_ Steep Turns
- \_\_\_ Slow Flight
- \_\_\_ Power on/off Stalls
- \_\_\_ Spin awareness
- \_\_\_ Use of instrument scan
- \_\_\_ Collision avoidance
- \_\_\_ Use of sectional
- \_\_\_ Normal approach and landing
- \_\_\_ Postflight procedures

### Completion Standards:

The student should be able to maintain flight within 150 feet altitude, 15 degrees of heading, and 15 knots of airspeed, while performing the maneuvers listed in the content of this module. The student should be capable of demonstrating preflight, use of checklists, taxiing, the four basics, trimming, Slow Flight, Power on/off Stalls, Steep Turns, scanning, collision avoidance, and use of sectional with minimum assistance by the flight instructor.

### Recommended Reading:

*Flight School*  
*Private Pilot Test Prep*, Chapters 1, 2, and 3

### Stage 1 / Module 5

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

**Stage Exam Score:** \_\_\_\_\_

**Stage Check Successful:** \_\_\_\_\_

# Optional **Stage 1 Review**



## **Flight Training**

### **Objective:**

For the student to review all Stage 1 tasks and meet all objectives.

### **Content:**

- \_\_\_ Preflight
- \_\_\_ Taxi
- \_\_\_ Checklist use
- \_\_\_ Radio communications
- \_\_\_ Normal takeoff and departure
- \_\_\_ Four basics
- \_\_\_ Steep Turns
- \_\_\_ Slow Flight
- \_\_\_ Power on/off Stalls
- \_\_\_ Use of instrument scan
- \_\_\_ Collision avoidance
- \_\_\_ Use of sectional
- \_\_\_ Normal approach and landing
- \_\_\_ Postflight procedures

### **Completion Standards:**

The student should be able to maintain flight within 150 feet altitude, 15 degrees of heading, and 15 knots of airspeed, while performing the maneuvers listed in the content of this module. The student should have a practical understanding of preflight, checklists, taxiing, the four basics, trimming, Slow Flight, Power on/off Stalls, Steep Turns, scanning, collision avoidance, and use of sectional.

### **Recommended Reading:**

*Flight School*

Optional **Stage 1 Review**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

---

# Stage 2

## Solo

### Objective

The objective of Stage 2 is for the student to become proficient in, and to have an understanding of the following:



### Ground Training

- Airplane performance factors
- Operational weather concerns
- Obtaining a weather briefing
- Making the go-no go decision
- Charts and airspace
- Airports and airport operations
- Visual navigation fundamentals
- Using the flight computer
- Weight and balance



### Flight Training

- Pre-solo maneuvers (per 14 CFR § 61.87)
- Traffic pattern operations
- Emergency situations
- Normal and crosswind takeoffs and landings
- Solo flight

### Completion Standards

Stage 2 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 2 Pre-Solo Written Exam, and all deficient areas shall be reconciled to 100%.



# Stage 2 / Module 1



## Ground Training

### Objective:

For the student to have an understanding of the factors which affect airplane performance, and a working knowledge of ground reference maneuvers.

### Content:

\_\_\_ Review objective of Stage 2

#### *Airplane performance factors*

- \_\_\_ Airworthiness
  - \_\_\_ registration certificate
  - \_\_\_ airworthiness certificate
  - \_\_\_ approved flight manual
  - \_\_\_ maintenance
- \_\_\_ Airframe Limitations
  - \_\_\_ weight limitations
  - \_\_\_ speed limitations
  - \_\_\_ flying in turbulence
  - \_\_\_ load factor limitations
  - \_\_\_ velocity/load factor or V-G diagram

#### \_\_\_ Air Density

- \_\_\_ factors affecting air density
- \_\_\_ standard atmosphere
- \_\_\_ pressure altitude
- \_\_\_ temperature
- \_\_\_ density altitude
- \_\_\_ indicated airspeed and performance

#### \_\_\_ Wind Drift

#### *Ground Reference Maneuvers*

- \_\_\_ Site selection
- \_\_\_ Wind direction and speed
- \_\_\_ Entry track
- \_\_\_ Altitude
- \_\_\_ Aircraft speed
- \_\_\_ Emergency operations

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 8

**Minimum 141 Requirements:** Dual  
1.0 hour flight,  
0.3 instrument work  
2.0 hours ground instruction



## Flight Training

### Objective:

For the student to be introduced to cockpit management, ATC light signals, Rectangular Course, and to become proficient with radio communications.

### Content:

- \_\_\_ Preflight
- \_\_\_ Discussion of cockpit management and ATC light signals
- \_\_\_ Radio work
- \_\_\_ Normal takeoff and departure
- \_\_\_ Review of four basics (pitch + power = performance)
- \_\_\_ Steep Turns
- \_\_\_ Slow Flight
- \_\_\_ Power on/off Stalls
- \_\_\_ Rectangular Course
- \_\_\_ Normal approach and landing
- \_\_\_ Postflight procedures

### Completion Standards:

This module is complete when the student can maintain flight within 150 feet, 15 degrees, and 15 knots, while performing the maneuvers listed in the content of this module. The student must also be capable of maintaining the radio, and be knowledgeable in ATC light signals and cockpit management.

### Recommended Reading:

*Flight School*

Stage 2 / **Module 1**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 2 / Module 2

**Minimum 141 Requirements:** Dual  
1.0 hour flight  
2.0 hours ground instruction



## Ground Training

### Objective:

For the student to have an understanding of the operational weather factors, and a practical understanding of obtaining a weather briefing, and making the go-no go decision.

### Content:

*Operational weather factors*

- Icing
  - Structural icing
    - Clear ice
    - Rime ice
    - Mixed ice
    - Frost
  - Structural icing and cloud type
  - Induction icing
    - carburetor icing
    - engine intake icing
  - Instrument icing
- Cold weather operations
- Visibility
  - Particles in the air
  - Inversions and reduced visibility
  - Condensation
  - Fog
    - radiation fog
    - advection fog
    - upslope fog
    - frontal fog
    - steam fog
- Turbulence
  - Clear air turbulence
  - Classification of turbulence
- Windshear
- Thunderstorms
- Microbursts
- Obtaining a weather briefing
- Making the go-no go decision

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 17 and Chapter 18: "Obtaining a Weather Briefing" (only)



## Flight Training

### Objective:

For the student to become proficient with traffic pattern operations, and be introduced to S-turns, Turns Around a Point, and wake turbulence avoidance.

### Content:

- Preflight
- Obtain weather
- Go-no go decision
- Wake turbulence avoidance
- Normal/crosswind takeoff and departure
- Slow Flight
- Power on/off Stalls
- Steep Turns
- Rectangular Course
- S-turns
- Turns Around a Point
- Pattern work
- Normal/crosswind approach and landing
- Postflight procedures

### Completion Standards:

This module is complete when the student can maintain flight within 150 feet, 15 degrees, 15 knots, while performing the maneuvers listed in the content of this module. Student must also be able to enter and depart a normal traffic pattern, perform wake turbulence avoidance, S-turns, and Turns Around a Point.

### Recommended Reading:

*Flight School*

Stage 2 / **Module 2**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 2 / Module 3



## Ground Training

### Objective:

For the student to have an understanding of aviation charts and the airspace system, and a practical understanding of no-flap landings, slips, aborted takeoffs, and rejected landings (go-arounds).

### Content:

#### Charts

- \_\_\_ Sectional charts
- \_\_\_ VFR Terminal Area charts

#### Airspace

- \_\_\_ Class A
- \_\_\_ Class B
- \_\_\_ Class C
- \_\_\_ Class D
- \_\_\_ Class E
- \_\_\_ Class G
- \_\_\_ Temporary Flight Restrictions (TFRs)
- \_\_\_ Special use airspace
- \_\_\_ Other airspace

#### Special Takeoffs and Landings

- \_\_\_ No-flap landing
- \_\_\_ Slips
- \_\_\_ Aborted takeoff
- \_\_\_ Rejected landing (go-around)

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 20 and 21

**Minimum 141 Requirements:** Dual  
1.0 hour flight,  
0.3 instrument work  
1.5 hours ground instruction



## Flight Training

### Objective:

For the student to become proficient with normal and crosswind takeoffs and landings, and be introduced to go-around and aborted takeoff procedures, and no flap or slips to landings.

### Content:

- \_\_\_ Preflight
- \_\_\_ Obtain weather, go-no go decision

#### Pattern work

- \_\_\_ Normal and crosswind takeoffs
- \_\_\_ Normal and crosswind landings
- \_\_\_ Emergency approaches
- \_\_\_ No flap landing
- \_\_\_ Aborted takeoff (warn tower before starting)
- \_\_\_ Slips to landing
- \_\_\_ Go-around procedures
- \_\_\_ Postflight procedures

### Completion Standards:

This module is complete when the student can operate proficiently in traffic patterns and can takeoff and land being the sole manipulator of the controls.

### Recommended Reading:

*Flight School*

Stage 2 / **Module 3**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 2 / Module 4

**Minimum 141 Requirements:** Dual  
1.0 hour flight  
1.5 hours ground instruction



## Ground Training

### Objective:

For the student to become familiar with airports and airport operations.

### Content:

#### Airports

- \_\_\_ Taxiway and runway markings and signs
- \_\_\_ Airport lighting

#### Airport operations

- \_\_\_ ATIS
- \_\_\_ Taxiing
- \_\_\_ Standard traffic pattern
- \_\_\_ Legs of a traffic pattern
- \_\_\_ Wind effect in the traffic pattern
- \_\_\_ Departing the traffic pattern
- \_\_\_ Radio communications
- \_\_\_ Entering the traffic pattern
- \_\_\_ Airport Radar Services
  - \_\_\_ TRSA radar service
  - \_\_\_ basic radar service
  - \_\_\_ traffic sequencing for pilots
  - \_\_\_ full radar services

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 22



## Flight Training

### Objective:

For the student to become proficient in emergency situations, including system and equipment malfunctions, forward slips to landing, aborted takeoffs, and go-arounds.

### Content:

- \_\_\_ Preflight
- \_\_\_ Discussion of pre-solo requirements (14 CFR § 61.87)
- \_\_\_ Discussion of emergency equipment and survival gear
- \_\_\_ Slow Flight
- \_\_\_ Takeoff and departure stalls
- \_\_\_ Approach to landing stalls
- \_\_\_ Rectangular Course
- \_\_\_ Turns Around a Point
- \_\_\_ S-turns
- \_\_\_ Cruise emergency situations (system and equipment malfunction)
- \_\_\_ Normal and crosswind takeoffs
- \_\_\_ Normal and crosswind landings
- \_\_\_ Slip to a landing
- \_\_\_ Aborted takeoff (warn tower before starting)
- \_\_\_ Go-arounds
- \_\_\_ Forced landings from practice area and pattern
- \_\_\_ Postflight procedures

### Completion Standards:

This module is complete when the student can operate in emergency situations in all phases of flight: cruise, takeoff, and landing. Emergencies include: equipment and system malfunctions, conditions forcing an aborted takeoff, and forced landings. Flight in all phases must be within 100 feet, 10 degrees, 10 knots, and coordination must be maintained at all times.

### Recommended Reading:

*Flight School*

Stage 2 / **Module 4**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Optional **Stage 2 Review**

**Lesson Time:** Dual 1.0 hour flight, or whatever is necessary to meet objective  
1.5 hours ground instruction, or whatever is necessary to meet objective



## **Flight Training**

### **Objective:**

For the student to gain proficiency in all pre-solo maneuvers. Upon completion of this flight, student will be ready to be signed off for solo operations.

### **Content:**

- \_\_\_ Discussion of pre-solo requirements
- \_\_\_ Normal/crosswind takeoff and landing
- \_\_\_ Pre-solo maneuvers (per 14 CFR § 61.87)
- \_\_\_ Emergency situations
- \_\_\_ Student is sole manipulator of controls for entire flight

### **Completion Standards:**

This module is complete when the student is comfortable with all of the pre-solo maneuvers and can conduct all with minimum assistance from the flight instructor. Flight must be maintained within 100 feet, 10 degrees, 10 knots, and coordination must be maintained.

### **Recommended Reading:**

*Flight School*

### **Assignment:**

Stage 2 Pre-Solo Written Exam

Optional **Stage 2 Review**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 2 / Module 5



## Ground Training

### Objective:

For the student to become proficient in the fundamentals of visual navigation. Student must also have an understanding of the pre-solo requirements, and demonstrate that knowledge through a pre-solo written exam.

### Content:

*Visual navigation fundamentals*

- \_\_\_ Pilotage
- \_\_\_ Dead reckoning
- \_\_\_ Navigation
- \_\_\_ Course
- \_\_\_ Heading
- \_\_\_ True airspeed
- \_\_\_ Wind velocity/direction
- \_\_\_ Ground track/Ground speed
- \_\_\_ Drift/Wind correction angle
- \_\_\_ Tracking error
- \_\_\_ Latitude/Longitude
- \_\_\_ Nautical mile
- \_\_\_ Knot
- \_\_\_ Altitude/Flight level
- \_\_\_ VFR cruise altitude
- \_\_\_ Minimum safe altitude
- \_\_\_ Standard/Local time
- \_\_\_ UTC/Zulu time
- \_\_\_ Daylight time
- \_\_\_ Dateline

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading. Stage 2 Exam must be passed with a minimum score of 80%, and reconciled to 100%.

### Assignment:

*Ground School*, Chapter 23

Ensure Stage 2 Pre-Solo Written Exam is completed and graded.

**Minimum 141 Requirements:** Dual 0.5 hour flight  
Solo 2.0 hours flight  
1.5 hours ground instruction  
Stage exam (pre-solo written)



## Flight Training

### Objective:

For the student to be signed off for solo work. The suggestion is to conduct this module in three flights: (A) dual flight, (B) supervised solo, and (C) solo session.

### Content:

#### Flight A (Dual)

- \_\_\_ Preflight
- \_\_\_ Review of pre-solo maneuvers
- \_\_\_ Normal/crosswind takeoff and landing
- \_\_\_ Emergency situations
- \_\_\_ Student is sole manipulator of controls for entire flight
- \_\_\_ Postflight

#### Flight B (Supervised Solo)

*Pattern work*

- \_\_\_ Instructor endorsement
- \_\_\_ Preflight
- \_\_\_ 10 takeoffs and landings
- \_\_\_ Radio work
- \_\_\_ Slips to landing
- \_\_\_ Emergency go-arounds
- \_\_\_ Postflight

#### Flight C (Solo)

- \_\_\_ Preflight
- \_\_\_ Normal/crosswind takeoffs and landings (3)
- \_\_\_ Slow Flight
- \_\_\_ Power on/off Stalls
- \_\_\_ Steep Turns
- \_\_\_ Rectangular Course
- \_\_\_ S-turns
- \_\_\_ Turns Around a Point
- \_\_\_ Pilotage/dead reckoning back to airport
- \_\_\_ Postflight

### Completion Standards:

This module is complete when the student is signed off for solo work, and the student has conducted two solo flights — one flight strictly in the pattern, perfecting takeoffs and landings, and one practicing all the private maneuvers. Flight must be maintained within 100 feet, 10 degrees, 10 knots, and coordination maintained, while performing the maneuvers listed in the content of this module.

### Recommended Reading:

*Flight School*

Stage 2 / **Module 5**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

**Stage Exam Score:** \_\_\_\_\_

**1. Endorsement for pre-solo aeronautical knowledge: 14 CFR §61.87(b)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has satisfactorily completed the pre-solo knowledge exam of §61.87(b) for the \_\_\_\_\_ (*make and model aircraft*).

[date] J. Jones 654321 CFI [expiration date]

**2. Endorsement for pre-solo flight training: 14 CFR §61.87(c)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required pre-solo training in a \_\_\_\_\_ (*make and model aircraft*). I have determined he/she has demonstrated the proficiency of §61.87(d) and is proficient to make solo flights in \_\_\_\_\_ (*make and model aircraft*).

