TRAINING SYLLABUS

PRIVATE PILOT- PART 61

Overview

SYLLABUS DESIGN

This syllabus describes a sample ground and flight training program designed to meet the *minimum* Part 61 FAR requirements for the Private Pilot Certificate. Rarely do the minimum requirements provide the necessary experience for certification, therefore additional training time should be anticipated. Where the additional training is required will vary based on each learner. This syllabus should be used as a general guide rather than a strict schedule.

GND TRAINING

There are 16 formal ground training lessons that cover the FAR 61.105 required Knowledge Areas as well as other important topics. Certain ground lessons (as shown in the training schedule on page 3) contain information associated with a specific training flight. These ground lessons are intended to be taught prior to or with the respective flight. These lessons are shown with a ∞ (indicating they're tied together) on the training schedule and stage overviews. Otherwise, the training schedule is flexible, and the lessons can be adjusted to the learner and instructor needs. Ground lessons can be broken down into smaller pieces and/or combined as required. This schedule assumes the ground school is taught by the instructor. In the case of a home study course, or group ground training classes, adjust as required.

FLT TRAINING

The flight training is designed to build off prior concepts (both ground and flight), and logically progress through the Private Pilot requirements. In addition to the 16 GND lessons, each flight has associated ground-based training that is specific to the individual flight and its learning objectives. These topics are shown in each FLT lesson's Plan of Action. The FARs allow 2.5 hours of Flight Training Device (FTD) time toward the Private license. Possible uses are FLT 5: BAI, and FLT 8: Emergency Procedures (shown with an *). FLT 5 & 8 are scheduled for 1.3 hours each (2.6 hours total), therefore .1 of this time cannot be used and will need to be made up on another flight.

Risk Management should be a part of every preflight & postflight briefing. Prior to each flight, use the PAVE acronym to identify risks specific to the flight and discuss ways to mitigate them. Postflight, review what went well and what could have been improved through the lens of risk management.

Each learner and instructor are different, and therefore the flight schedule should be adjusted to meet the specific user's needs. It is recommended to keep the associated (∞) GND and FLT lessons mentioned above together. Remember, the syllabus is designed to meet the FAR *minimums*. If the learner needs more time with certain maneuvers or concepts, take it.

STAGE CHECKS

If possible, the stage checks should be performed by a different instructor and simulate the practical test format to provide the learner with a different instructor's perspective and to begin preparing the learner for their practical test. The knowledge review should primarily focus on the knowledge areas associated with the current stage but also include topics from all prior stages.

POTENTIALLY VAGUE TERMINOLOGY

- Demo/Do: Demo the procedure or maneuver and then have the learner perform (or do) it
- Aim For: In relation to altitude, heading & speed, 'Aim For' is a target level of performance to strive for
- Require: In relation to altitude, heading & speed, the learner should be meeting this level of control
- Learner References – ACS Review topics
    - K: Knowledge Area
    - RM: Risk Management Area

Training Schedule

The ∞ symbol indicates that the GND training is tied to the associated FLT. These GND lessons should be completed prior to/with the associated FLT.

STAGE 1		
GND 1: Flight Basics		FLT 1: Intro to Flight
GND 2: Systems & Instruments		FLT 2: Build on the Basics
GND 3: Local Procedures		FLT 3: Slow Flight
GND 4: Scanning & Collision Avoidance		FLT 4: Stalls
GND 5: Aerodynamics		FLT 5: Basic Instrument Flight*
GND 6: Performance		FLT 6: Maneuvers
GND 7: FARs, Pubs & Airworthiness		FLT 7: More Maneuvers
		FLT 8: Emergency Procedures*
		FLT 9: Solo Prep
		FLT 10: A Little More Solo Prep
GND 8: Pre-Solo Test & Review	∞	FLT 11: Solo!
GND 9: Stage 1 Knowledge Review	∞	FLT 12: Stage Check
STAGE 2A & 2B		
		FLT 13: Solo – Maneuvers & Landings
GND 10: Airspace & ATC		FLT 14: Short-Fields
GND 11: Weather & Weather Services		FLT 15: Soft-Fields
		FLT 16: Solo – Maneuvers & Landings
GND 12: Navigation	∞	FLT 17: Basic Navigation
		FLT 18: Solo – Maneuvers & Landings
GND 13: XC Flight Planning & ADM	∞	FLT 19: Dual Cross Country
GND 14: Aeromedical Factors & Night	∞	FLT 20: Night
		FLT 21: Dual Night Cross Country
		FLT 22: Solo Cross-Country
		FLT 23: Maneuvers Review
		FLT 24: Long Solo Cross Country
GND 16: Stage 2 Knowledge Review	∞	FLT 25: Stage Check
STAGE 3		
		FLT 26: Practical Test Prep
		FLT 27: Solo Prep
		FLT 28: A Little More Practical Test Prep
GND 17: Stage 3 Knowledge Review	∞	FLT 29: Stage Check

PART 61 TRAINING HOURS

Below are the hour breakdowns that meet the FAR Part 61 minimums. A more detailed flight by flight breakdown can be found (and edited) in the Excel document. Ground time includes estimated time for the preflight and postflight briefings. The 35 Aeronautical Knowledge hours cover the topics required in FAR 61.105 and the Part 141 Appendix B 3(b).

DUAL	SOLO	TOTAL	DUAL XC	SOLO XC	NIGHT	INSTR	FTD	GROUND	AERO KNOWLEDGE
30	10	40	3.2	5	3	3	2.6	21.7	35

- Part 141 requires 35 hours of training on the Aeronautical Knowledge areas. There are no minimum training hours required under Part 61. Adjust as necessary.

Recent Updates

Most of the recent updates are indicated with a red bar in the left margin (not shown in the PDF)
To View/Remove the Red Bar in Word, select the Review tab, Track Changes drop down, then Track Changes

DATE	LESSON(S)	CHANGES
Mar 2025	FLT 5: Basic Instrument Flight	Added XV.A. Energy Management to preflight discussion
Aug 2024	GND 11: Weather	Updated to Aviation Weather Handbook references
May 2024	All GND 1: Flight Basics GND 6: Performance GND 5: Aerodynamics GND 13: XC & ADM	Updated to reflect new ACS structure Added content on Risk Management Basics Combined Performance & Weight & Balance into a single lesson Moved a significant amount of content from GND 1 to GND 5 Moved ADM concepts into GND 13: XC Flight Planning
Feb 2024	FLT 5 & 8	Annotated FTD flight notes and potential FTD flight lessons
Dec 2022	FLT 1: Intro to Flight FLT 2: Build on the Basics FLT 3: Local Procedures GND 10: Airspace & ATC	Added CFI lesson plans VIII.A-D as a reference Added V.C. Engine Start & V.G. Before T/O Checklist as references Added XIV.A. Postflight to ground discussion and references Added III.E. Airworthiness Reqs as a reference Added II.B. Runway Incursion Avoidance to plan of action/references

TERMS & CONDITIONS

Contents

Stage 1: Basics through Solo

OVERVIEW
In stage 1, the learner progresses through basic airplane control, maneuvers, and takeoffs and landings, as well as ground instruction in preparation for their first solo.

NOTES
Other than GND 8 & 9, which are tied to the solo flight and stage check, all other GND training can be moved as desired. All GND lessons should be completed prior to GND 8.

TRAINING SCHEDULE		
GND 1: Flight Controls & Aerodynamics		FLT 1: Intro to Flight
GND 2: Systems & Instruments		FLT 2: Build on the Basics
GND 3: Local Procedures		FLT 3: Slow Flight
GND 4: Scanning & Collision Avoidance		FLT 4: Stalls
GND 5: Weight & Balance		FLT 5: Basic Instrument Flight
GND 6: Performance		FLT 6: Maneuvers
GND 7: FARs, Pubs & Airworthiness		FLT 7: More Maneuvers
		FLT 8: Emergency Procedures
		FLT 9: Solo Prep
		FLT 10: A Little More Solo Prep
GND 8: Pre-Solo Test & Review	∞	FLT 11: Solo!
GND 9: Stage 1 Knowledge Review	∞	FLT 12: Stage Check

LESSON	DUAL	SOLO	XC	NIGHT	INST	TOTAL
FLT 1: Intro to Flight	1.0					1.0
FLT 2: Build on the Basics	1.0					1.0
FLT 3: Slow Flight	1.2					1.2
FLT 4: Stalls	1.2					1.2
FLT 5: Basic Instrument Flight	1.3				0.3	1.3
FLT 6: Maneuvers	1.3					1.3
FLT 7: More Maneuvers	1.3					1.3
FLT 8: Emergency Procedures	1.3				0.2	1.3
FLT 9: Solo Prep	1.3					1.3
FLT 10: More Solo Prep	1.3				0.3	1.3
FLT 11: Solo!	0.8	0.6				1.4
FLT 12: Stage Check	1.3				0.3	1.3
TOTALS	14.3	0.6	-	-	1.1	14.9

FAR REQUIREMENTS:
- 61.87(b) – Aeronautical Knowledge / Pre-solo knowledge test
- 61.87(d) – Pre-Solo Flight Training Maneuvers & Procedures
- 61.109(a)(3) – 3 hours flight training by reference to instruments
- 61.109(a)(5)(iii) – 3 solo, full stop takeoffs & landings

COMPLETION STANDARDS
All training is completed. The learner completes and passes the pre-solo test and the stage 1 knowledge test. The learner progresses to maintain ± 200', 20°, and 20 knots.

GND 1: Flight Basics

TIME: 2.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ I.F. Elements of Effective Teaching – RM
  ○ II.E Flight Controls & Operation of Systems
  ○ II.D. Principles of Flight
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 2: Aeronautical Decision Making
	  ○ Ch. 5: Aerodynamics of Flight (pgs. 1-8)
	  ○ Ch. 6: Flight Controls
	• Basic Aerodynamics (thebackseatpilot.com)
	• Private Pilot ACS Review
	  ○ I.G. Operation of Systems
	  ▪ K1.A-B. Major Components
	  ○ I.H. Human Factors
	  ▪ K3. Aeronautical Decision Making
	  ▪ RM2: Hazardous Attitudes

OVERVIEW

Flight basics introduces the learner to the basics of flight controls and their operation, the 4 forces of flight, and risk management concepts. Per the Aviation Instructor's Handbook, Risk Management is most beneficial if taught first and then integrated into the rest of training. Going forward, incorporate risk management in both the pre- and postflight briefings (a bullet for Risk Management has been included in every flight - adjust as desired).

NOTES

Planned to be completed with FLT 1: Intro to Flight

There are two lessons titled II.D. in the CFI lesson plans. Principles of Flight is required by the CFI PTS, while Forces of Flight and Maneuvers is supplemental (although particularly important) information. Both lessons are used here.