[date] J. Jones 654321 CFI [expiration date]

**3. Endorsement for solo flight (first 90-day period): 14 CFR §61.87(n)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training to qualify for solo flying. I have determined he/she meets the applicable requirements of §61.87(n) and is proficient to make solo flights in \_\_\_\_\_ (*make and model aircraft*).

[date] J. Jones 654321 CFI [expiration date]

**4. Endorsement for solo (each additional 90-day period): 14 CFR §61.87(p)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training to qualify for solo flying. I have determined he/she meets the applicable requirements of §61.87(p) and is proficient to make solo flights in \_\_\_\_\_ (*make and model aircraft*).

[date] J. Jones 654321 CFI [expiration date]

**5. Endorsement for solo flight in the Class B airspace: 14 CFR §61.95(a)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the training required by §61.95(a). I have determined he/she is proficient to conduct solo flights in \_\_\_\_\_ (*name of Class B*) airspace. (*List any applicable conditions or limitations.*)

[date] J. Jones 654321 CFI [expiration date]

**6. Endorsement for solo flight to, from, or at an airport located within Class B airspace: 14 CFR §61.95(a) and §91.131(b)(1)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training of §61.95(a)(1). I have determined that he/she is proficient to conduct solo flight operations at \_\_\_\_\_ (*name of airport*). (*List any applicable conditions or limitations.*)

[date] J. Jones 654321 CFI [expiration date]

# Stage 2 / Module 6 and Stage Check



## Ground Training

### Objective:

For the student to have a practical understanding of using the flight computer and calculating weight and balance.

### Content:

*Using the flight computer*

- Calculator side
- Wind side
- Finding TAS
- Finding/Determining heading and groundspeed
- Finding the time en route and fuel requirements
- Speed-Time-Distance problems
- Fuel consumption problems
- Finding wind components
- Conversions

*Weight and balance*

- Weight
  - empty weight
  - gross weight
- Balance
  - moment of a force
  - finding CG
  - airplane datums
  - effect of CG on airplane handling
- Weight and Balance calculations
  - finding the CG
  - graphical/tabular presentation of weight-and-balance data
  - weight-shift calculations
  - weight-change calculations
  - CG movement
- Review cross-country flight requirements (per 14 CFR §61.93)

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 11 and 24

### Minimum 141 Requirements:

- Dual
- 1.0 hour flight,
- 0.3 instrument work
- Stage check
- 2.0 hours ground instruction



## Flight Training

### Objective:

For the student to experience takeoffs at  $V_X$  and  $V_Y$ , and to experience short-field takeoffs and landings. The student should also gain knowledge and experience in navigation and instrument work. For the Stage Check, student should demonstrate skill in the following areas according to the completion standards.

### Content:

- Preflight
- $V_X$  and  $V_Y$  takeoffs and landings
- Four basics under the hood
- Slow Flight
- Stalls (power on/off)
- Steep Turns
- Ground reference maneuvers
- Navigation
- Short-field takeoffs and landings
- Postflight procedures

### Completion Standards:

This module is complete when the student can fly takeoffs and landings at  $V_X$  and  $V_Y$ , perform short-field takeoffs and landings, navigate with radio facilities (VOR), and perform the four basics in instrument conditions (under the hood). Flight should be within 150 feet, 15 degrees, and 15 knots, while performing the maneuvers listed in the content of this module. Student should demonstrate pre-solo maneuvers without instructor assistance.

### Recommended Reading:

*Flight School*  
*Private Pilot Test Prep*, Chapters 4, 5, and 12

Stage 2 / **Module 6**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

**Stage Check Successful:** \_\_\_\_\_

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# Stage 3

## Cross-Country Flight

### Objective

The objective of Stage 3 is for the student to gain knowledge and experience in the following:



#### Ground Training

- Takeoff performance
- Landing performance
- Enroute performance
- Flight planning
- Ground-based navigation: VOR, ADF, radar, transponder, DME, and RNAV
- Enroute navigation



#### Flight Training

- Pre-cross-country maneuvers (per 14 CFR § 61.93)
- Cross-country flight planning
- The required dual and solo cross-country time

### Completion Standards

Stage 3 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 3 Exam, and all deficient areas shall be reconciled to 100%.



# Stage 3 / Module 1



## Ground Training

### Objective:

For the student to have a practical understanding of takeoff, landing, and enroute performance.

### Content:

\_\_\_ Review objective of Stage 3

#### Takeoff performance

- \_\_\_ Factors affecting takeoff performance
  - \_\_\_ weight
  - \_\_\_ increased takeoff speed
  - \_\_\_ air density
  - \_\_\_ head/tail winds
  - \_\_\_ crosswinds
  - \_\_\_ runway surface/slope
  - \_\_\_ flaps
- \_\_\_ Takeoff distance graph/table

#### Landing performance

- \_\_\_ Factors affecting landing performance
  - \_\_\_ weight
  - \_\_\_ air density
  - \_\_\_ effect of wind
  - \_\_\_ runway surface/slope
  - \_\_\_ flaps
  - \_\_\_ fast approach speeds
- \_\_\_ Landing distance graph/table
- \_\_\_ Wake Turbulence
- \_\_\_ Ground Effect
- \_\_\_ Windshear
- \_\_\_ Taxiing

#### Enroute performance

- \_\_\_ Cruise altitude
- \_\_\_ Power setting
- \_\_\_ Fuel consumption/requirements
- \_\_\_ Effects of wind

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 9 and 10

**Minimum 141 Requirements:** Dual 1.0 hour flight,  
0.3 instrument work  
Solo 1.0 hour flight  
1.5 hours ground instruction



## Flight Training

### Objective:

For the student to become proficient in navigation, and to become competent to perform at satellite airports. The student will also gain experience in soft-field techniques, and gain proficiency in instrument work and lost procedures.

### Content:

#### Flight A (Dual)

- \_\_\_ Preflight
- \_\_\_ Crosswind takeoffs and landings
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Pilotage to another airport/Diversion

#### Instrument

- \_\_\_ Four basics
- \_\_\_ Constant airspeed climbs
- \_\_\_ Constant airspeed descents
- \_\_\_ Turns to headings
- \_\_\_ Slow Flight
- \_\_\_ Stalls
- \_\_\_ NAVAIDs
- \_\_\_ Lost procedures
- \_\_\_ Postflight procedures

#### Flight B (Solo)

- \_\_\_ Instructor endorsement
- \_\_\_ Preflight
- \_\_\_ Pilotage and navigation to satellite airport
- \_\_\_ Crosswind takeoffs and landings
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Postflight

### Completion Standards:

This module is complete when the student can perform soft-field techniques, navigate by pilotage, fly to an assigned diversion, and fly at Slow Flight in instrument conditions. Flight should be within 100 feet, 10 degrees, and 10 knots, while performing the maneuvers listed in the content of this module. Landings should be within 200 feet of chosen point of landing.

### Recommended Reading:

*Flight School*

Stage 3 / **Module 1**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

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**Instructor Note: Follow the format below when signing-off the endorsement for your students. (From AC 61-65)**

**Endorsement for solo landings and takeoffs at another airport within 25 NM: 14 CFR §61.93(b)(1)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training of §61.93(b)(1). I have determined that he/she is proficient to practice solo takeoffs and landings at \_\_\_\_\_ (*airport name*). The takeoffs and landings at \_\_\_\_\_ (*airport name*) are subject to the following conditions: \_\_\_\_\_ (*List any applicable conditions or limitations.*)

[date]      J. Jones      654321 CFI      [expiration date]

# Stage 3 / Module 2



## Ground Training

### Objective:

For the student to have a practical understanding of flight planning, and a working knowledge of weather in preparation for solo cross-country flight.

### Content:

- \_\_\_ *Flight planning*
  - \_\_\_ Personal navigation equipment
  - \_\_\_ Weather and operational considerations
  - \_\_\_ Preflight planning
    - \_\_\_ altitude
    - \_\_\_ courses and distances
    - \_\_\_ speed, time and heading calculations
    - \_\_\_ completing the flightlog
    - \_\_\_ fuel calculations
    - \_\_\_ weight-and-balance
    - \_\_\_ takeoff and landing performance
  - \_\_\_ The flight plan form
  - \_\_\_ Airplane documentation and preparation for flight
  - \_\_\_ Flight following
- \_\_\_ *Right-of-way rules*
- \_\_\_ *Weather discussion*
  - \_\_\_ Clouds
  - \_\_\_ Thunderstorms
  - \_\_\_ Air masses
  - \_\_\_ Frontal weather
  - \_\_\_ Low- and high-pressure systems
  - \_\_\_ Weather reports
  - \_\_\_ Weather forecasts

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 25

**Minimum 141 Requirements:** \* Solo  
1.0 hour flight  
1.5 hours ground instruction



## Flight Training

### Objective:

For the student to gain knowledge and experience in private maneuvers, specialty takeoffs and landings. Student shall become proficient at flying to satellite airports.

### Content:

- \_\_\_ Preflight
- \_\_\_ Crosswind takeoffs and landings
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Navigation to satellite airport
- \_\_\_ Steep Turns
- \_\_\_ Slow Flight
- \_\_\_ Stalls
- \_\_\_ Ground reference maneuvers
- \_\_\_ Postflight

### Completion Standards:

This module is complete when the student can fly within 100 feet, 10 degrees, and 10 knots, while performing the maneuvers listed in the content of this module.

### Recommended Reading:

*Flight School*

Stage 3 / **Module 2**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 3 / Module 3



## Ground Training

### Objective:

For the student to have a practical understanding of ground-based navigation using the VOR.

### Content:

*Navigation aids*

- VOR
- VOR/DME, TACAN and VORTAC
- Course deviation indicator
- TO/FROM arrow
- Horizontal situation indicator (HSI)
- VOR receiver check
- Orientation
- Intercepting course
- Tracking

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 27

**Minimum 141 Requirements:** Dual, Cross-Country  
2.0 hours flight,  
0.3 instrument work  
2.0 hours ground instruction



## Flight Training

### Objective:

For the student to become competent at performing cross-country duties. Student should also gain experience in instrument flight at unusual attitudes.

### Content:

- Cross-country discussion
- Plotting course
- Flightlog
- Weather
- Filing flight plan
- Flight computer
- Preflight
- Cross-country flight
- Use of flightlog
- Navigation
- Radio communications
- Instrument unusual attitudes
- Short-field takeoffs and landings
- Soft-field takeoffs and landings
- Postflight

### Completion Standards:

This module is complete when the student is competent to conduct solo cross-country operations. Flight must be within 200 feet, 15 degrees, and 10 knots, and coordination maintained at all times. Cross-country operations must be within 5 minutes of ETA and 3 NM of route.

### Recommended Reading:

*Flight School*

Stage 3 / **Module 3**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Optional **Stage 3 Review**

**Lesson Time:** Dual, Cross-Country  
1.5 hours flight, or whatever is necessary to meet objective  
1.0 hour ground instruction, or whatever is necessary to meet objective



## **Flight Training**

### **Objective:**

For the student to become competent at performing cross-country duties. Student should also gain experience in instrument flight at unusual attitudes.

### **Content:**

- \_\_\_ Cross-country discussion
- \_\_\_ Plotting course
- \_\_\_ Flightlog
- \_\_\_ Weather
- \_\_\_ Filing flight plan
- \_\_\_ Flight computer
- \_\_\_ Preflight
- \_\_\_ Cross-country flight
- \_\_\_ Flightlog use
- \_\_\_ Navigation
- \_\_\_ Radio communications
- \_\_\_ Instrument unusual attitudes
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Postflight

### **Completion Standards:**

This module is complete when the student is competent to conduct solo cross-country operations. Flight must be within 200 feet, 15 degrees, and 10 knots, and coordination maintained at all times. Cross-country operations must be within 5 minutes of ETA and 3 NM of route.

### **Recommended Reading:**

*Flight School*

Optional **Stage 3 Review**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 3 / Module 4

**Minimum 141 Requirements:** Solo — Cross-Country  
2.0 hours flight  
1.0 hour ground instruction



## Ground Training

### Objective:

For the student to gain a practical understanding of ground-based navigation including ADF, Radar, the Transponder, DME, and RNAV.

### Content:

*Navigation aids*

- Ground-based navigation
  - ADF and heading indicator
  - NDB range, accuracy, identification
  - ADF control panel
  - ADF relative bearing indicator (RBI)
  - ADF radio magnetic indicator (RMI)
  - orientation
  - intercepting course
  - tracking
- Radar
- Transponder
- DME
- RNAV — Area Navigation
- GPS

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 27



## Flight Training

### Objective:

For the student to gain the required experience in solo cross-country operations. Flight must be at least 150 NM, with landings at a minimum of three points.

### Content:

- Cross-country planning
- Instructor endorsement
- Preflight
- Ground-based navigation
- Pilotage
- Dead Reckoning
- Flightlog kept throughout flight
- At least one landing with more than 50 NM between the takeoff and landing locations
- Postflight

### Completion Standards:

This module is complete when the student can maintain flight coordinated and within 200 feet, 15 degrees, and 10 knots, at all times. Cross-country should be flown within 3 NM of the planned route at all times, and arrive at the en route checkpoints and destinations within 5 minutes of the initial or revised ETA.

### Recommended Reading:

*Flight School*

Stage 3 / **Module 4**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 3 / Module 5 and Stage Check



## Ground Training

### Objective:

For the student to gain an understanding of enroute navigation.

### Content:

*Enroute navigation*

- \_\_\_ Compensating for wind effect
- \_\_\_ Departure from an airport
- \_\_\_ Cruise
  - \_\_\_ map-reading in flight
  - \_\_\_ chart orientation in the airplane
  - \_\_\_ log keeping
- \_\_\_ Navigation techniques
  - \_\_\_ groundspeed checks
  - \_\_\_ heading corrections
- \_\_\_ Diversions
  - \_\_\_ en route diversions
  - \_\_\_ diversions to an alternate airport
- \_\_\_ Lost procedures
- \_\_\_ Flight following
- \_\_\_ Emergency Locator Transmitter (ELT)

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading. Stage 3 Exam must be passed with a minimum score of 80%, and reconciled to 100%.

### Assignment:

*Ground School*, Chapter 26  
Stage 3 Exam

Stage 3 / **Module 5**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

**Stage Exam Score:** \_\_\_\_\_

**Stage Check Successful:** \_\_\_\_\_

**Minimum 141 Requirements:** Dual 1.0 hour flight  
\* Solo: Cross-country  
6 hrs flight  
Stage check  
1.5 hours ground instruction  
Stage exam



## Flight Training

### Objective:

For the student to gain experience in solo cross-country operations. For the Stage Check, student should demonstrate skill in the following areas according to the completion standards.

### Content:

#### Flight A (Dual, Local, 1.0 hour)

- \_\_\_ Preflight
- \_\_\_ Normal takeoff and landing
- \_\_\_ Slow Flight
- \_\_\_ Stall series
- \_\_\_ Steep Turns
- \_\_\_ Ground reference maneuvers
- \_\_\_ Ground-based navigation
- \_\_\_ Pilotage
- \_\_\_ Dead Reckoning
- \_\_\_ Postflight

#### Flight B (Solo Cross-Country, 2.0 hours)\*

- \_\_\_ Cross-country planning
- \_\_\_ Instructor endorsement
- \_\_\_ Preflight
- \_\_\_ Ground-based navigation
- \_\_\_ Pilotage
- \_\_\_ Dead Reckoning
- \_\_\_ Flightlog kept throughout flight
- \_\_\_ At least one landing more than 50 NM from departure airport
- \_\_\_ Postflight

#### Flight C (Solo Cross-Country, 4.0 hours)\*

- \_\_\_ Cross-country planning
- \_\_\_ Instructor endorsement
- \_\_\_ Preflight
- \_\_\_ Ground-based navigation
- \_\_\_ Pilotage
- \_\_\_ Dead Reckoning
- \_\_\_ Flightlog kept throughout flight
- \_\_\_ Postflight

### Completion Standards:

Flight should be coordinated and within 200 feet, 15 degrees, 10 knots, at all times, and cross-countries should be flown within 3 NM of the planned route at all times, and arrive at the en route check-points and destinations within 5 minutes of the initial or revised ETA.