PLAN OF ACTION

1. Airplane Flight Controls (II.E.)
   A. Primary
   B. Secondary
   C. Trim
2. Principles of Flight (II.D.)
   A. Forces of Flight
3. Elements of Effective Teaching – RM (I.F.)
   A. Principles of Risk Management
   B. Risk Management Process
   C. Risk Management Tools

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of how an airplane flies, the forces associated with flight, and the operation of flight controls in addition to risk management concepts and can answer review questions on the topics discussed.

GND 2: Systems & Instruments

TIME: 3.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ II.E. Operation of Systems – Generic Aircraft
  ○ II.E. Operation of Systems – Your Aircraft
  ○ V.A. Preflight Assessment
	• POH
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 7: Aircraft Systems
	  ○ Ch. 8: Flight Instruments
	• Private Pilot ACS Review
	  ○ I.G. Operation of Systems

OVERVIEW

The learner is introduced to the operation of various aircraft systems and flight instruments, as well as a preflight inspection, the reasons for the inspection, and what specifically to look for.

NOTES

Planned to be completed prior to FLT 2: Build on the Basics

A combination of the generic systems lesson plan and your specific aircraft lesson (if available) is most effective here. Use the aircraft to the extent possible to show the systems and instruments operation. Walk the learner through a preflight inspection.

PLAN OF ACTION

1. Operation of Systems (II.E.)
   A. Powerplant & Propeller
   B. Landing Gear
   C. Gear & Brakes
   D. Fuel
   E. Electrical
   F. Avionics
   G. Flight Instruments
   H. Environmental
   I. Deicing and Anti-Icing
   J. Abnormalities & Failures
2. Preflight Inspection (V.A.)
   A. Preflight Checklist
   B. Preflight Overview
   C. What to inspect
   D. Detecting problems
   E. Ice and frost
   F. Loading and securing
   G. Determining the airplane is safe

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of how the airplane's systems and flight instruments operate, as well as what to look for during the preflight inspection. Following the discussion, the learner can answer questions based on the material and can start performing preflight inspections with instructor supervision.

GND 3: Local Procedures (Airport, ATC, Airspace)

TIME: 2.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ II.G. National Airspace System
  ○ V.D. Taxiing
  ○ VI.A. Com, Light Signals, & Runway Lighting
  ○ VI.B. Traffic Patterns
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 14: Airport Operations
	  ○ Ch. 15: Airspace
	• Airspace Overview (TheBackseatPilot.com)
	• AIM: Ch. 4
	• Private Pilot ACS Review
	  ○ I.E. National Airspace System
	  ○ II.D. Taxiing
	  ○ III.A. Comms, Light Signals, Runway Lighting
	  ○ III.B. Traffic Patterns

OVERVIEW

Brief overview of each of the topics to build a foundation primarily for local procedures and solo flight.

NOTES

Planned to be completed with FLT 3: Slow Flight

Windshear and wake turbulence are required pre-solo training topics

This can be A LOT of information. Be cautious not to overwhelm the learner with information they may not use or see until much further along in their training. GND 10: Airspace & ATC will go into more detail.

PLAN OF ACTION

1. Communication, Light Signals & Runway Lighting (VI.A.)
   A. Radio Procedures & Phraseology
   B. ATC Clearance & Instructions
   C. Frequencies
   D. Radar Assistance
   E. Transponders
   F. ATC Light Signals
2. Taxiing, Airport Signs & Lighting (V.D.)
   A. Taxi Instructions
   B. Plan, Brief, Review
   C. Appropriate Flight Deck Activities
   D. Taxiing & Wind Corrections
   E. Night & Low Visibility Operations
   F. Runway Incursions
   G. Airport Markings, Signs & Lighting
3. Traffic Patterns (VI.B.)
   A. The Pattern
   B. Controlled & Uncontrolled Fields
   C. Runway Orientation
   D. Proper Spacing
   E. Right-of-Way Rules
   F. Hazards
4. Airspace (II.G.)
   A. Brief overview focused on local airspace & requirements
5. Local Procedures
   A. Startup to Shutdown
   B. Tie the above information together for local area. Focus on solo & maneuvers practice

OBJECTIVE / COMPLETION STANDARDS

The learner gains a basic understanding of airspace, airport, and ATC procedures, and how those procedures tie into the local airport and flying area in preparation for solo flight (traffic pattern and maneuvers).

GND 4: Scanning & Collision Avoidance

TIME: 1.5 hours

INSTRUCTOR REFERENCES

- CFI Lesson Plans
  - II.B. Visual Scanning and Collision Avoidance
- AC 90-48: Pilot's Role in Collision Avoidance

LEARNER REFERENCES

- Pilot's Handbook of Aeronautical Knowledge
  - Ch. 14: Collision Avoidance (Pgs. 28-30)
  - Ch. 17: Spatial D & Illusions (Pgs. 6-12)
- Airplane Flying Handbook
  - Ch. 1: Collision Avoidance (Pgs. 11-12)
  - Ch. 7: Safety Considerations (Pgs. 5-6)
- AIM
  - Ch. 5-5-8: See and Avoid
  - Ch. 7-6-1: Accident Cause Factors
  - Ch. 7-6-3: VFR in Congested Areas
- AC 90-48: Pilot's Role in Collision Avoidance
- Private Pilot ACS Review
  - III.B. Traffic Patterns
    - RM 1.A. Collision Hazards

OVERVIEW

The instructor introduces visual scanning techniques, emphasizing the importance of looking outside. Different illusions are presented to allow the learner to recognize and prevent their adverse effects.

NOTES

Planned to be completed with FLT 4: Stalls
Demonstrate illusions to the extent possible.