### Recommended Reading:

*Flight School*  
*Private Pilot Test Prep*, Chapters 9, 10, and 11

**1. Endorsement for initial solo-country flight: 14 CFR 61.93(c)(1)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required solo cross-country training. I find he/she has met the applicable requirements of §61.93, and is proficient to make solo cross-country flights in a \_\_\_\_\_ (*make and model*) airplane.

[date]      J. Jones              654321 CFI      [expiration date]

**2. Endorsement for each solo cross-country flight: 14 CFR §61.93(c)(2)**

I have reviewed the cross-country planning of \_\_\_\_\_ (*First name, MI, Last name*). I find the planning and preparation to be correct to make the solo flight from \_\_\_\_\_ (*location*) to \_\_\_\_\_ (*destination*) via \_\_\_\_\_ (*route of flight*) with landings at \_\_\_\_\_ (*name the airports*) in a \_\_\_\_\_ (*make and model aircraft*) on \_\_\_\_\_ (*date*). (*List any applicable conditions or limitations.*)

[date]      J. Jones              654321 CFI      [expiration date]

**3. Endorsement for repeated solo cross-country flights not more than 50 NM from the point of departure: 14 CFR §61.93(b)(2)**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training in both directions between and at both \_\_\_\_\_ (*airport names*). I have determined he/she is proficient of §61.93(b)(2) to conduct repeated solo cross-country flights over that route, subject to the following conditions: \_\_\_\_\_ (*list applicable conditions*).

[date]      J. Jones              654321 CFI      [expiration date]

---

# Stage 4

## Prep for Checkride

### Objective

The objective of Stage 4 is for the student to gain knowledge and experience in the following:



#### Ground Training

- Heating effects in the atmosphere
- Wind
- Clouds and thunderstorms
- Air masses and frontal weather
- Weather reports and forecasts
- Private Pilot Airman Certification Standards (ACS)
- Prep for checkride (oral)
- Take and pass the FAA Knowledge Exam



#### Flight Training

- The experience and knowledge required by the Private certificate
- Review all Private maneuvers, performed according to the ACS
- Sign-off for the Private Checkride

### Completion Standards

Stage 4 is complete when the student achieves the objective of each lesson, and can list or describe the correct process or reference for accomplishing elements, exercises and activities. Student shall score at least 80% on the Stage 4 Exam, and all deficient areas shall be reconciled to 100%. Students must take and pass the FAA Private Knowledge Exam. At the completion of this stage, student is signed off to take the Private Pilot checkride.

*Note:* 3 hours must be dedicated to preparation for the practical test within 60 days preceding the date of the test for §141 compliance.



# Stage 4 / Module 1



## Ground Training

### Objective:

For the student to have an understanding of wind and the heating effects in the atmosphere.

### Content:

\_\_\_ Review objective of Stage 4

#### *The atmosphere*

- \_\_\_ Air density
- \_\_\_ Subdivision of the atmosphere
- \_\_\_ Gases in air
- \_\_\_ Standard atmosphere

#### *Heat exchange processes*

- \_\_\_ The sun
- \_\_\_ Terrestrial re-radiation
- \_\_\_ General circulation
- \_\_\_ Local heating and cooling
- \_\_\_ Local air movements
- \_\_\_ Temperature inversions

#### *Wind*

- \_\_\_ Coriolis effect
- \_\_\_ Geostrophic wind
- \_\_\_ Gradient wind
- \_\_\_ Surface wind
- \_\_\_ Wind in the tropics

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 13 and 14

**Minimum 141 Requirements:** Dual  
1.0 hour flight,  
0.3 instrument work  
1.5 hours ground instruction



## Flight Training

### Objective:

For the student to become proficient in hood work, Slow Flight and stalls with distractions, and spin awareness.

### Content:

- \_\_\_ Preflight
- \_\_\_ Slow Flight
- \_\_\_ Power on/off Stalls
- \_\_\_ Spin awareness training
- \_\_\_ Steep Turns

#### *Hood work*

- \_\_\_ Four basics
- \_\_\_ Slow Flight
- \_\_\_ Stalls
- \_\_\_ Use of radios and nav aids
- \_\_\_ Ground reference maneuvers
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Postflight

### Completion Standards:

This module is complete when the student is within Private Pilot ACS at all times.

### Recommended Reading:

*Flight School*

Stage 4 / **Module 1**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 4 / Module 2



## Ground Training

### Objective:

For the student to have an understanding of air masses, frontal weather, clouds, and thunderstorms.

### Content:

#### Clouds

- \_\_\_ Naming of clouds
- \_\_\_ Moisture in the atmosphere
- \_\_\_ Adiabatic processes
- \_\_\_ Formation of clouds
  - \_\_\_ the Foehn (or Chinook) wind effect
  - \_\_\_ clouds formed by turbulence and mixing
  - \_\_\_ clouds formed by widespread ascent
- \_\_\_ Precipitation from clouds

#### Thunderstorms

- \_\_\_ Three necessary conditions
  - \_\_\_ instability
  - \_\_\_ moisture
  - \_\_\_ lifting force
- \_\_\_ Life cycle
  - \_\_\_ cumulus stage
  - \_\_\_ mature stage
  - \_\_\_ dissipating stage
- \_\_\_ Severe thunderstorms
- \_\_\_ Embedded thunderstorms
- \_\_\_ Danger of thunderstorms
  - \_\_\_ icing
  - \_\_\_ hailstones
  - \_\_\_ lightning strikes
  - \_\_\_ turbulence
  - \_\_\_ downbursts and microbursts
  - \_\_\_ tornadoes and water spouts

#### Air masses

- \_\_\_ Origin and path
- \_\_\_ Divergence or convergence

#### Frontal weather

- \_\_\_ Warm front
- \_\_\_ Cold front
- \_\_\_ Occluded front
- \_\_\_ Stationary front
- \_\_\_ Development and decay of fronts
- \_\_\_ Depressions— areas of low pressure
- \_\_\_ Anticyclones — areas of high pressure
- \_\_\_ Review night flying regulations

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapters 15 and 16

**Minimum 141 Requirements:** Dual: Night Local 1.5 hrs flight, 0.3 instrument work  
Dual: Night Cross-Country 1.5 hours flight (more than 100 NM)  
2.0 hours ground instruction



## Flight Training

### Objective:

For the student to gain experience in night flying operations, including hood work, and cross-country. This module should be completed within 60 days of the practical test.

### Content:

#### Flight A (Night, Local, 1.5 hours)

- \_\_\_ Weather briefing
- \_\_\_ Night preflight inspection
- \_\_\_ Night navigation
- \_\_\_ Area orientation
- \_\_\_ Steep Turns
- \_\_\_ Slow Flight
- \_\_\_ Stalls (Power on/off)
- \_\_\_ Instrument work
- \_\_\_ Emergency situations and landings
- \_\_\_ Go-arounds
- \_\_\_ Takeoffs and landings (10, with and without panel and landing lights)
- \_\_\_ Postflight

#### Flight B (Night, Cross-Country, 1.5 hours)

Flight must be more than 100NM total distance.

- \_\_\_ Plotting course
- \_\_\_ Preparation of flightlog
- \_\_\_ Flight plan
- \_\_\_ Weather briefing
- \_\_\_ Night preflight inspection
- \_\_\_ Cross-country
- \_\_\_ Instrument work
- \_\_\_ Emergency situation and landing
- \_\_\_ Postflight

### Completion Standards:

This module is complete when the student has the required 3 hours of dual night training, 10 takeoffs and landings, and completed the >100 NM dual cross-country flight. Landings should be within 400 feet of a specified point. Flight should be within 100 feet, 10 degrees, and 10 knots, while performing the maneuvers listed in the content of this module.

### Recommended Reading:

*Flight School*

Stage 4 / **Module 2**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 4 / Module 3



## Ground Training

### Objective:

For the student to have a practical understanding of weather reports and forecasts.

### Content:

#### *Weather reports*

- Weather depiction chart
- Surface analysis chart
- METAR
- Pilot weather reports (PIREPs)

#### *Weather forecasts*

- Low-level significant weather prognostic charts
- Terminal Aerodrome forecast (TAF)
- Graphical Area forecast (GFA)
- Weather advisories
  - AIRMETs (WA)
  - SIGMETs (WS)
  - Convective SIGMETs (WST)
  - Center Weather Advisories (CWA)
  - VFR not recommended
- Convective outlook
- Winds and temperature aloft forecast (FB)
- Severe weather outlook charts (AC)

#### *Staying informed in the air*

- Flight Service
- SIGMET
- AIRMET
- HIWAS
- ATIS
- AWOS
- ASOS

### Completion Standards:

This lesson is complete when the student has successfully completed all review questions following the assigned reading.

### Assignment:

*Ground School*, Chapter 18

**Minimum 141 Requirements:** \* Solo: Cross-Country, Night  
2.0 hours flight  
1.5 hours ground instruction



## Flight Training

### Objective:

For the student to gain experience in solo, night, and cross-country operations.

### Content:

- Plotting course
- Flightlog
- Instructor endorsement
- Preflight
- Filing flight plan (round robin)
- Night flight operations
- Cross-country flying
- Postflight

### Completion Standards:

This module is complete when the student has gained proficiency in night and cross-country operations.

### Recommended Reading:

*Flight School*

Stage 4 / **Module 3**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 4 / **Module 4**



## **Ground Training**

### **Objective:**

For the student to gain complete proficiency in all areas included in the Private Pilot Airman Certification Standards.

### **Content:**

\_\_\_ Review the Private Pilot Airman Certification Standards (ACS)

### **Assignment:**

Review the Private Pilot Airman Certification Standards (ACS)

## **Minimum 141 Requirements:**

\*Solo  
1.0 hour flight  
1.5 hours ground instruction



## **Flight Training**

### **Objective:**

For the student to become proficient in all private maneuvers, in preparation for the checkride.

### **Content:**

- \_\_\_ Preflight
- \_\_\_ Slow Flight
- \_\_\_ Steep Turns
- \_\_\_ Stalls (Power on/off)
- \_\_\_ VOR radial interception and orientation
- \_\_\_ S-turns
- \_\_\_ Turns Around a Point
- \_\_\_ Rectangular Course
- \_\_\_ Emergency landings
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Crosswind takeoffs and landings
- \_\_\_ Slips to landings
- \_\_\_ Postflight

### **Completion Standards:**

This module is complete when all the private maneuvers are completed according to the ACS.

### **Recommended Reading:**

*Flight School*

Stage 4 / **Module 4**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Optional **Stage 4 Review**

**Lesson Time:** Dual 1.0 hour flight, or whatever is necessary to meet objective.  
1.5 hours ground instruction, or whatever is necessary to meet objective.



## **Flight Training**

**Objective:**

For the student to become proficient in all private maneuvers, in preparation for the checkride.

**Content:**

- \_\_\_ Preflight
- \_\_\_ Slow Flight
- \_\_\_ Steep Turns
- \_\_\_ Stalls (Power on/off)
- \_\_\_ VOR radial interception and orientation
- \_\_\_ S-turns
- \_\_\_ Turns Around a Point
- \_\_\_ Rectangular Course
- \_\_\_ Emergency landings
- \_\_\_ Short-field takeoffs and landings
- \_\_\_ Soft-field takeoffs and landings
- \_\_\_ Crosswind takeoffs and landings
- \_\_\_ Slips to landings
- \_\_\_ Postflight

**Completion Standards:**

This module is complete when all the private maneuvers are completed according to the ACS.

**Recommended Reading:**

*Flight School*

Optional **Stage 4 Review**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

# Stage 4 / Module 5 and Stage Check



## Ground Training

### Objective:

For the student to take and pass the FAA Private Pilot Knowledge Exam, and become proficient in all areas required for the private oral exam portion of the checkride.

### Content:

\_\_\_\_ Review all private pilot subject matter from the Private Pilot Airman Certification Standards

\_\_\_\_ Suggested review material: *Private Oral Exam Guide*

### Completion Standards:

Stage 4 Exam must be passed with a minimum passing score of 80%, and reconciled to 100%.

### Assignment:

Suggested reading: review *Private Oral Exam Guide*

Stage 4 Exam

FAA Private Pilot Knowledge Exam

**Minimum 141 Requirements:** Dual, 1.5 hours flight,  
0.3 instrument work  
Stage check  
2.0 hours ground instruction  
Stage exam



## Flight Training

### Objective:

For the student to become competent to pass the private pilot checkride. For the Stage Check, student should demonstrate skill in the following areas according to the completion standards. This module should be completed within 60 days of the practical test.

### Content:

\_\_\_\_ Weather briefing— current, forecast, winds, go-no go decision

\_\_\_\_ Weight and Balance

\_\_\_\_ Aircraft paperwork

\_\_\_\_ Cross-country planning

\_\_\_\_ Preflight

\_\_\_\_ Starting procedures

\_\_\_\_ Taxi

\_\_\_\_ Run-up

\_\_\_\_ Climb out at  $V_x$  and  $V_y$

\_\_\_\_ Cross-country flying

\_\_\_\_ Instrument work: four basics, Slow Flight, stalls, unusual attitudes

\_\_\_\_ Slow Flight

\_\_\_\_ Stalls (Power on/off)

\_\_\_\_ Spin awareness and avoidance

\_\_\_\_ Steep Turns

\_\_\_\_ Emergency situations/landings

\_\_\_\_ Turns Around a Point

\_\_\_\_ S-turns

\_\_\_\_ Rectangular Course

\_\_\_\_ Soft-field takeoffs and landings

\_\_\_\_ Short-field takeoffs and landings

\_\_\_\_ Crosswind takeoffs and landings

\_\_\_\_ Forward slips to landing

\_\_\_\_ Radio work— nav and com

\_\_\_\_ Postflight procedures

### Completion Standards:

This module is complete when all the maneuvers and aeronautical knowledge are demonstrated according to the ACS.

### Recommended Reading:

*Flight School*

*Private Pilot Test Prep*, Chapters 6, 7, and 8

Stage 4 / **Module 5**

**Date of Completion:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Time Flown:** \_\_\_\_\_

**Stage Exam Score:** \_\_\_\_\_

**Stage Check Successful:** \_\_\_\_\_

**1. Endorsement for aeronautical knowledge: 14 CFR §§ 61.35(a)(1), 61.103(d), and 61.105**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training in accordance with § 61.105. I have determined he/she is prepared for the Private Pilot Airplane Knowledge Exam.

[date]      J. Jones      654321 CFI      [expiration date]

**2. Endorsement for flight proficiency practical test: 14 CFR §§ 61.103(f), 61.107(b), and 61.109**

I certify that \_\_\_\_\_ (*First name, MI, Last name*) has received the required training in accordance with § 61.107 and § 61.109. I have determined he/she is prepared for the Private Pilot Airplane Practical Test.

[date]      J. Jones      654321 CFI      [expiration date]

**Confirm for the Checkride:**

- 3 hours flight training dedicated to preparation for the practical test were flown within 60 days preceding the date of the test.
- Graded pre-solo written exam
- Current Student Pilot certificate
- Each solo cross-country endorsed
- 90-day current solo endorsement (if necessary)
- Completed FAA Form 8710-12, Airman Certificate and/or Rating Application, with instructor's signature or completed IACRA form
- Logbook and necessary supplies readily accessible
- Materials necessary for planning a cross-country flight
- FAA Knowledge Exam results
- Identification with photo and signature
- Instructor endorsements for checkride
- Graduation certificate
- Examiner's fee
- Current Medical Certificate or BasicMed qualification





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

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**FAA Form 8710-1, Airman Certificate  
and/or Rating Application  
Supplemental Information and  
Instructions**

**Paperwork Reduction Act Statement**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0021. Public reporting for this collection of information is estimated to be approximately 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information.