PLAN OF ACTION

1. Visual Scanning & Collision Avoidance (II.C.)
   A. See and Avoid
   B. Visual Scanning
   C. Collision Risks
   D. Clearing Procedures
   E. Recognizing Hazards
   F. Collision Avoidance
   G. Conditions that Degrade Vision
   H. Illusions

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of the see and avoid concept. They understand the importance of vigilant scanning and understand when and how to scan to avoid potential collisions. The learner also can recognize potential illusions and counter them, maintaining control and safety.

GND 5: Aerodynamics

TIME: 2.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ II.D. Principles of Flight
  ○ II.D. Forces of Flight & Maneuvers
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 4: Principles of Flight
	  ○ Ch. 5: Aerodynamics of Flight (pgs. 8-44)
	• Basic Aerodynamics (thebackseatpilot.com)
	• Private Pilot ACS Review
	  ○ I.F. Perf & Limitations
	  ▪ K4. Aerodynamics

OVERVIEW

This lesson builds off the basic forces of flight information described in GND 1 and provides the learner with a more in-depth understanding of the principles and forces of flight.

NOTES

Planned to be completed with FLT 5: Basic Instrument Flight

There are two lessons titled II.D. in the CFI lesson plans. Principles of Flight is required by the CFI PTS, while Forces of Flight and Maneuvers is supplemental (although particularly important) information. Both lessons are used here.

PLAN OF ACTION

1. Principles of Flight (II.D.)
   A. Forces of Flight (review as necessary)
   B. Airfoil Design
   C. Stability and Controllability
   D. Left Turning Tendencies
   E. Load Factors in Airplane Design
   F. Wingtip Vortices
2. Forces of Flight and Maneuvers (II.D.)
   A. Ground Effect
   B. Climbs, Descents, Turns
   C. AOA and Stalls
3. Design Characteristics
   A. Ties the above information together

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of how an airplane flies and the forces associated with flight, in addition to aircraft design factors and considerations, and can answer review questions on the topics discussed.

GND 6: Performance

TIME: 3.0 hours

INSTRUCTOR REFERENCES

- POH
- CFI Lesson Plans
  - II.F. Performance and Limitations

LEARNER REFERENCES

- POH
- Pilot's Handbook of Aeronautical Knowledge
  - Ch. 10: Weight & Balance
  - Ch. 11: Aircraft Performance
- Private Pilot ACS Review
  - I.F. Performance and Limitations
    - K 1. Preflight Action Requirements
    - K 2. Performance & Limitations Charts
    - K 3. Factors Affecting Performance
    - RM 1. Inaccurate use of Charts
    - RM 2. Exceeding Aircraft Limitations
    - RM 3. Calculated vs Actual Perf.

OVERVIEW

An overview of how atmospheric conditions, weight, and CG affect aircraft performance, how to determine performance as well as weight & balance, and how to apply the information to the intended flight. The lesson also touches on the importance of adhering to manufacturer limitations.

NOTES

Planned to be completed with/prior to FLT 6: Maneuvers
Calculate performance and weight & balance with the learner. Prior to each flight, have the learner calculate weight & balance and expected performance based on the conditions and discuss its application to the flight.

PLAN OF ACTION

1. Performance and Limitations (II.F.)
   A. Performance
   B. Performance Factors
   C. Aerodynamics
   D. Performance Charts
   E. Weight & Balance
   F. Exceeding Limitations
2. POH
   A. Aircraft limitations
   B. Calculate performance for the flight

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of the factors that can affect aircraft performance as well as how to compute performance based on current or expected conditions and apply it to the flight. The learner can calculate weight and balance based on the intended flight configuration, and understands weight and balance limitations, and how to apply them. The learner can safely load the aircraft, adjusting as necessary for the specific flight requirements.

GND 7: FARs, Pubs & Airworthiness

TIME: 2.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• Aviation Publications (AIM, Chart Supp, ACs, etc.)
• CFI Lesson Plans
  ○ II.J. 14 CFR and Publications
  ○ III.B. Airworthiness Reqs – General Overview
  ○ III.B. Airworthiness Reqs – FARs (as desired)
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 1 FAA Reference Material (Pgs. 9-14)
	• Airplane Flying Handbook
	  ○ Ch. 1 Role of the FAA (Pgs. 2-5)

OVERVIEW

A review of the FARs and commonly used aviation publications so that the learner understands where the governing information is located, and where to find specific information going forward.

NOTES

Planned to be completed with/prior to FLT 7: More Maneuvers

There are two Airworthiness lessons under III.E. The General Overview lesson describes the airworthiness process, while the FARs lesson describes the FAR references that lead to the airworthiness requirements. This lesson is based on the General Overview lesson plan, but the FARs information can be used/interspersed as desired.

PLAN OF ACTION

1. 14 CFR and Publications (II.J.)
   A. FARs (1, 61, 91, 21, 39, 43, 67)
   B. NTSB Part 830
   C. Publications
      i. Chart Supplement
      ii. AIM
      iii. Advisory Circulars
      iv. NOTAMs
      v. ACS / PTS
      vi. POH
2. Airworthiness (III.B.)
   A. Without an MEL
   B. With an MEL
   C. Special Flight Permit
   D. Record Keeping

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of the FARs and various important and commonly used aviation publications and can apply them as needed to future flights. The learner also understands and can apply airworthiness concepts.