All responses to this collection of information are voluntary. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524

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**See attached Privacy Act Information and Pilot's Bill of Rights Written Notification of Investigation**

Detach these supplemental information instruction parts before submitting the attached form. Instructions for completing this form (FAA 8710-1 form) are attached. If an electronic form is not printed on a duplex printer, the applicant's name, date of birth, and certificate number (if applicable) must be furnished on the reverse side of the application. This information is required for identification purposes. The applicant's social security number, telephone number, and e-mail address are optional.

For faster processing, the FAA encourages applicants to apply online using the FAA Integrated Airman Certification and Rating Application (IACRA). IACRA is available at <https://iacra.faa.gov>.

Tear off this cover before submitting form

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## AIRMAN CERTIFICATE AND/OR RATING APPLICATION

**PRIVACY ACT STATEMENT:** This statement is provided pursuant to 5 U.S.C. § 552(a):

The authority for collecting this information is contained in 49 U.S.C. §§ 40113, 44702, 44703, 44709, 44710, 44711 (a)(2) and 14 CFR Part 61. The principal purpose for which the information is intended to be used is to identify and evaluate your qualifications and eligibility for the issuance of an airman certificate and/or rating. Submission of the data is mandatory, except for the applicant's social security number which is optional. Failure to provide all required information will result in the FAA being unable to issue you a certificate and/or rating. The information collected on this form will be included in a Privacy Act System of Records known as DOT/FAA 847, titled "Aviation Records on Individuals" and will be subject to the routine uses published in the System of Records Notice for DOT/FAA 847 (see [www.dot.gov/privacy/privacyactnotices](http://www.dot.gov/privacy/privacyactnotices)), including:

- (a) Providing basic airmen certification and qualification information to the public upon request. Examples of basic information include:
- The type of certificate(s) and/or rating(s) held, limitations, date of issuance and certificate number;
  - The status of the airman's certificate (i.e., whether it has been amended, modified, suspended or revoked for any reason);
  - The airman's home address, unless requested by the airman to be withheld from public disclosure per 49 U.S.C. 44703(c);
  - Information relating to an airman's physical status or condition used to determine statistically the validity of FAA medical standards, the date, class, and restrictions of the latest physical;
  - Information relating to an individual's eligibility for medical certification, requests for exemption from medical requirements, and requests for review of medical certificate denials.
- (b) Using contact information to inform airmen of meetings and seminars conducted by the FAA regarding aviation safety.
- (c) Disclosing information to the National Transportation Safety Board in connection with its investigation responsibilities.
- (d) Providing information about airmen to Federal, State, local and tribal law enforcement agencies when engaged in an official investigation in which an airman is involved.
- (e) Providing information about enforcement actions, or orders issued thereunder, to Federal agencies, the aviation industry, and the public upon request.
- (f) Making records of delinquent civil penalties owed to the FAA available to the U.S. Department of the Treasury and the U.S. Department of Justice (DOJ) for collection pursuant to 31 U.S.C. 3711(g).
- (g) Making records of effective orders against the certificates of airmen available to their employers if the airmen use the affected certificates to perform job responsibilities for those employers.
- (h) Making airmen records available to users of FAA's Safety Performance Analysis System (SPAS), including the Department of Defense Commercial Airlift Division's Air Carrier Analysis Support System (ACAS) for its use in identifying safety hazards and risk areas, targeting inspection efforts for certificate holders of greatest risk, and monitoring the effectiveness of targeted oversight actions.
- (i) Making records of an individual's positive drug test result, alcohol test result of 0.04 or greater breath alcohol concentration, or refusal to submit to testing required under a DOT-required testing program, available to third parties, including current and prospective employers of such individuals. Such records also contain the names and titles of individuals who, in their commercial capacity, administer the drug and alcohol testing programs of aviation entities.
- (j) Providing information about airmen through the Civil Aviation Registry's Comprehensive Airmen Information System to the Department of Health and Human Services, Office of Child Support Enforcement, and the Federal Parent Locator Service that locates noncustodial parents who owe child support. Records in this system are used to identify airmen to the child support agencies nationwide in enforcing child support obligations, establishing paternity, establishing and modifying support orders and location of obligors. Records listed within the section on Categories of Records are retrieved using Connect: Direct through the Social Security Administration's secure environment.
- (k) Making personally identifiable information about airmen available to other Federal agencies for the purpose of verifying the accuracy and completeness of medical information provided to FAA in connection with applications for airmen medical certification.
- (l) Making records of past airman medical certification history data available to Aviation Medical Examiners (AMEs) on a routine basis so that AMEs may render the best medical certification decision.
- (m) Making airman, aircraft and operator record elements available to users of FAA's Skywatch system, including the Department of Defense, the Department of Homeland Security (DHS), DOJ and other authorized Federal agencies, for their use in managing, tracking and reporting aviation-related security events.
- (n) Other possible routine uses published in the Federal Register (see Prefatory Statement of General Routine Uses for additional uses (65 FR 19477-78) For example, a record from this system of records may be disclosed to the United States Coast Guard (Coast Guard) and to the Transportation Security Administration (TSA) if information from this system was shared with either agency when that agency was a component of the Department of Transportation (DOT) before its transfer to DHS and such disclosure is necessary to accomplish a DOT, TSA or Coast Guard function related to this system of records.

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***Your signature on this form (FAA Form 8710-1) acknowledges that you received the Pilot's Bill of Rights Written Notification of Investigation at the time of this application.***

### **PILOT'S BILL OF RIGHTS WRITTEN NOTIFICATION OF INVESTIGATION**

The information you submit on the attached FAA Form 8710-1, Airman Certificate and/or Rating Application, will be used by the Administrator of the Federal Aviation Administration as part of the basis for issuing an airman certificate, rating, or inspection authorization to you under Title 49, United States Code (U.S.C.) section 44703(a), if the Administrator finds, after investigation, that you are qualified for, and physically able to perform the duties related to the certificate, rating, or inspection authorization for which you are applying. Therefore, in accordance with the Pilot's Bill of Rights, the Administrator is providing you with this written notification of investigation of your qualifications for an airman certificate, rating, or inspection authorization:

- The nature of the Administrator's investigation, which is precipitated by your submission of this application, is to determine whether you meet the qualifications for the airman certificate, rating, or inspection authorization you are applying for under Title 14, Code of Federal Regulations (CFR) part 61.
- Any response to an inquiry by a representative of the Administrator by you in connection with this investigation of your qualifications for an airman certificate, rating, or inspection authorization may be used as evidence against you.
- A copy of your airman application file for this date is available to you upon your written request addressed to:

Federal Aviation Administration  
Airmen Certification Branch,  
AFB-720 P.O. Box 25082  
Oklahoma City, OK 73125-0082

(If you make a written request for your airman application file, please provide your full name, date of birth or airman certification number for identification purposes, and the date of application.)

**AIRMAN CERTIFICATE AND/OR RATING APPLICATION  
INSTRUCTIONS FOR COMPLETING FAA FORM 8710-1**

**I. APPLICATION INFORMATION.** Mark "X" in all appropriate blocks(s).

**Note:** Please enter all dates in eight digits as MM/DD/YYYY.  
Use numeric characters, (e.g. 01/01/2014).

**Block A. Name.** Enter full legal name (Last, First, Middle). If your full legal name is more than 50 characters, use no more than one middle name for record purposes. Do not change the name on subsequent applications unless it is done in accordance with 14 CFR part 61.25. If you do not have a middle name, enter "NMN." If you have a middle initial only, indicate "Initial only." Indicate if you are a Jr., II, or III.

**Block B. Social Security Number.** Enter either your 9-digit social security number, "Do Not Use" or "None" if you are not a U.S. citizen. If entering a social security number, only enter a 9-digit U.S. social security number (optional). See supplemental Privacy Act Information.

**Block C. Date of Birth.** Enter your date of birth in the following format: MM/DD/YYYY. Check for accuracy. Verify that DOB is the same as it is on the medical certificate.

**Block D. Place of Birth.** If you were born in the USA, enter the city and state where you were born. If the city is unknown, enter the county and state. If you were born outside the USA, enter the name of the city and country where you were born.

**Block E1. Residential Address.** Enter your complete residential address. This must include street number, city, state, and zip code. If the applicant has a foreign address, the country must be stated. If a residential address does not exist, a map or written directions to the applicant's physical residence must be attached to the application. Verify that the numbers are not transposed.

**Block E2. Mailing Address.** Enter your mailing address, if different than block E1. This may be a residence, post office box, rural route, flight school address, personal mail box (PMB), commercial address, or other mail drop location, as applicable. The address provided in block E2, if any, will be printed on the permanent airman certificate. If you want your airman certificate mailed to an address other than provided in blocks E1 or E2, you will need to provide instructions on a separate attachment or in the remarks section of the form.

**Block F. Citizenship/Nationality.** Mark USA if you are a U.S. Citizen or legally naturalized U.S. Citizen. If you are not a U.S. citizen, mark "Other" and enter the country where you are a legal citizen. To claim Dual Citizenship the applicant must present appropriate documentation of citizenship for each country.

**Block G. Do you read, speak, write and understand the English language?** Mark yes or no. If you answered "No" and it is due to medical reasons, an operating limitation will be placed on the airman certificate.

**Block H. Height.** Enter your height in inches. Example: 5'8" would be entered as 68 in. No fractions, use whole inches only.

**Block I. Weight.** Enter your weight in pounds. No fractions, use whole pounds only.

**Block J. Hair Color.** Spell out the color of your hair. Choose from the following: bald, black, blond, brown, gray, red or white. If you wear a wig or toupee, enter the color of your hair under the wig or toupee.

**Block K. Eye Color.** Spell out the color of your eyes. Choose from the following: black, blue, brown, gray, green, or hazel.

**Block L. Sex.** Mark either Male or Female as appropriate.

**Block M. Do You Hold or Have You Ever Held An FAA Pilot Certificate?** Mark yes or no. (NOTE: A student pilot certificate is a pilot certificate.) If Yes, complete Blocks M1, M2, and M3.

**Block M1. Grade of Certificate.** Enter the grade of the FAA pilot certificate you hold (i.e., Student, Recreational, Private, Commercial, or ATP). DO NOT enter flight instructor certificate information.

**Block M2. Certificate Number.** Enter your current FAA certificate number as it appears on the pilot certificate.

**Block M3. Date Issued.** Enter the date your pilot certificate was last issued.

**Block N. Do You Hold, or Have You Ever Held a Medical Certificate?** Mark applicable boxes. If yes, complete blocks N1, N2, and N3.

**Block N1. Class of Medical Certificate.** Enter the class as shown on the medical certificate, (i.e., First, Second, or Third Class). If your most recent medical certificate which was valid at some point after July 14<sup>th</sup>, 2006 has expired and you are operating under BasicMed, enter "BASICMED" in this field.

**Block N2. Name of Medical Examiner.** Enter the medical examiner's name as shown on your medical certificate. If you are operating under BasicMed, leave blank.

**Block N3. Date Issued.** Enter the date your medical certificate was issued. If you are operating under BasicMed, leave blank.

**Block O. Narcotics Drugs.** Mark appropriate block. Only mark "Yes" if you have actually been convicted. If you have been charged with a violation which has not been adjudicated, mark "No." Do not include alcohol offenses involving a motor vehicle mode of transportation as those are covered on the FAA Form 8500-8, Medical application.

**Block O1. Date of Final Conviction.** If block "N" was marked "Yes" provide the date of final conviction.

**II. CERTIFICATE OR RATING APPLIED FOR ON BASIS OF: Block**

**A. Completion of Required Test.**

1. Aircraft to be used. (If flight test required) – Enter the make and model of each aircraft used or represented. If a flight simulation training device (FSTD) is used, indicate Level of Device(s).
2. Total time in this aircraft and/or approved full flight simulator (FFS) or flight training device (FTD) (Hrs.) – (2a) Enter the total Flight Time (2b) Enter Pilot-In-Command (PIC) Flight Time.

**Block B. U.S. Military Competence Or Experience.** Enter your branch of service, date rated as a U.S. military pilot, and your rank or grade. In block 4a and 4b, enter the make and model of each military manned aircraft used to qualify (as appropriate). ATD, FTD, or FFS time cannot be used.

**Block C. Graduate of an Approved Course.**

1. Name, Location, Certification Number of Training Agency/Center, as shown on the graduation certificate. Indicate if this was a part 142 training center.
2. Curriculum From Which Graduated. Enter name of curriculum and level, category, and/or type rating, as applicable.
3. Date. Date of graduation from indicated course.

**Note:** Approved course graduate must also complete block A "Completion of Test or Activity," if the course is not part of an Air Agency or a part 142 Training Center.

**Block D. Holder of Foreign License.**

1. Country that Issued the Foreign Pilot License.
2. Grade Of Foreign Pilot License (i.e. private, commercial, etc).
3. Number. Number which appears on the foreign license.
4. Ratings. Enter the FAA equivalent only ratings that appear on the foreign license. Indicate the ratings as they will appear on the FAA Certificate (i.e. ASEL, AMEL, ROTORCRAFT HELICOPTER, CE-500, etc).

**Block E. Completion of Air Carrier's Training Program.**

1. Name of air carrier.
2. Date program was started.
3. Identify the training program accomplished.

**III. RECORD OF PILOT TIME.** At a minimum, the applicant should complete the blocks applicable to the certificate or rating sought; however, it is recommended that all pilot time be entered. If decimal points are utilized, ensure that they are legible. Time entered in the "Class Totals" block should reflect time in aircraft class for the certificate or rating sought with this application. The time entered for an FFS, FTD, and/or ATD may be credited towards the total time in the category, class, and instrument time as permitted by the regulations. Add any Flight Engineer time used for ATP in remarks section.

**IV. HAVE YOU PREVIOUSLY RECEIVED A NOTICE OF DISAPPROVAL OR BEEN DENIED FOR ANY REASON FOR THE CERTIFICATE AND/OR RATING FOR WHICH YOU ARE APPLYING?** Mark "Yes" or "No" as appropriate.

**V. APPLICANT'S CERTIFICATION.**

- A. Signature. Sign your name.
- B. Date. The date you signed the application.



U.S. Department of Transportation  
Federal Aviation Administration

# Airman Certificate and/or Rating Application

## I. APPLICATION INFORMATION (Mark 'X' in all the blocks applicable to the certificate or rating for which you are applying):

Certificates	Ratings	Other Information/Requests	
Pilot: <input type="checkbox"/> Student <input type="checkbox"/> Recreational <input type="checkbox"/> Flight <input type="checkbox"/> Private <input type="checkbox"/> Commercial <input type="checkbox"/> Ground <input type="checkbox"/> ATP-Restricted <input type="checkbox"/> ATP	Instructor: <input type="checkbox"/> Flight <input type="checkbox"/> Ground Category and/or Class: <input type="checkbox"/> ASE <input type="checkbox"/> AME <input type="checkbox"/> Land <input type="checkbox"/> Sea <input type="checkbox"/> Helicopter <input type="checkbox"/> Balloon <input type="checkbox"/> Glider <input type="checkbox"/> Gyroplane <input type="checkbox"/> Airship <input type="checkbox"/> Powered-Lift Type Rating: <input type="checkbox"/> Added Rating	Instrument: <input type="checkbox"/> Airplane <input type="checkbox"/> Basic <input type="checkbox"/> Helicopter <input type="checkbox"/> Advanced <input type="checkbox"/> Powered-Lift <input type="checkbox"/> Instrument	Ground Instructor: <input type="checkbox"/> Initial <input type="checkbox"/> Reexamination <input type="checkbox"/> Instrument Proficiency Check <input type="checkbox"/> Renewal <input type="checkbox"/> Reissuance <input type="checkbox"/> Medical Flight Test <input type="checkbox"/> Reinstatement <input type="checkbox"/> Flight Review <input type="checkbox"/> Limitation Removal Specify other: <input type="checkbox"/> IPL
A. Name (Last, First, Middle)	B. SSN (US Only)	C. Date of Birth (MM/DD/YYYY)	D. Place of Birth (City and State) or (City and Country)
E1. Residential Address (Including City, State, Zip Code, and Country)	E2. Mailing Address (This address will be printed on the permanent airman certificate, if different than block E1.)	F. Citizenship / Nationality <input type="checkbox"/> USA <input type="checkbox"/> Other specify:	G. Do you read, speak, write, & understand the English language? <input type="checkbox"/> Yes <input type="checkbox"/> No
H. Height (inches)	I. Weight (pounds)	J. Hair Color	K. Eye Color
L. Sex <input type="checkbox"/> Male <input type="checkbox"/> Female	M. Do you hold, or have you ever held an FAA pilot certificate? <input type="checkbox"/> Yes <input type="checkbox"/> No	M1. Grade of Certificate	M2. Certificate Number
N. Do you hold, or have you ever held a Medical Certificate? <input type="checkbox"/> Yes - FAA <input type="checkbox"/> Yes - Foreign <input type="checkbox"/> Yes - Military <input type="checkbox"/> No	N1. Class of Certificate	N2. Name of Medical Examiner	M3. Date Issued
O. Have you ever been convicted of violation of any Federal or State statutes relating to narcotic drugs, marijuana, or depressant or stimulant drugs or substances? Do not include alcohol offenses involving motor vehicle mode of transportation as those offenses are covered on the FAA Form 8500-8, Airman Medical Application Form. <input type="checkbox"/> Yes <input type="checkbox"/> No			O1. Date of Final Conviction

## II. CERTIFICATE OR RATING APPLIED FOR ON BASIS OF:

<input type="checkbox"/> A. Completion of Test or Activity	1. Aircraft to be used (If flight test required)	2. Total time in this aircraft and/or approved FFS or FTD (hours):	a. Flight Time	b. As Pilot-in-Command
<input type="checkbox"/> B. U.S. Military Competence or Experience	1. U.S. Military Service	2. Date Rated in U.S. Military	3. Rank or Grade	
<input type="checkbox"/> C. Graduate of an Approved Course	4. List Military aircraft for which you have:	a. logged pilot time or provided flight instruction (IP) (make and model)	b. passed an Instrument Proficiency Check (Pilot or CFI) - (make and model)	
<input type="checkbox"/> D. Holder of Foreign License	1. Training Agency or Training Center:	1a. Name	1b. Location (City and State)	1c. Certification Number
<input type="checkbox"/> E. Air Carrier Training Program	1. Name of Air Carrier	2. Date Training Began	3. Accomplished Training Program <input type="checkbox"/> Initial <input type="checkbox"/> Upgrade <input type="checkbox"/> Transition <input type="checkbox"/> Recurrent	
2. Curriculum From Which Graduated (Level, Category, and Class and/or Type Rating)				
3. Date				
1. Country that Issued the Foreign Pilot License		2. Grade of Foreign Pilot License		3. Foreign Pilot License Number
4. Ratings Held on Foreign Pilot License (FAA equivalent only - e.g. ASEL, AMEL, Type rating, etc.)				
1d. Part 142? <input type="checkbox"/> Yes <input type="checkbox"/> No				

## III. RECORD OF PILOT TIME (Do not write in the shaded areas)

	Total	Instruction Received	Solo	PIC and SIC	Cross Country Instruction Received	Cross Country Solo	Cross Country PIC/SIC	Instrument	Night Instruction Received	Night Take-Off / Landing	Night PIC/SIC	Night Take-Off/Landing PIC/SIC	Number of				
													Gliders	Flights	Aero-Tows	Ground Launches	Powered Launches
Airplanes				PIC SIC			PIC SIC				PIC SIC	PIC SIC	Gliders				
Rotorcraft				PIC SIC			PIC SIC				PIC SIC	PIC SIC	Class Totals				
Powered Lift				PIC			PIC				PIC	PIC	Airplane	SEL	MEL	SES	MES
				SIC			SIC				SIC	SIC		SIC	SIC	SIC	
Gliders				PIC SIC									Rotorcraft	Helicopter		Gyroplane	
Lighter-Than-Air				PIC SIC			PIC SIC				PIC SIC	PIC SIC	Lighter-than-air	Balloon		Airship	
FFS													FFS	SE	ME	Helicopter	
FTD													FTD				
ATD													ATD				

IV. Have you previously received a Notice of Disapproval or been denied for any reason for the certificate AND/OR rating for which you are applying?     Yes     No

V. APPLICANT'S CERTIFICATION: I certify that all statements and answers provided by me on this application form are complete and true to the best of my knowledge and I agree that they are to be considered as part of the basis for issuance of any FAA certificate to me. I have received the Pilot's Bill of Rights Written Notification of Investigation that accompanies this form. I have also read and understand the Privacy Act statement that accompanies this form.

Signature of Applicant	Date (MM/DD/YYYY)
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### Instructor Action

- Accepted Student Pilot Application – I have personally reviewed the applicant's information and verified the person meets the eligibility requirements and verified applicants identification       Rejected Student Pilot Application  
 Flight Review     Instrument Proficiency Check     Recommendation - I have personally instructed the applicant and consider this person ready to take the test.

Date	Authorized Flight Instructor's Signature (Print Name and Sign)	Flight Instructor Certificate Number	Certificate Expiration Date
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### Air Agency's Recommendation

The applicant has successfully completed our \_\_\_\_\_ course, and is recommended for certificate or rating without further practical test.

Date	Agency Name and Number	Official Signature
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### Designated Examiner or Airmen Certification Representative Report

- Accepted Student Pilot Application       Rejected Student Pilot Application  
 I have personally reviewed this applicant's pilot logbook and/or training record, and I certify that the individual meets the applicable requirements of 14 CFR Part 61 for the certificate or rating sought.  
 I have personally reviewed this applicant's graduation certificate, and found it to be appropriate and in order, and have returned the certificate. (Original ATP CTP graduation certificate must be attached)  
 I have personally tested and/or verified this applicant in accordance with pertinent procedures and standards with the result indicated below.  
 I have personally delivered the Written Notification under the Pilot's Bill of Rights to the applicant.  
 Approved – Temporary Certificate Issued (Original Attached)     Disapproved – Disapproval Notice Issued (Original Attached)

Location of Test (Name of Facility or Airport, City, State)	Duration of Test		
	Ground / Oral	FFS / FTD	Flight

Certificate or Rating Being Applied For (Grade, Category, Class and/or Type Rating)	Type(s) of Aircraft Used	Registration Number(s)
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Date	Examiner's Signature (Print Name & Sign)	Certificate Number	Designation Number	Designation Expires
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### Evaluator's Record (Use for All ATP Certificate(s) and/or Type Rating(s))

	Inspector	Examiner	Signature and Certificate Number	Date
Ground / Oral	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Approved FFS/FTD Check	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Aircraft Flight Check	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____
Advanced Qualification Program	<input type="checkbox"/>	<input type="checkbox"/>	_____	_____

### Aviation Safety Inspector or Technician Report

I have personally tested this applicant in accordance with or have otherwise verified that this applicant complies with, pertinent procedures, standards, policies, and or necessary requirements with the result indicated below. (The approved box need only checked if the Inspector is the one that issued the temporary airman certificate)

I have personally delivered the Written Notification under the Pilot's Bill of Rights to the applicant.

- Approved – Temporary Certificate Issued (Original Attached)     Disapproved – Disapproval Notice Issued (Original Attached)  
 Accepted - Student Pilot Application       Rejected - Student Pilot Application

Location of Test (Name of Facility or Airport, City, State)	Duration of Practical Test		
	Ground / Oral	FFS / FTD	Flight

Certificate or Rating Being Applied For (Grade, Category, Class and/or Type Rating)	Type(s) of Aircraft Used	Registration No.(s)
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Certification Activities: <input type="checkbox"/> Examiner's Recommendation Provided/Reviewed <input type="checkbox"/> Accepted <input type="checkbox"/> Rejected <input type="checkbox"/> Application for Student Pilot Certificate Accepted <input type="checkbox"/> Reissue or exchange of pilot, CFI, or G.I. certificate <input type="checkbox"/> Change of name, nationality, gender or date of birth <input type="checkbox"/> SIC Type Rating issued under § 61.55(b) (Part 91)	<input type="checkbox"/> Ground Instructor Certificate Issued <input type="checkbox"/> Basic <input type="checkbox"/> Advanced <input type="checkbox"/> Instrument	<input type="checkbox"/> Flight Instructor Certificate Issued <input type="checkbox"/> Initial <input type="checkbox"/> Renewal <input type="checkbox"/> Reinstatement Instructor Renewal Based On: <input type="checkbox"/> Activity <input type="checkbox"/> Training Course <input type="checkbox"/> Test <input type="checkbox"/> Duties and Responsibilities <input type="checkbox"/> Military Instructor Proficiency Check	Certificate or Rating Based on: <input type="checkbox"/> Approved FAA Qualification Criteria not Identified on Page 1 <input type="checkbox"/> Military Competency <input type="checkbox"/> Foreign License <input type="checkbox"/> Special medical test conducted – report forwarded to issuing medical office or AAM-300 <input type="checkbox"/> Special Test-Reexamination (44709) conducted <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
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Training Course (FIRC) Name	Graduation Certificate Number	Date of FIRC Graduation Certificate
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Date	Inspector's Signature (Print Name & Sign)	Certificate Number	FAA Office (e.g. SO-15, WP-19)
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<b>Attachments:</b> <input type="checkbox"/> Certifying Statement <input type="checkbox"/> College Transcript (Official) <input type="checkbox"/> ATP CTP Graduation Certificate <input type="checkbox"/> Knowledge Test Report <input type="checkbox"/> Temporary Airman Certificate <input type="checkbox"/> Notice of Disapproval <input type="checkbox"/> Superseded Airman Certificate	<b>Airman's Identification (ID)</b> (US driver's license or passport recommended) Form of ID _____ ID Number (If issued by State, include State) _____ Expiration Date (must be valid) _____ Telephone Number _____ <input type="checkbox"/> Meets Aviation English Language Standard <input type="checkbox"/> Does Not Meet Aviation English Language Standard <input type="checkbox"/> Referred to FSO for Aviation English Language Standard Determination REMARKS: _____	<b>Applicant Information</b> (required if printed on 2 pages) Name _____ Date of Birth _____ Certificate Number _____ E-Mail Address _____
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# Stage 1 Exam

## Introduction to Flying

Name: \_\_\_\_\_

Grade: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor: \_\_\_\_\_

Circle the most correct answer choice.

- How many hours are required for completion of the Private Pilot Certificate, following a §141 program?
  - 35 hours of flight training, 35 hours of ground training.
  - 40 hours of flight training, 35 hours of ground training.
  - 73 hours of flight training, 40 hours of ground training.
- What has to be completed before a student can move on to the next Module?
  - A student must complete the review questions following each reading assignment.
  - A student must meet the objective specified for each module.
  - Both A and B.
- What document(s) must be in your personal possession while operating as pilot-in-command of an aircraft?
  - Certificates showing accomplishment of a checkout in the aircraft and a current biennial flight review.
  - A pilot certificate with an endorsement showing accomplishment of an annual flight review and a pilot logbook showing recency of experience.
  - An appropriate pilot certificate, photo ID, and an appropriate current medical certificate, if required.
- Safety belts are required to be properly secured about which persons in an aircraft and when?
  - Pilots only, during takeoffs and landings.
  - Passengers, during taxi, takeoffs, and landings only.
  - Each person on board the aircraft during the entire flight.
- What tolerances must be maintained in order to maneuver during Slow Flight according to the Private Pilot Airman Certification Standards?
  - Altitude must be lower than 1,500 feet AGL, and airspeed maintained at  $1.2 V_{S1}$ ,  $+10/-5$ .
  - Airspeed must be just above stall speed with altitude maintained at  $\pm 100$  feet, and heading  $\pm 10^\circ$ .
  - Altitude must be no lower than 1,500 feet AGL, and altitude maintained at  $\pm 100$  feet, and heading  $\pm 10^\circ$ .
- Which three flight instruments are particularly important at Slow Flight if accuracy is required and a stall is to be avoided?
  - Airspeed indicator, altimeter, coordination ball.
  - Coordination ball, airspeed indicator, heading indicator.
  - Airspeed indicator, altimeter, vertical speed indicator.
- A pilot should announce the first indication of a Stall when
  - the airplane buffets or decay of control effectiveness.
  - the stall warning horn is activated.
  - both A and B.
- What tolerances must be maintained to perform a Stall according to the Private Pilot Airman Certification Standards?
  - Altitude must remain above 1,500 feet AGL, heading  $\pm 10^\circ$ , and recovery promptly made after a fully developed stall occurs.
  - Altitude must remain above 3,000 feet AGL, heading  $\pm 10^\circ$ , and recovery promptly made.
  - Announce first indication of stall, maintain heading  $\pm 15^\circ$ , and recover promptly.

- 9.** According to the Private Pilot Airman Certification Standards, a Steep Turn must be performed maintaining
- A—a coordinated 360° turn, with a 50° bank, ±5°, rolling out on the entry heading, ±10°.
  - B—a 45° bank, ±10°, while coordinating a 360° turn.
  - C—±100 feet, ±10 knots,  $V_A$  or recommended entry speed, and coordination.
- 10.** What should a pilot do if the airplane continues to lose altitude while performing a Steep Turn?
- A—Briskly pull back on the control wheel to bring the nose above the horizon.
  - B—Add power and wait for the airplane to regain the altitude.
  - C—Roll out of the turn, and try again once the entry requirements are re-established.
- 11.** In preflighting an aircraft, what is the minimum expected of a pilot prior to every flight?
- A—Drain fuel from each quick drain.
  - B—Perform a walk-around inspection of the aircraft.
  - C—Check the required documents are aboard the aircraft.
- 12.** Why is the use of a written checklist recommended for preflight inspection and engine start?
- A—To ensure that all necessary items are checked in a logical sequence.
  - B—For memorizing the procedures in an orderly sequence.
  - C—To instill confidence in the passengers.
- 13.** The Four Basics of flight consist of:
- A—Power off stall, Power on stall, Slow flight, and Steep turns.
  - B—Straight and level, Takeoffs, Landings, Turns.
  - C—Straight and level, Turns, Climbs, Descents.
- 14.** What force makes an airplane turn?
- A—The horizontal component of lift.
  - B—The vertical component of lift.
  - C—Centrifugal force.
- 15.** Prior to starting each maneuver, pilots should
- A—check altitude, airspeed, and heading indications.
  - B—visually scan the entire area for collision avoidance.
  - C—announce their intentions on the radio.
- 16.** The most effective method of scanning for other aircraft for collision avoidance during daylight hours is to use
- A—regularly spaced concentration on the 3-, 9-, and 12-o'clock positions.
  - B—a series of short, regularly spaced eye movements to search each 10-degree sector.
  - C—peripheral vision by scanning small sectors and utilizing off-center viewing.
- 17.** What are the six primary instruments involved in the instrument scan?
- A—Airspeed indicator, heading indicator, altimeter, VOR, vertical speed indicator, attitude indicator.
  - B—Heading indicator, tachometer, VOR, airspeed indicator, altimeter, turn coordinator.
  - C—Heading indicator, altimeter, vertical speed indicator, turn coordinator, attitude indicator, airspeed indicator.
- 18.** As VFR pilots, it is most crucial for the pilot-in-command to perform the instrument scan,
- A—equally dividing his/her time between the 6 primary instruments and the engine instruments.
  - B—while maintaining collision avoidance by dividing his/her time between inside and outside the cockpit.
  - C—keeping his/her head inside the cockpit at all times.
- 19.** Current charts must be used at all times. Sectional charts are revised
- A—every 56 days.
  - B—no more than once a year.
  - C—every 6 months.
- 20.** A sectional chart portrays
- A—all aeronautical information, such as airports, airways, and special use airspace.
  - B—terrain relief and checkpoints such as populated places, roads, railroads, and other distinctive landmarks.
  - C—both A and B.