GND 8: Pre-Solo Test & Review

TIME: 1.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES
• Sample Pre-Solo Test (Appendix) • Sample Pre-Solo Test Answers (Appendix)	• POH • Pilot's Handbook of Aeronautical Knowledge • Airplane Flying Handbook • AIM

OVERVIEW

Pre-solo test covering the requirements of FAR 61.87(b)(1) – applicable sections of parts 61 & 91, airspace rules and procedures for the airport where the solo will be performed, and flight characteristics and limitations for the aircraft.

NOTES

Tied (∞) to FLT 11: Solo!

A sample pre-solo test is included in the appendix. Adjust as necessary.

Per FAR 61.87(b)(2), once the pre-solo test is completed by the learner, the test must be reviewed by the instructor. All incorrect answers must be corrected and reviewed with the learner prior to endorsement for solo flight.

PLAN OF ACTION

1. Pre-solo test (Appendix)
2. Review and correct pre-solo test

OBJECTIVE / COMPLETION STANDARDS

The learner demonstrates their understanding of FAR parts 61 and 91, local airport airspace rules and procedures, as well as flight characteristics and limitations for the aircraft to be flown in preparation for their first solo. Any/all inconsistencies are reviewed and corrected with the instructor.

GND 9: Stage 1 Knowledge Review

TIME: 1.5 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES
• Private Pilot ACS • CFI Lesson Plans • Private Pilot ACS Review	• POH • Private Pilot ACS • Private Pilot ACS Review (Backseat Pilot) • Pilot's Handbook of Aeronautical Knowledge • Airplane Flying Handbook

OVERVIEW

Review Stage 1 concepts with the learner. Structure similar to the ground portion of the practical test.

NOTES

Tied (∞) to FLT 12: Stage 1 Check

PLAN OF ACTION

1. Knowledge Review

OBJECTIVE / COMPLETION STANDARDS

The learner demonstrates their understanding of Stage 1 aeronautical knowledge concepts. Any/all inconsistencies are reviewed and corrected with the instructor.

FLT 1: Intro to Flight

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.0	-	-	-	-	1.0

REFERENCES

- POH & Checklists
- VIII.A-D Fundamentals of Flight lessons

OVERVIEW

Big picture overview of a standard training flight. The learner observes the majority of the pre-flight and takeoff. Once safe in the climb, allow the learner to fly. Demo/do turns, climbs, and descents. The learner observes approach and landing. The instructor manages the radio with big picture explanations of who they're talking to and why.

NOTES

Planned to be completed with GND 1: Flight Basics
All 4 lessons (A-D) in Section VIII. Fundamentals of Flight are referenced here
Introduce, build, and reinforce strong habits early:

- Positive exchange of flight controls
- Checklist discipline
- Visual scan & flying with outside references

PLAN OF ACTION

Ground Discussion

- Fundamentals of flight (VIII.A-D.)
- Positive exchange of flight controls
- Checklists and checklist discipline
- Using outside, visual references
- Flight Overview
  - Airport diagram
  - Sectional (where we're flying)
  - Maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance (completed by CFI)
- Safety procedures & Basic operation (seats, doors, etc.)
- Pre-flight inspection (observe)
- Engine start (observe)
- Taxi (observe) / Runup (observe)
- Before takeoff checklist (observe)

Flight

- Normal / Crosswind takeoff (observe)
- Climb procedures & checklists
- Scanning, Clearing turns
- Straight and level flight
- Trim procedures
- Turns & Coordination
  - Medium bank turns
  - Coordinated roll in / roll out
- Climbs, Descents (straight and turning)
  - Left turning tendency
- Normal approach and landing (observe)

Post-Flight

- After landing checklist (observe)
- Taxi (demo/do)
- Parking & Engine shutdown (observe)
- Post flight / Securing (observe)

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner should come away with a big picture understanding of the procedures involved in a normal training flight and become familiar with basic aircraft control and coordination. No ACS standards consideration this early.

FLT 2: Build on the Basics

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.0	-	-	-	-	1.0

REFERENCES

- POH
- V.A. Preflight Assessment
- V.C. Engine Starting
- V.G. Before Takeoff Check
- VII.A. Normal / Crosswind Takeoff & Climb

OVERVIEW

Review the ground aspects of a normal flight – big picture review as a lot of the information can be learned by doing. The learner performs the actions discussed as well as most of the actions observed in flight one, excluding the radios – allow the learner to focus on the airplane. Build on the basic flight skills in Flt 1, with turns to headings, climbs at different speeds, and descents at different speeds and flap configurations.

NOTES

Planned to be completed with GND 2: Systems & Instruments (assuming preflight inspection was taught in GND 2, it can be skipped here)
In the ground discussion, provide big picture basics of radio communications and taxi procedures. No need to teach the formal CFI lesson plans, these will be taught in GND 3 and GND 10.

PLAN OF ACTION

Ground Discussion

- Ground Procedures
  - ATIS / Radio Communications
  - Preflight inspection (V.A. & POH)
  - Engine start (V.C. & POH)
  - Taxi / Runup (POH)
  - Before takeoff checklist (V.F. & POH)
  - Normal / Crosswind takeoff and climb (VII.A.)
- Flight Overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance (completed by CFI)
- Required documents / inspections (observe)
- Pre-flight inspection
- Engine start
- Taxi (demo/do) / Runup

Flight

- Normal / Crosswind takeoff (observe)
- Climb procedures & checklists
- Scanning, Clearing turns
- Review basics (can be started in climb out)
  - S & L, turns, climbs, descents, trim
- Aileron & rudder coordination
  - L/R bank w rudder to keep nose on a point
- Turns to headings (30, 90, 180, 360°)
- Climbs (straight & turning)
  - V_X, V_Y, Cruise
- Descents (straight & turning)
  - Vary power & flap settings
- Normal approach and landing (observe)

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner begins to grasp the basics of flying, building on what they learned in flight 1. The learner performs most of the flight with instructor input. Aim for ± 200', 20° heading, 20 knots.