- 21.** Steering the airplane on the ground is achieved with the use of the  
A —ailerons.  
B —rudder pedals.  
C —elevator.
- 22.** When taxiing with the wind coming from behind, hold the control column  
A —forward and out of the wind.  
B —neutral and into the wind.  
C —back and out of the wind.
- 23.** Upon completion of this course, students will graduate with a  
A —student pilot certificate, with an airplane, single-engine, land class.  
B —private pilot certificate.  
C —private pilot certificate, with an airplane, single-engine, land class.
- 24.** Students must uphold at all times  
A —FAA regulations.  
B —school requirements and procedures.  
C —both A and B.
- 25.** In order for students to succeed in this §141 program  
A —all objectives must be met for each module, homework completed, and Stage Exams passed with at least an 80%.  
B —all objectives must be met for each module.  
C —all objectives must be met for each module, homework completed, and Stage Exams passed with at least a 70%.
- 26.** The four forces acting on an airplane in flight are  
A —lift, weight, thrust, and drag.  
B —lift, weight, gravity, and thrust.  
C —lift, gravity, power, and friction.
- 27.** An airplane said to be inherently stable will  
A —be difficult to stall.  
B —require less effort to control.  
C —not spin.
- 28.** Lateral stability refers to the motion of the airplane about its  
A —longitudinal axis.  
B —lateral axis.  
C —vertical axis.
- 29.** The main structural component of the wing is the  
A —rib.  
B —strut.  
C —spar.
- 30.** Most light airplane braking systems are operated  
A —by cables.  
B —pneumatically.  
C —hydraulically.
- 31.** Name the four strokes of a piston engine  
A —intake, induction, power, expansion.  
B —intake, compression, power, exhaust.  
C —intake, compression, power, expansion.
- 32.** Which condition is most favorable to the development of carburetor icing?  
A —Any temperature below freezing and a relative humidity of less than 50%.  
B —Between 32°F and 50°F and low humidity.  
C —Between 20°F and 70°F and high humidity.
- 33.** What type of fuel can be substituted in an aircraft if the recommended octane is not available?  
A —The next higher octane aviation gas.  
B —The next lower octane aviation gas.  
C —Unleaded automotive gas of the same octane rating.
- 34.** What action can a pilot take to aid in cooling an engine that is overheating during a climb?  
A —Reduce rate of climb and increase airspeed.  
B —Reduce climb and increase rpm.  
C —Increase climb speed and increase rpm.
- 35.** The engine fuel primer is used  
A —during normal in-flight operations.  
B —only prior to startup.  
C —at shutdown of the engine.
- 36.** What instrument(s) will be affected if the pitot tube becomes clogged, but the static vents remain clear?  
A —Airspeed indicator.  
B —Vertical speed indicator.  
C —Both A and B.

- 
- 37.** In steady straight-and-level flight
- A — lift is greater than drag and thrust equals weight.
  - B — weight equals lift and drag equals thrust.
  - C — lift equals weight and thrust is greater than drag.
- 38.** Which would most likely result in hyperventilation?
- A — Emotional tension, anxiety, or fear.
  - B — The excessive consumption of alcohol.
  - C — An extremely slow rate of breathing and insufficient oxygen.
- 39.** Who is responsible for determining if an aircraft is in condition for safe flight?
- A — A certificated aircraft mechanic.
  - B — The pilot-in-command.
  - C — The owner or operator.
- 40.** In regard to general privileges and limitations, a private pilot may
- A — act as pilot-in-command of an aircraft carrying a passenger for compensation if the flight is in connection with business or employment.
  - B — share the operating expenses of a flight with a passenger.
  - C — not be paid in any manner for the operating expenses of a flight.

# Stage 2 Exam

## Solo

### Pre-Solo Written

Name: \_\_\_\_\_

Grade: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor: \_\_\_\_\_

Circle the most correct answer choice.

- If the outside air temperature (OAT) at a given altitude is warmer than standard, the density altitude is
  - equal to pressure altitude.
  - lower than pressure altitude.
  - higher than pressure altitude.
- Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?
  - Low temperature, low relative humidity, and low density altitude.
  - High temperature, low relative humidity, and low density altitude.
  - High temperature, high relative humidity, and high density altitude.
- If the temperature/dew point spread is small and decreasing, and the temperature is 62°F, what type of weather is most likely to develop?
  - Freezing precipitation.
  - Thunderstorms.
  - Fog or low clouds.
- Which type of weather briefing should a pilot request, when departing within the hour, if no preliminary weather information has been received?
  - An outlook briefing.
  - An abbreviated briefing.
  - A standard briefing.
- What conditions are necessary for the formation of thunderstorms?
  - High humidity, lifting force, and unstable conditions.
  - High humidity, high temperature, and cumulus clouds.
  - Lifting force, moist air, and extensive cloud cover.
- When telephoning a weather briefing facility for preflight weather information, pilots should state
  - the full name and address of the pilot-in-command.
  - the intended route, destination, and type of aircraft.
  - the radio frequencies to be used.
- Who is responsible for making the go-no go decision for each flight?
  - Pilot-in-command.
  - Certified flight instructor.
  - Chief flight instructor.
- What information is necessary in order to make a go-no go decision?
  - Permission from the chief flight instructor, chief mechanic, and weather briefer.
  - Acceptable weather conditions, an airworthy aircraft, and an airworthy pilot.
  - Permission from the weather briefer, an airworthy aircraft, and an airworthy pilot.
- Two-way radio communication must be established with the Air Traffic Control facility having jurisdiction over the area prior to entering which class airspace?
  - Class C.
  - Class E.
  - Class G.
- Unless otherwise authorized, two-way radio communications with Air Traffic Control are required for landings and takeoffs
  - at all tower controlled airports within Class D airspace only when weather conditions are less than VFR.
  - at all tower controlled airports regardless of weather conditions.
  - at all tower controlled airports only when weather conditions are less than VFR.

- 11.** Which is the correct traffic pattern departure procedure to use at a noncontrolled airport?
- A — Comply with any FAA traffic pattern established for the airport.
  - B — Depart in any direction consistent with safety, after crossing the airport boundary.
  - C — Make all turns to the left.
- 12.** An airport's rotating beacon operated during daylight hours indicates
- A — that weather at the airport located in Class D airspace is below basic VFR weather minimums.
  - B — there are obstructions on the airport.
  - C — the Air Traffic Control tower is not in operation.
- 13.** The official source of sunrise and sunset times is
- A — the *Aeronautical Information Manual*.
  - B — the Air Almanac.
  - C — the Federal Aviation Regulations.
- 14.** An aircraft departs an airport in the Eastern Daylight Time Zone at 0945 EDT for a 2-hour flight to an airport located in the Central Daylight Time Zone. The landing should be at what coordinated universal time?
- A — 1345Z.
  - B — 1445Z.
  - C — 1545Z.
- 15.** In order to comply with Private Pilot Airman Certification Standards, students must perform Turns Around a Point and S-turns
- A — at traffic pattern altitude, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - B — between 600 and 1,000 feet AGL, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - C — at traffic pattern altitude, while maintaining altitude  $\pm 100$  feet, and heading  $\pm 10$  degrees, while maintaining coordination.
- 16.** In order to comply with Private Pilot Airman Certification Standards, the student must perform Rectangular Course
- A — between 600 and 1,000 feet AGL, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - B — between 600 and 1,000 feet AGL, entering  $45^\circ$  to the downwind, while maintaining coordination.
  - C — at traffic pattern altitude, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
- 17.** In headwind conditions, the groundspeed will \_\_\_\_\_ the airspeed.
- A — exceed
  - B — be less than
  - C — be the same as
- 18.** To maintain a desired track over the ground, apply
- A — a wind correction angle into the wind.
  - B — a wind correction angle out of the wind.
  - C — power and a steeper bank angle.
- 19.** The numbers 9 and 27 on a runway indicate that the runway is oriented approximately
- A —  $009^\circ$  and  $027^\circ$  true.
  - B —  $090^\circ$  and  $270^\circ$  true.
  - C —  $090^\circ$  and  $270^\circ$  magnetic.
- 20.** If two-way communication fails at an airport with a tower and cannot be restored, the recommended procedure is to
- A — make an off-airport landing.
  - B — turn on your landing light, enter the airport area on final approach, and land as soon as possible.
  - C — observe traffic flow, enter the traffic pattern on the downwind, look for light signals from the tower, and squawk 7600 on your transponder.
- 21.** In an in-flight emergency requiring emergency action, the pilot-in-command
- A — may deviate from any rule of 14 CFR §91 to the extent required to meet that emergency.
  - B — must not deviate from any rule of 14 CFR §91.
  - C — may deviate from any rule of 14 CFR §91 but only after receiving prior permission from ATC.

- 22.** When approaching another aircraft head-on, each pilot must alter his/her course
- A —to the left.
  - B —to the right.
  - C —with a descent.

- 23.** Normal and crosswind takeoffs and landings should take place
- A —with the wind.
  - B —into the wind.
  - C —perpendicular to the wind.

- 24.** When you fly solo, you are pilot-in-command, and you are required to have in your personal possession a
- A —pilot certificate and logbook.
  - B —pilot certificate, photo ID, and medical certificate.
  - C —CFI solo endorsement, and copy of the FAR/AIM.

- 25.** Student pilots are responsible for all information, rules, and regulations in Parts
- A —61, and 91.
  - B —91, and 121.
  - C —1, and 67.

- 26.** A person may not act as a crewmember of a civil aircraft if alcoholic beverages have been consumed by that person within the preceding
- A —8 hours.
  - B —12 hours.
  - C —24 hours.

- 27.** List the airspeeds and their definitions, for the training aircraft to be used for solo flight:

	Speed	Definition
Short-field takeoff	_____	_____
Short-field landing	_____	_____
Normal takeoff	_____	_____
Normal landing	_____	_____
Soft-field takeoff	_____	_____
Soft-field landing	_____	_____
Practice private pilot maneuvers	_____	_____
V <sub>S1</sub>	_____	_____
V <sub>S0</sub>	_____	_____
V <sub>A</sub>	_____	_____
V <sub>X</sub>	_____	_____
V <sub>Y</sub>	_____	_____
V <sub>FE</sub>	_____	_____
V <sub>NO</sub>	_____	_____
V <sub>NE</sub>	_____	_____
Best Glide	_____	_____

- 28.** List the grade and capacity of the fuel and oil to be used in the training aircraft used for solo flight:

	Grade	Capacity
Fuel	_____	_____
Oil	_____	_____

- 29.** What do each of the following ATC light signals mean?

	in flight	on the ground
Steady green	_____	_____
Flashing green	_____	_____
Steady red	_____	_____
Flashing red	_____	_____
Flashing white	_____	_____
Alternating red and green	_____	_____

- 30.** What actions will you take for an engine failure:

Immediately after takeoff \_\_\_\_\_  
 \_\_\_\_\_

50 feet after takeoff \_\_\_\_\_  
 \_\_\_\_\_

Downwind, in the traffic pattern \_\_\_\_\_  
 \_\_\_\_\_

In the practice area \_\_\_\_\_  
 \_\_\_\_\_



# Stage 3 Exam

## Cross-Country Flight

Name: \_\_\_\_\_

Grade: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor: \_\_\_\_\_

Circle the most correct answer choice.

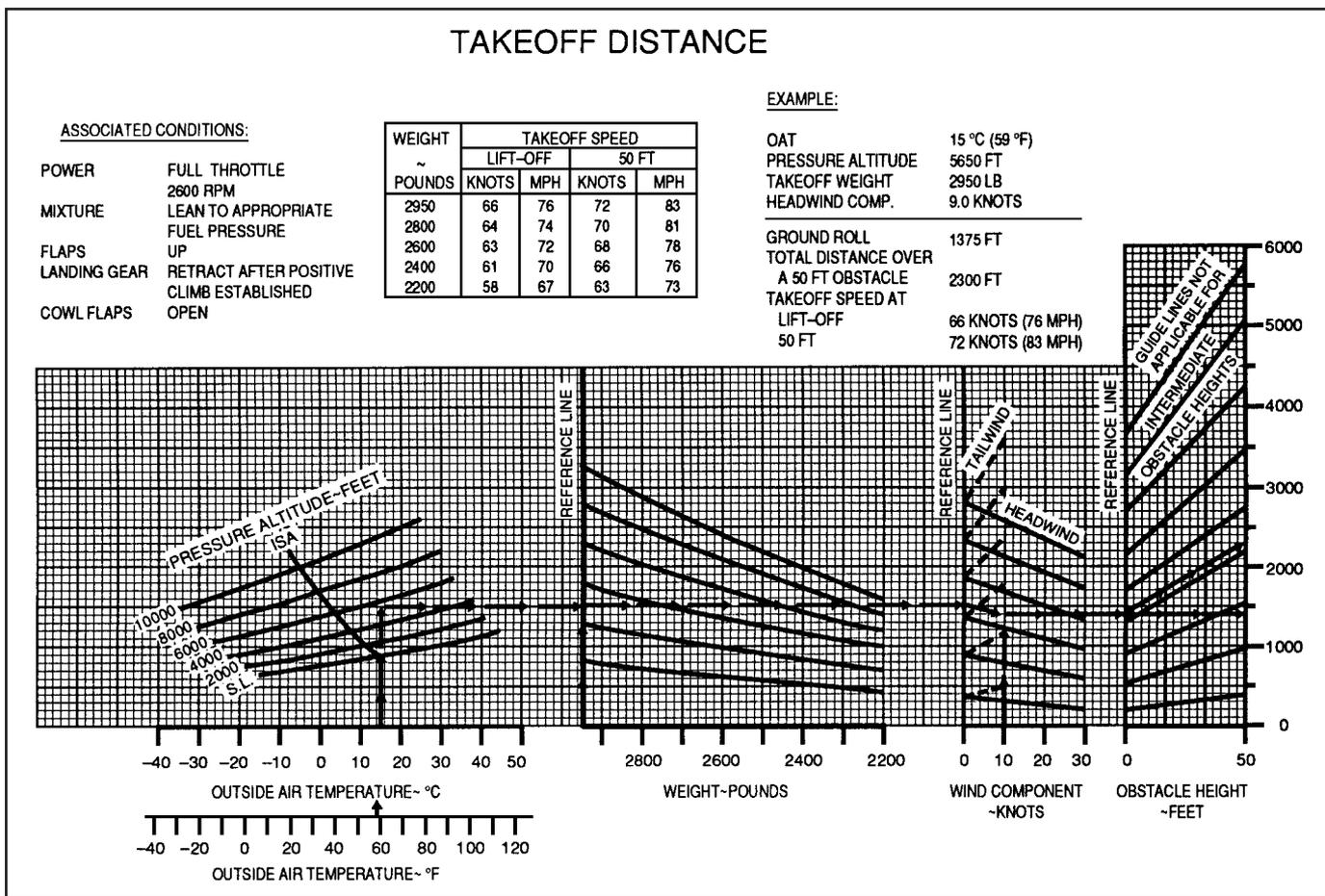
- The planned course is  $165^\circ$ , and the forecast wind is  $330^\circ$  at 15 knots. If the expected TAS is 145 knots, what is the required heading and groundspeed?  
 A —  $173^\circ$  and 143 knots.  
 B —  $167^\circ$  and 159 knots.  
 C —  $154^\circ$  and 165 knots.
  - If you burn 7 gallons in 35 minutes, what is your rate of fuel consumption, and how long would it take to burn 10 gallons?  
 A — 11.2 gallons/hour, and 68 minutes.  
 B — 12.5 gallons/hour, and 38 minutes.  
 C — 12 gallons/hour, and 50 minutes.
  - Which items are included in the empty weight of an aircraft?  
 A — Unusable fuel and undrainable oil.  
 B — Only the airframe, powerplant, and optional equipment.  
 C — Full fuel tanks and engine oil to capacity.
- | 4. GIVEN:     | Weight<br>(lb) | Arm<br>(in) | Moment<br>(lb-in) |
|---------------|----------------|-------------|-------------------|
| Empty weight  | 1,495.0        | 101.4       | 151,593.0         |
| Pilot & Pax   | 380.0          | 64.0        | —                 |
| Fuel (30 gal) | —              | 96.0        | —                 |
- The CG is located how far aft of datum?  
 A — CG 92.44.  
 B — CG 94.01.  
 C — CG 119.8.
- Which combination of atmospheric conditions will reduce aircraft takeoff and climb performance?  
 A — Low temperature, low relative humidity, and low density altitude.  
 B — High temperature, low relative humidity, and low density altitude.  
 C — High temperature, high relative humidity, and high density altitude.

- (Refer to Exam Figure 1 on Page 3-3.)  
 Determine the total distance required for takeoff to clear a 50-foot obstacle.  
 OAT .....Std  
 Pressure altitude .....4,000 ft  
 Takeoff weight.....2,800 lbs  
 Headwind component.....Calm  
 A — 1,500 feet.  
 B — 1,750 feet.  
 C — 2,000 feet.
- (Refer to Exam Figure 2 on Page 3-4.)  
 Determine the total distance required to land.  
 OAT  $90^\circ\text{F}$   
 Pressure altitude .....3,000 ft  
 Weight.....2,900 lbs  
 Headwind component.....10 kts  
 Obstacle .....50 ft  
 A — 1,450 feet.  
 B — 1,550 feet.  
 C — 1,725 feet.
- (Refer to Exam Figure 3 on Page 3-4.)  
 Determine the total distance required to land over a 50-foot obstacle.  
 Pressure altitude .....7,500 feet  
 Headwind.....8 kts  
 Temperature.....Std  
 Runway.....Dry grass  
 A — 1,004 feet.  
 B — 1,205 feet.  
 C — 1,506 feet.
- What is the time en route for the following flight?  
 Distance 65 miles, true course  $060^\circ\text{ T}$ , wind  $270^\circ\text{ T}$  at 12 knots, TAS 110 knots. Add 2 minutes for climb-out.  
 A — 34 minutes.  
 B — 28 minutes.  
 C — 40 minutes.

- 10.** (Refer to Exam Figure 4 on Page 3-5.) What is the expected fuel consumption for a 500 NM flight under the following conditions?
- Pressure altitude ..... 4,000 feet  
 Temperature ..... +29°C  
 Manifold pressure ..... 21.3 in. Hg  
 Wind ..... calm
- A —40.1 gallons.  
 B —31.4 gallons.  
 C —36.1 gallons.
- 11.** Which VFR cruising altitude is acceptable for a flight on a Victor Airway with a magnetic course of 175°? The terrain is lower than 1,000 feet.
- A —4,500 feet.  
 B —5,000 feet.  
 C —5,500 feet.
- 12.** Cloud bases in Terminal Aerodrome Forecasts are given
- A —MSL.  
 B —AGL.  
 C —ASL.
- 13.** You are flying MH 080, with the OBS selected to 080, CDI needle showing 2 dots right, and the FROM flag showing. Desired course is the 080 radial outbound. The desired course is
- A —out to your left.  
 B —out to your right.  
 C —directly behind you.
- 14.** If Air Traffic Control advises that radar service is terminated when the pilot is departing Class C airspace, the transponder should be set to code
- A —0000.  
 B —1200.  
 C —4096.
- 15.** If you are 3 NM off-course to the right in 20 NM, what is your tracking error?
- A —9° left.  
 B —9° right.  
 C —12° right.
- 16.** An ATC radar facility issues the following advisory to a pilot flying on a heading of 090°: “Traffic 3 o’clock, 2 miles, Westbound.” Where should the pilot look for this traffic?
- A —East.  
 B —South.  
 C —West.
- 17.** If you lost power at 200 feet after a maximum performance takeoff, what would your initial actions be?
- A —Initiate a 180° turn back to the runway.  
 B —Pitch the nose down rapidly, and land on the remaining runway.  
 C —Adopt the gliding attitude to maintain flying speed and try to land approximately straight ahead.
- 18.** According to the Private Pilot Airman Certification Standards, a student is required to touchdown within \_\_\_\_\_ feet while performing a short field landing.
- A —200  
 B —400  
 C —500
- 19.** According to the Private Pilot Airman Certification Standards, the required accuracy when flying on instruments is
- A —altitude ±100 feet, airspeed ±10 knots, and heading ± 10 degrees.  
 B —altitude ±200 feet, airspeed ±10 knots, and heading ± 20 degrees.  
 C —altitude ±200 feet, airspeed ±20 knots, and heading ± 20 degrees.
- 20.** Approaching a VOR station while flying southwest at 8,500 feet MSL, you see a multi-engine airplane at the same altitude converging from your left, headed northwest toward the VOR. According to regulations, which pilot should give way and why?
- A —The pilot of the multi-engine airplane should give way since the airplane is not flying at the proper VFR cruising altitude.  
 B —The multi-engine airplane should give way since your airplane is to its right and you have the right-of-way.  
 C —You should give way since the airplane is to your left and has the right-of-way.

- 21.** In addition to other preflight action for a VFR cross-country flight, regulations specifically require the pilot-in-command to
- A —determine runway length at the airports of intended use.
  - B —check each fuel tank visually to ensure that it is always filled to capacity.
  - C —file a flight plan for the proposed flight.

- 22.** If severe turbulence is encountered, the airplane's airspeed should be reduced to
- A —maneuvering speed.
  - B —the minimum steady flight speed in the landing configuration.
  - C —maximum structural cruising speed.



**Exam Figure 1**

# LANDING DISTANCE

**ASSOCIATED CONDITIONS:**

POWER RETARDED TO MAINTAIN  
900 FT/on FINAL APPROACH

FLAPS DOWN

LANDING GEAR DOWN

RUNWAY PAVED, LEVEL, DRY SURFACE

APPROACH SPEED IAS AS TABULATED

BRAKING MAXIMUM

WEIGHT ~ POUNDS	SPEED AT 50 FT	
	KNOTS	MPH
2950	70	80
2800	68	78
2600	65	75
2400	63	72
2200	60	69

**EXAMPLE:**

OAT 25 °C (77 °F)

PRESSURE ALTITUDE 3965 FT

WEIGHT 2814 LB

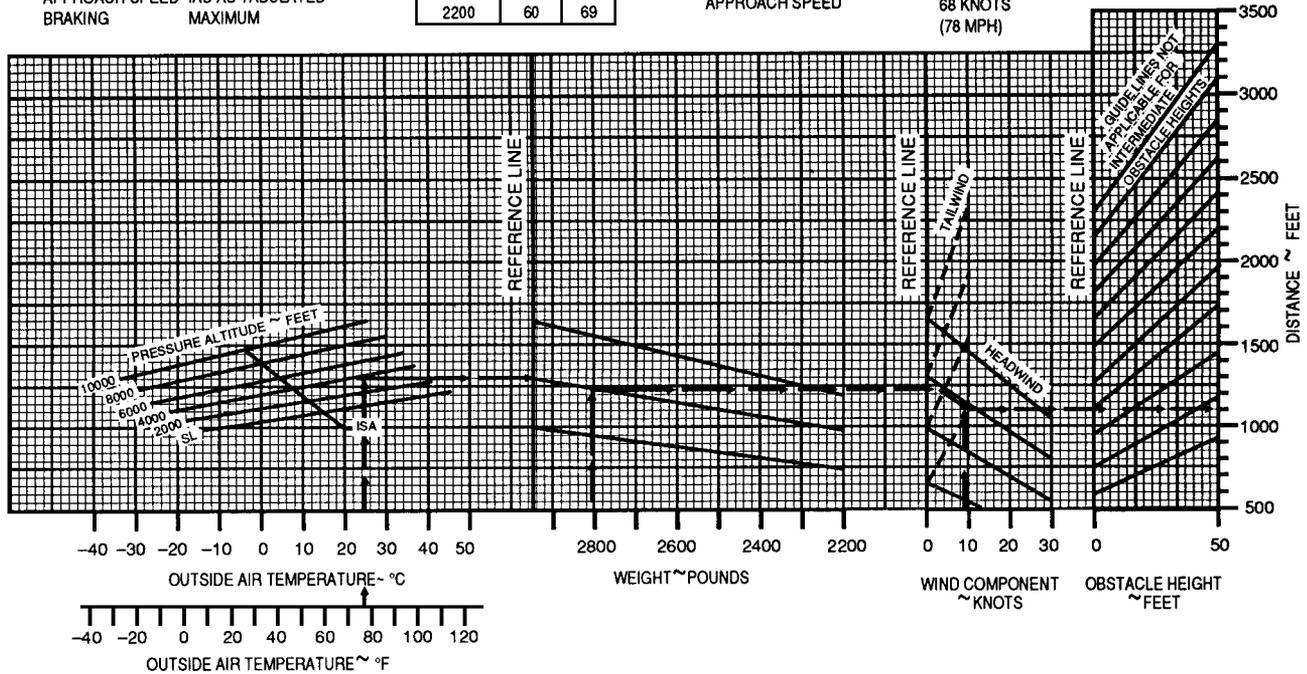
WIND COMPONENT 9.0 KNOTS (HEADWIND)

---

GROUND ROLL 1080 FT

TOTAL OVER 50 FT OBSTACLE 1700 FT

APPROACH SPEED 68 KNOTS  
(78 MPH)



**Exam Figure 2**

<b>LANDING DISTANCE</b>						FLAPS LOWERED TO 40° - POWER OFF HARD SURFACE RUNWAY - ZERO WIND			
GROSS WEIGHT LB	APPROACH SPEED, IAS, MPH	AT SEA LEVEL & 59 °F		AT 2500 FT & 50 °F		AT 5000 FT & 41 °F		AT 7500 FT & 32 °F	
		GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS	GROUND ROLL	TOTAL TO CLEAR 50 FT OBS
1600	60	445	1075	470	1135	495	1195	520	1255

NOTES: 1. Decrease the distances shown by 10% for each 4 knots of headwind.  
 2. Increase the distance by 10% for each 60 °F temperature increase above standard.  
 3. For operation on a dry, grass runway, increase distances (both "ground roll" and "total to clear 50 ft obstacle") by 20% of the "total to clear 50 ft obstacle" figure.

**Exam Figure 3**

## CRUISE POWER SETTINGS

65% MAXIMUM CONTINUOUS POWER (OR FULL THROTTLE)  
2800 POUNDS

PRESS ALT.	ISA -20 °C (-36 °F)								STANDARD DAY (ISA)								ISA +20 °C (+36 °F)							
	IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS		IOAT		ENGINE SPEED	MAN. PRESS	FUEL FLOW PER ENGINE		TAS	
	FEET	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS	MPH	°F	°C	RPM	IN HG	PSI	GPH	KTS
SL	27	-3	2450	20.7	6.6	11.5	147	169	63	17	2450	21.2	6.6	11.5	150	173	99	37	2450	21.8	6.6	11.5	153	176
2000	19	-7	2450	20.4	6.6	11.5	149	171	55	13	2450	21.0	6.6	11.5	153	176	91	33	2450	21.5	6.6	11.5	156	180
4000	12	-11	2450	20.1	6.6	11.5	152	175	48	9	2450	20.7	6.6	11.5	156	180	84	29	2450	21.3	6.6	11.5	159	183
6000	5	-15	2450	19.8	6.6	11.5	155	178	41	5	2450	20.4	6.6	11.5	158	182	79	26	2450	21.0	6.6	11.5	161	185
8000	-2	-19	2450	19.5	6.6	11.5	157	181	36	2	2450	20.2	6.6	11.5	161	185	72	22	2450	20.8	6.6	11.5	164	189
10000	-8	-22	2450	19.2	6.6	11.5	160	184	28	-2	2450	19.9	6.6	11.5	163	188	64	18	2450	20.3	6.5	11.4	166	191
12000	-15	-26	2450	18.8	6.4	11.3	162	186	21	-6	2450	18.8	6.1	10.9	163	188	57	14	2450	18.8	5.9	10.8	163	188
14000	-22	-30	2450	17.4	5.8	10.5	159	183	14	-10	2450	17.4	5.6	10.1	160	184	50	10	2450	17.4	5.4	9.8	160	184
16000	-29	-34	2450	16.1	5.3	9.7	156	180	7	-14	2450	16.1	5.1	9.4	156	180	43	6	2450	16.1	4.9	9.1	155	178

- NOTES: 1. Full throttle manifold pressure settings are approximate.  
2. Shaded area represents operation with full throttle.

**Exam Figure 4**



# Stage 4 Exam

## Prep for Checkride

### Final Exam

Name: \_\_\_\_\_

Grade: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor: \_\_\_\_\_

Circle the most correct answer choice.