FLT 3: Slow Flight

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.2	-	-	-	-	1.0

REFERENCES

- III.B. Airworthiness Reqs – General Overview
- X.A. Maneuvering during Slow Flight
- XIV.A. Postflight Procedures

OVERVIEW

Introduce and discuss slow flight, as well as the required aircraft inspections and documents, and postflight procedures with the learner. Airborne, review prior concepts as desired, then focus on slow flight. Return to the pattern to demonstrate a couple patterns and a landing.

NOTES

Planned to be completed with GND 3: Local Procedures
Time and abilities permitting, allow the learner to fly a pattern or two before demonstrating a landing.

PLAN OF ACTION

Ground Discussion

- Slow flight (X.A.)
- Required aircraft documents & inspections (III.B.)
- Postflight procedures (XIV.A.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance (completed by CFI)
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Maneuvers review, as required
- Slow flight
  - Straight & level
  - Climbs, descents, turns
- Traffic Pattern
  - Normal approach
  - Landing (observe)

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

Approaches and landings aside, the learner shows increasing control of the aircraft in regular flight and builds a foundation for control of the aircraft during slow flight. ATC communication abilities continue to grow. Aim for ± 200', 20° heading, 20 knots.

FLT 4: Stalls

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.2	-	-	-	-	1.2

REFERENCES

- VII.N. Go Around/Rejected Landing
- X.C. Power-Off Stalls
- X.D. Power-On Stalls
- X.I. Spin Awareness & Spins

OVERVIEW

The learner handles all normal operations, including basic/scripted radio communication. Continue practicing slow flight and then demo/do power-on stalls, and power-off stalls. Returning to the pattern, demo/do a pattern to a go-around, ending with a normal landing by the instructor (learner follows on controls).

NOTES

Planned to be completed with GND 4: Scanning & Collision Avoidance

PLAN OF ACTION

Ground Discussion

- Power-on & off stalls (X.C. & D)
- Spin awareness, entry, and recovery (X.I.)
- Go-around procedures (VII.N.)
- Review local radio communication
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance (completed by CFI)
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup
- Before takeoff checklist

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Review maneuvers, as required
- Slow flight
  - Straight & level
  - Climbs, descents, turns
- Power-off stalls
- Power-on stalls
- Pattern
  - Go-around (demo/do)
  - Normal approach and landing (observe)

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner shows progress in procedures and basic airplane control and becomes more proficient in flight procedures (pre-flight, checklists, radios, takeoffs, etc.), and slow flight while obtaining a foundation for stall recoveries. Aim for ± 200', 20° heading, 20 knots.

FLT 5: Basic Instrument Flight

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.3	1.5

REFERENCES

- VII.B. Normal Approach & Landing
- XI.A-D. Basic Attitude Instrument Flight
- XV.A. Energy Management

OVERVIEW

Introduce BAI flight and discuss approaches and landings. Going forward, consider having the learner describe the flight overview (taxi diagram, comms, climb, practice area, etc.). In flight, review maneuvers, transition to instruments, and return to the pattern. Demo a pattern/go-around. Allow the learner to fly a pattern to a go-around with instructor guidance. Normal landing by the learner (with instructor assistance).

NOTES

Planned to be completed with GND 5: Aerodynamics
Learner should calculate weight and balance from this point on
Stress the importance of visual references backed up by the instruments – instrument flight is for unintentional IMC.
*FTD: Consider using an FTD to introduce the learner to BAI flight (FAR 61.109(k))

PLAN OF ACTION

Ground Discussion

- Basic Attitude Instrument flight (XII.A-D.)
  - Straight and level
  - Turns
  - Climbs & Descents (constant airspeed & rate)
- Energy Management (XV.A.)
- Normal approach & landing (VII.B.)
- Flight overview (Airport diagram, sectional, maneuvers)
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance (Perf done by CFI)
- Required documents / inspections
- Pre-flight inspection
- Risk Management - PAVE
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Review
  - Aileron & rudder coordination
  - Slow flight
  - Stalls
- Instrument Flight
  - Straight and level
  - Turns to headings
  - Climbs & descents (straight & turning)
- Traffic Patterns
  - Go-around(s)
  - Normal approach and landing

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

Learner becomes more adept at maneuvers, interpreting instruments, and controlling the aircraft. At this point, the learner can perform the pre-flight, engine start, taxi, run-up, normal takeoff and climb, and post-flight procedures with minimal instructor input. Aim for ± 200', 20° heading, 20 knots. If abilities allow it, require more precise control (± 150', 15° heading, 15 knots).

FLT 6: Maneuvers

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	-	1.5

REFERENCES

- IX.A. Steep Turns
- IX.E. Rectangular Course
- IX.E. Turns Around a Point

OVERVIEW

Introduce rectangular course, turns around a point, and steep turns. Normal departure with learner handling all responsibilities to reach the practice area. Review prior maneuvers as necessary and introduce steep turns. Find a suitable location to demo/do ground reference maneuvers. Return to the pattern to apply ground reference skills. Learner practices patterns and go-arounds, finishing with a closely monitored landing. Instructor can demonstrate patterns and landings to touch and goes to save time (see note below). Learner handles post-flight items/radios.