- Every physical process of weather is accompanied by, or is the result of, a  
A — movement of air.  
B — pressure differential.  
C — heat exchange.
- Convective circulation patterns associated with sea breezes are caused by  
A — warm, dense air moving inland from over the water.  
B — water absorbing and radiating heat faster than the land.  
C — cool, dense air moving inland from over the water.
- The wind at 5,000 feet AGL is southwesterly while the surface wind is southerly. This difference in direction is primarily due to  
A — stronger pressure gradient at higher altitudes.  
B — friction between the wind and the surface.  
C — stronger Coriolis force at the surface.
- In the Northern Hemisphere, the wind is deflected to the  
A — right by Coriolis force.  
B — right by surface friction.  
C — left by Coriolis force.
- What conditions are necessary for the formation of thunderstorms?  
A — High humidity, lifting force, and unstable conditions.  
B — High humidity, high temperature, and cumulus clouds.  
C — Lifting force, moist air, and extensive cloud cover.
- Clouds, fog, or dew will always form when  
A — water vapor condenses.  
B — water vapor is present.  
C — relative humidity reaches 100%.
- One weather phenomenon which will always occur when flying across a front is a change in the  
A — wind direction.  
B — type of precipitation.  
C — stability of the air mass.
- What are characteristics of a moist, unstable air mass?  
A — Cumuliform clouds and showery precipitation.  
B — Poor visibility and smooth air.  
C — Stratiform clouds and showery precipitation.
- (Refer to Exam Figure 5 below.) What are the current conditions depicted for Chicago Midway Airport (KMDW)?  
A — Sky 700 feet overcast, visibility 1-1/2 SM, rain.  
B — Sky 7000 feet overcast, visibility 1-1/2 SM, heavy rain.  
C — Sky 700 feet overcast, visibility 11, occasionally 2 SM, with rain.

```
METAR KINK 12845Z 11012G18KT 15SM SKC 25/17 A3000
METAR KBOI 121854Z 13004KT 30SM SCT150 17/6 A3015
METAR KLAX 121852Z 25004KT 6SM BR SCT007 SCT250 16/15 A2991
SPECI KMDW 121856Z 32005KT 1 1/2SM RA OVC007 17/16 A2980 RMK RAB35
SPECI KJFK 121853Z 18004KT 1/2SM FG R04/2200 OVC005 20/18 A3006
```

Exam Figure 5

- 10.** From which primary source should information be obtained regarding expected weather at the estimated time of arrival if your destination has no Terminal Aerodrome Forecast?
- A — Low-level Prognostic Chart.
  - B — Weather Depiction Chart.
  - C — Graphical Area Forecast.
- 11.** The spin is a condition of
- A — stalled, coordinated flight.
  - B — stalled, uncoordinated flight.
  - C — unstalled, uncoordinated flight.
- 12.** A 10-knot wind at 45° to the runway direction will cause a crosswind component of
- A — 7 knots.
  - B — 10 knots.
  - C — 4 knots.
- 13.** Compared with a normal full-flap approach, a zero-flap approach will require
- A — a steeper flight path, slower approach speed, lower nose attitude, and shorter ground roll.
  - B — a shallower flight path, slower approach speed, higher nose attitude, and shorter ground roll.
  - C — a shallower flight path, faster approach speed, higher nose attitude, and longer ground roll.
- 14.** A forward slip can be used to
- A — steepen an approach.
  - B — flatten an approach.
  - C — extend an approach.
- 15.** What tolerances must be maintained in order to perform Slow Flight according to the Private Pilot Airman Certification Standards?
- A — Altitude must be lower than 1,500 feet AGL, and airspeed maintained at  $1.2 V_{S1}$ , +10/-5.
  - B — Airspeed must be just above stall speed with altitude maintained at  $\pm 100$  feet, and heading  $\pm 10^\circ$ .
  - C — Altitude must be no lower than 1,500 feet AGL, and altitude maintained at  $\pm 100$  feet, and heading  $\pm 10^\circ$ .
- 16.** What tolerances must be maintained to perform Stalls according to the Private Pilot Airman Certification Standards?
- A — Altitude must remain above 1,500 feet AGL, heading  $\pm 10^\circ$ , and recovery promptly made after a fully developed stall occurs.
  - B — Altitude must remain above 3,000 feet AGL, heading  $\pm 10^\circ$ , and recovery promptly made.
  - C — Announce first indication of stall, maintain heading  $\pm 15^\circ$ , and recover promptly.
- 17.** According to the Private Pilot Airman Certification Standards, a Steep Turn must be performed maintaining
- A — a coordinated 360° turn, with a 50° bank,  $\pm 5^\circ$ , rolling out on the entry heading,  $\pm 10^\circ$ .
  - B — a 45° bank,  $\pm 10^\circ$ , while coordinating a 360° turn.
  - C —  $\pm 100$  feet,  $\pm 10$  knots,  $V_A$  or recommended entry speed, and coordination.
- 18.** In order to comply with Private Pilot Airman Certification Standards, students must perform Turns Around a Point and S-turns
- A — at traffic pattern altitude, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - B — between 600 and 1000 feet AGL, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - C — at traffic pattern altitude, while maintaining altitude  $\pm 100$  feet, and heading  $\pm 10^\circ$ , while maintaining coordination.
- 19.** In order to comply with Private Pilot Airman Certification Standards, student must perform Rectangular Course
- A — between 600 and 1,000 feet AGL, while maintaining altitude  $\pm 100$  feet, and airspeed  $\pm 10$  knots, while maintaining coordination.
  - B — between 600 and 1,000 feet AGL, entering 45° to the downwind, while maintaining coordination.
  - C — between 600 and 1,000 feet AGL, entering 45° to the downwind, while maintaining altitude  $\pm 100$  feet, airspeed  $\pm 10$  knots, while maintaining coordination.

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**20.** According to the Private Pilot Airman Certification Standards, a student is required to touchdown within \_\_\_\_\_ feet while performing a short field landing.

- A —200
- B —400
- C —500

**21.** According to the Private Pilot Airman Certification Standards, the required accuracy when flying on instruments is

- A —altitude  $\pm 100$  feet, airspeed  $\pm 10$  knots, and heading  $\pm 10^\circ$ .
- B —altitude  $\pm 200$  feet, airspeed  $\pm 10$  knots, and heading  $\pm 20^\circ$ .
- C —altitude  $\pm 200$  feet, airspeed  $\pm 20$  knots, and heading  $\pm 20^\circ$ .

**22.** The normal takeoff will use

- A —full power and the mixture rich.
- B —reduced power and the mixture significantly leaned.
- C —full power and the mixture significantly leaned.



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# Aviation Training Device (ATD)

## Syllabus

### Course Objective

To supplement traditional flight training with improvements made possible with a Aviation Training Device (ATD). Instructors are encouraged to use the ATD creatively in producing scenario-based training that goes beyond the development of base motor skills.

### Minimum Requirements

Flight instruction received with the ATD is loggable for Private Pilot training under Federal Aviation Regulations:

- 14 CFR 61.109 k)(1); **2.5 hours** towards the Private Pilot experience requirements.
- 14 CFR 141.57; any number of hours deemed appropriate by the school when conducting a special curricula dedicated to pilot proficiency.

### Notes for Instructors

An ATD can effectively be integrated with ongoing training as a *supplemental* training tool.

Concepts are much easier to demonstrate and/or explain in a controlled and noiseless simulator environment. Take advantage of the *pause* button!

Flight schools can maximize the usefulness of the ATD by leaving the unit on and accessible to instructors during periods of ongoing flight training. Instructors who can make free use of the device for specific discussions/skills development will maximize their students' training value. This is an inherent benefit to having computer based training available to the instructing staff.

Instructors should individually spend 2 to 3 hours apiece becoming familiar with the ATD themselves in order to get comfortable with flight characteristics and functionality.

**Important\*** Remember that primary students who do any flying in desktop flight simulators will naturally tend to favor the gauges once they transition to an airplane. It is critical to employ integrated instruction techniques from the outset. Cover the airplane instrument panel if needed!

Use the following syllabus as a guide to implementing this technology with your overall training, but also as a starting point for even more diverse applications. There is no set limit to the usefulness of an ATD in accomplishing your flight training objectives.

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## Lesson Placement

The following Modules may be supplemented using an approved ATD in lieu of an airplane. The following Modules are suggested because the associated tasks and placement within the curriculum lend themselves particularly well to an integrated flight training environment:

ATD Lesson	The Pilot's Manual: Private Pilot Syllabus	Lesson time
Lesson 1	Stage 1/Module 1	0.5 hr
Lesson 2	Stage 1/Module 3	0.5 hr
Lesson 3	Stage 1/Module 4	0.5 hr
Lesson 4	Stage 2/Module 3	0.5 hr
Lesson 5	Stage 2/Module 4	0.5 hr
Lesson 6	Stage 3/Module 1	0.5 hr
Lesson 7	Stage 3/Module 4	0.5 hr
Lesson 8	Stage 3/Module 3	0.5 hr

**Total Loggable Time on ATD: 2.5 hr**

## Specialized Flight Tasks—Optional Review

### Objective

To utilize the ATD environment to enhance specific flight skills.

While not comprehensive, this list is meant to offer instructors some suggestions on how to augment traditional instruction with the ATD. Both instructors and students are encouraged to implement the device in ways that go beyond logging the hours.

### Content

- \_\_\_ Go-around procedures
- \_\_\_ Radio procedures (various airspace)
- \_\_\_ Airspace navigation (using VOR/DME)
- \_\_\_ Power off stalls (only procedures, not the physical skills)
- \_\_\_ Power on stalls (only procedures, not the physical skills)
- \_\_\_ Positioning controls for wind during taxi
- \_\_\_ Side slipping on approach for crosswind (control inputs, not the actual landing)
- \_\_\_ Lost communications

## Lesson 1: Indoctrination

### Lesson time:

0.5 hour

### Objective:

For the student to gain familiarization with aircraft control and instrument interpretation.

### Content:

- \_\_\_ Functionality and use of primary flight controls
- \_\_\_ Functionality and use of primary engine controls
- \_\_\_ Functionality of the basic flight instruments
- \_\_\_ Operation of the engine controls and interpretation of the engine instruments
- \_\_\_ Use of elevator trim
- \_\_\_ Straight and level
  - \_\_\_ Relationship between pitch and airspeed/rate of climb
  - \_\_\_ Effects of changing power
- \_\_\_ Pre-maneuver checks (general)
- \_\_\_ Turns
  - \_\_\_ Attitude indicator
  - \_\_\_ Rate of turn and angle of bank
  - \_\_\_ Level turns

### Completion Standards:

Student is able to maintain flight within 400 feet altitude, 20 degrees of heading, and 20 knots while performing the maneuvers listed.

## Lesson 2: Primary Flight Skills

### Lesson time:

0.5 hour

### Objective:

For the student to learn and practice techniques for turning flight and slow flight. Emphasis will be on underlying principles and set-up of the maneuvers.

### Content:

- \_\_\_ Pre-maneuver checks
- \_\_\_ Straight and level at target airspeeds
- \_\_\_ Level turns—10, 20, 30 degrees of bank
  - \_\_\_ Inclinometer—slips/skids
  - \_\_\_ Standard rate turns
  - \_\_\_ Turn coordination
  - \_\_\_ Shallow turns—explanation of adverse yaw, proper rudder technique
  - \_\_\_ Steeper turns—explanation of horizontal component of lift
- \_\_\_ Turns to a heading

### Completion Standards:

The student should be able to complete turns to within 20 degrees of a specified heading. During slow flight, student maintains altitude within 400 feet, heading within 20 degrees, airspeed with 20 knots.

## Lesson 3: Basic Flight Skills

### Lesson time:

0.5 hour

### Objective:

For the student to combine previously learned skill sets and practice turns to headings while climbing/descending and leveling off.

### Content:

- \_\_\_ Pre-maneuver checks (general)
- \_\_\_ Level-off techniques—climbs and descents
- \_\_\_ Constant airspeed climbs/descents to altitude
- \_\_\_ Constant rate climbs/descents to altitude
- \_\_\_ Climbing and descending turns to a heading and altitude
- \_\_\_ Slow flight
  - \_\_\_ Discussion of airplane performance with high induced drag
  - \_\_\_ Discussion of pitch and power use during the maneuver
  - \_\_\_ Maneuver set up
  - \_\_\_ Exploring performance at 60 knots (C172)
    - \_\_\_ Climbs on heading
    - \_\_\_ Descents on heading
    - \_\_\_ Turns: climbing/descending/straight and level

### Completion Standards:

Upon completion the student should be able to complete turns to within 20 degrees of a specified heading, level off within 200 feet of altitude and maintain airspeed within 15 knots.

## Lesson 4: Instrument Skills/Abnormal Operations

### Lesson time:

0.5 hour

### Objective:

For the student to increase scanning proficiency and be introduced to instrument flying techniques. The student will also be introduced to unexpected instrument conditions including unusual attitudes.

### Content:

- \_\_\_ Basic instrument skills—scanning techniques
- \_\_\_ Flying the numbers (pitch + power = performance)
- \_\_\_ Basic maneuvers
- \_\_\_ Abnormal operations
  - \_\_\_ Inadvertently encountering IMC
  - \_\_\_ Compass turns (and associated errors)
  - \_\_\_ Encountering turbulence
  - \_\_\_ Unusual attitude recovery
  - \_\_\_ Aborted takeoff—lack of indicated airspeed (ASI can be failed, or pitot tube blocked from the failures page—click setup/failures)

### Completion Standards:

Upon completion the student should be able to maintain altitude within 300 feet, heading within 15 degrees, and airspeed within 15 knots throughout maneuvering.

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## Lesson 5: Emergencies and Equipment Malfunctions

**Lesson time:**

0.5 hour

**Objective:**

To introduce the student to various possible emergencies as well as their corresponding recovery actions.

**Content:**

- \_\_\_ Partial or complete power loss
- \_\_\_ Engine roughness or overheat
- \_\_\_ Loss of oil pressure
- \_\_\_ Fuel starvation
- \_\_\_ Electrical malfunction
- \_\_\_ Vacuum/pressure, and associated flight instruments malfunction
- \_\_\_ Pitot/static
- \_\_\_ Landing gear or flap malfunction
- \_\_\_ Inoperative trim
- \_\_\_ Structural icing
- \_\_\_ Smoke/fire/engine compartment fire
- \_\_\_ Any other emergency appropriate to the airplane

**Completion Standards:**

Upon completion the student should have a grasp of the principles underlying the listed emergencies as well as their corrective actions.

## Lesson 6: Navigation

**Lesson time:**

0.5 hour

**Objective:**

For the student to gain a practical understanding of NAVAIDs using the VOR and DME.

**Content:**

- \_\_\_ VOR introduction
  - \_\_\_ Components of VOR radio and display
  - \_\_\_ VOR navigation—concepts
    - \_\_\_ Demonstration—note: you can effectively demonstrate the principles of navigating with the VOR from On Top’s position page (click setup/position) as well as from the map page (rewind/replay a flight to illustrate movement of the CDI.
  - \_\_\_ Course intercept
  - \_\_\_ Tracking

*VOR exercises*

- \_\_\_ Plotting a course using VOR radials (using sectional chart)
- \_\_\_ VOR radio operation including identification and signal loss
- \_\_\_ VOR intercept and tracking drills including station passage
- \_\_\_ Dead reckoning
- \_\_\_ Determining position (using sectional chart)
- \_\_\_ DME

**Completion Standards:**

Upon completion the student should understand the principles of VOR navigation and DME. The student should be able to intercept and track a VOR radial while holding altitude within 300 feet, heading within 15 degrees, and airspeed within 10 knots.

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## Lesson 7: ADF Navigation and Lost Procedures

### Lesson time:

0.5 hour

### Objective:

For the student to understand the principles of NAVAIDs using ADF. The student will also learn how to proceed after becoming lost.

### Content:

- \_\_\_ NDB and ADF
  - \_\_\_ Principle of bearings and ADF display
  - \_\_\_ Operating the ADF
  - \_\_\_ ADF relative bearing indicator (RBI)
  - \_\_\_ Orientation
  - \_\_\_ ADF exercises: homing drills
- \_\_\_ Lost procedures
  - \_\_\_ Initial actions
  - \_\_\_ Determining position with VOR/ADF
  - \_\_\_ Radio communications and radar services (using sectional chart)
  - \_\_\_ Navigating to an airport

### Completion Standards:

Upon completion the student should understand the principles of ADF navigation. The student should be able to home to an NDB station (or appropriate airport) using the ADF. Altitude should be within 300 feet, heading within 15 degrees and airspeed within 10 knots.

## Lesson 8: Cross-Country Procedures

### Lesson time:

0.5 hour

### Objective:

For the student to practice a pre-planned cross-country segment and become familiar with the associated elements, including radio work and dead reckoning. The student will also practice diverting.

### Content:

- \_\_\_ Cross-country operations
  - \_\_\_ Obtaining weather
  - \_\_\_ Completion of planning, including Nav Log
  - \_\_\_ Cockpit organization
  - \_\_\_ Simulated flight segment
    - \_\_\_ 1. Departure
    - \_\_\_ 2. Communications, radio advisories and warnings
  - \_\_\_ ATIS and CTAF
  - \_\_\_ SIGMETS, AIRMETS, NOTAMS
  - \_\_\_ FSS communication—flight plans/flight plan changes
  - \_\_\_ Flight following
    - \_\_\_ 3. Intercepting course (VOR radial) after takeoff
    - \_\_\_ 4. Enroute—Completion of Nav Log
    - \_\_\_ 5. Dead reckoning between points A and B
    - \_\_\_ 6. Arrival procedures
- \_\_\_ Diversion
  - \_\_\_ Practicing unexpected diversion (using sectional)
  - \_\_\_ Alternate selection
  - \_\_\_ Estimate of heading, groundspeed, ETA and fuel

### Completion Standards:

Upon completion the student should be familiar with basic cross-country operations. The student should be able to track a VOR radial, know how to divert safely and know how to handle becoming lost. Altitude should be within 300 feet, heading within 15 degrees.