NOTES

Planned to be completed with GND 6: Performance
Learner should calculate performance from this point on
Touch and goes are to save time during instructor landing demos only, providing the learner more flight time

PLAN OF ACTION

Ground Discussion

- Rectangular course (IX.E.)
- Turns Around a Point (IX.E.)
- Steep turns (IX.A.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / Inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Review, as necessary
  - Slow flight & stalls
  - Instrument flight
- Steep turns
- Rectangular course
- Turns around a point
- Traffic Patterns
  - Go-arounds
  - Normal landing(s)

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

Learner begins to understand ground reference maneuver and steep turn concepts and how to apply them. Pattern and go-around confidence and abilities increase, along with maneuvers and radio communication. Continue to aim for ± 200', 20° heading, 20 knots.

FLT 7: More Maneuvers

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	-	1.0

REFERENCES

- VII.M. Slip to a Landing
- IX.E. S-Turns across a Road

OVERVIEW

Introduce and discuss S-turns, slips, and dos and don'ts for ballooning and bounced landings. Demo/do all new maneuvers (practice other ground reference maneuvers as desired). Return for practice patterns, approaches, slips, go-arounds, and landings.

NOTES

Planned to be completed with GND 7: FARs, PUBs & Airworthiness

PLAN OF ACTION

Ground Discussion

- S-Turns (IX.E.)
- Side slips & forward slips (VII.M.)
- Balloon / bounced landing recovery
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Maneuvers review, as required
- Steep turns
- Forward / side slips (at altitude)
- S-Turns
- Traffic Patterns
  - Slip to landing
  - Go-around(s)
  - Normal approaches and landings

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

Flying skills and mental capacity continue to improve. Slow flight control becomes more precise and stall recognition and recovery is prompt and independent of the instructor. The learner understands major concepts and can operate in the traffic pattern. The learner understands the difference between forward and side slips and can perform the basic procedures associated with s-turns while maintaining speed and altitude. Aim for ± 200', 20° heading, 20 knots (+10/-5 knots in the pattern). If abilities allow it, require more precise control (± 150', 15° heading, 15 knots)

FLT 8: Emergency Procedures

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.2	1.5

REFERENCES

- V.F. Before Takeoff Check
- VI.A. Com, Light Signals & Runway Lighting
- XII.A. Emergency Descent
- XII.B. Emergency Approach & Landing
- XII.C. Systems and Equipment Malfunctions

OVERVIEW

Discuss various emergencies and the procedures and checklists to manage the emergencies. Ensure the learner is familiar with a pre-takeoff brief regarding intentions in the case of an emergency. Standard flight to the practice area to introduce simulated emergencies and perform the associated procedures (review other maneuvers as necessary). Return to the pattern for more simulated emergency practice and landings practice.

NOTES

Reference the POH for all emergency procedures in addition to the lesson content mentioned below.
If possible, coordinate with the tower to see the light gun signals.
*FTD: Consider using an FTD to introduce the learner to emergency procedures (FAR 61.109(k))

PLAN OF ACTION

Ground Discussion

- Engine Failure / Fire (XII.B. & C.)
  - Ground & airborne emergencies
  - Before takeoff briefing (V.F.)
- Emergency Procedures (XII.C.)
  - Pitot-Static Failures, PFD failure
  - Electrical failure
  - Flap Failure
  - Other applicable malfunctions
- Emergency descent (XII.A.)
- Lost communications (VI.A.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Partial panel instrument failures
- Engine failure / fire (at altitude)
- Emergency descent
- Traffic Patterns
  - No flap landing
  - Normal approach and landing
  - Rejected takeoff (coordinate with tower)
  - Light gun signals (coordinate with tower)

After Landing

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Post-Flight

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner shows an understanding of the various procedures used to combat emergencies. In normal flight, learner can maintain ± 200', 20° heading, 20 knots (Emergency approach/Pattern: +10/-5 knots). If abilities allow it, require above these standards.

FLT 9: Solo Prep

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	-	0.7

REFERENCES

- II.B. Visual Scanning and Collision Avoidance
- VII.B. Normal Approach and Landing

OVERVIEW

Focus discussion on safety topics (wake turbulence, collision avoidance, and CFIT), as well as learner questions and noted weaknesses. Standard flight to the practice area for a quick maneuvers review – focus on new emergency procedures and pattern work. Learner returns to the pattern for landing and pattern practice. Instructor should slowly move more to the background in the pattern (inform the learner you are going to do this), similar to how flying solo will be.

PLAN OF ACTION

Ground Discussion

- Review weaknesses as necessary
- Wake turbulence procedures (VII.B.)
- Collision avoidance (II.B.)
- Controlled flight into terrain (VII.B.)
- Flight overview
    - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Maneuvers review, as required
- Engine failure
- Ground reference maneuvers, as required
- Traffic Patterns
    - No flap landing
    - Normal approaches and landings (full stop)

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures with minimal, if any, instructor assistance. Learner maintains ± 200', 20^{o} heading, 20 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, require above these standards.

FLT 10: A Little More Solo Prep

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.3	0.5

REFERENCES

- As required

OVERVIEW

Focus discussion on learner questions and noted weaknesses. Standard flight to the practice area to review maneuvers and emergency procedures. Learner returns to the pattern for landing and pattern practice. Instructor should move to the background in the pattern (inform the learner you are going to do this), similar to how the solo will be.

PLAN OF ACTION

Ground Discussion

- Review weaknesses as necessary
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Instrument flight (start in climb to save time)
- Slow flight, stalls, steep turns, as required
- Ground reference maneuvers, as required
- Engine failure
- Traffic Patterns
  - Normal approaches and landings

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures without instructor assistance. Safety is not in question. The learner can maintain ± 200', 20^{o} heading, 20 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, require above these standards.

FLT 11: Solo!

DUAL	SOLO	XC	NIGHT	INSTR	GND
0.8	0.6	-	-	-	0.5

REFERENCES

- As required

OVERVIEW

Complete the required pre-solo test and endorse the learner for solo flight (see next page). Fly a few patterns with the learner, and if comfortable with their abilities and performance, allow them to fly their first solo – 3 full stop takeoffs and landings. Must be completed at an airport with an operating control tower to meet 61.109(a)(5)(iii).

NOTES

Tied (∞) to GND 8: Pre-solo Test & Review

Meets the FAR 61.109(a)(5)(iii) solo requirement – 3 full stop takeoffs and landings with an operating control tower

PLAN OF ACTION

Ground Discussion

- Pre-solo test (appendix)
- CFI endorsements (next page)
- Flight overview (learner)
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Traffic Patterns
  - Normal approaches and landings
  - Emergency procedures review
  - Slip to a landing
  - Go-around

Solo Flight

- Taxi / Runup
- Normal / Crosswind takeoff
- Full stop approach and landings (3x)

Post-Flight

- After landing checklist
- Taxi
- Parking & engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner continues to make independent decisions, competently and safely operating in the pattern with the instructor. If satisfied with learner abilities and performance, the learner safely completes 3 solo full stop takeoffs and landings.

SOLO REQUIREMENTS

Knowledge Test
Before being authorized to conduct a solo flight, a student pilot must have demonstrated satisfactory aeronautical knowledge by completion of a knowledge test. Refer to § 61.87(b).

Flight Training
In accordance with § 61.87(c)(1), prior to conducting a solo flight, a student pilot must have received and logged flight training for the maneuvers and procedures that are appropriate to the make and model of aircraft to be flown. In accordance with § 61.87(c)(2), the student pilot must have demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the maneuvers and procedures that are appropriate to the make and model of aircraft to be flown. Refer to § 61.87(d)–(m).

Proficiency and Safety
Prior to conducting a solo flight, a student pilot must have demonstrated satisfactory proficiency and safety, as judged by an authorized instructor, on the maneuvers and procedures required by § 61.87 in the make and model of aircraft or similar make and model of aircraft to be flown. Refer to § 61.87(c)(2). The student pilot must also meet the FAA English language standard as stated in the ACS or PTS.

INITIAL SOLO ENDORSEMENTS

Pre-solo aeronautical knowledge: § 61.87(b)
I certify that [First name, MI, Last name] has satisfactorily completed the pre-solo knowledge test of § 61.87(b) for the [make and model] aircraft.

Pre-solo flight training: § 61.87(c)(1) and (2)
I certify that [First name, MI, Last name] has received and logged pre-solo flight training for the maneuvers and procedures that are appropriate to the [make and model] aircraft. I have determined [he or she] has demonstrated satisfactory proficiency and safety on the maneuvers and procedures required by § 61.87 in this or similar make and model of aircraft to be flown.

Solo flight (first 90 calendar-day period): § 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 or she] meets the applicable requirements of § 61.87(n) and is proficient to make solo flights in [make and model].

Endorsement of U.S. citizenship recommended by the TSA: 49 CFR § 1552.3(h)
The flight instructor must keep a copy of the documents used to provide proof of citizenship for 5 years or make the following endorsement in the student's logbook and the instructor's logbook or other record used to record flight student endorsements with the following:

I certify that [First name, MI, Last name] has presented me a [type of document presented, such as a U.S. birth certificate or U.S. passport, and the relevant control or sequential number on the document, if any] establishing that [he or she] is a U.S. citizen or national in accordance with 49 CFR § 1552.3(h).

FLT 12: Stage 1 Check

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.3	0.5

REFERENCES

- As required

OVERVIEW

A review of all the concepts and procedures learned in Stage 1 to solidify the learner's knowledge and get them comfortable with the practical test mentality and process. Review all maneuvers and landings in flight. Post-flight, discuss strengths and weaknesses and areas to focus on going forward.

NOTES

Tied (∞) to GND 9: Stage 1 Knowledge Review

Because the pilot's ability to compensate for wind in turns can be seen indirectly during flight, and in the pattern, etc., only one ground reference maneuver is in the plan of action. Adjust as required.

PLAN OF ACTION

Ground Discussion

- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Instrument flight (start in climb to save time)
  - BAI / Partial panel
- Slow flight
- Stalls
- Steep turns
- Engine failure
- S-Turns or Turns around a point
- Traffic Patterns
  - Go-around
  - Normal approach and landing

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures without instructor assistance. Safety is not in question. The learner maintains ± 200', 20° heading, 20 knots (Emergency approach/Pattern: +10/-5 knots).

Stage 2a: Landings & Maneuvers

OVERVIEW
The learner progresses into more advanced maneuvers and landings, followed by basic navigation procedures.

NOTES
GND 12, 13, 14 & 16 should be completed prior to their associated flight (17, 19, 20 & 25). GND 10, 11, & 15 are flexible, but should be completed prior to the cross-country flights.

TRAINING SCHEDULE – STAGE 2A		
		FLT 13: Solo – Maneuvers & Landings
GND 10: Airspace & ATC		FLT 14: Short-Fields
GND 11: Weather & Weather Services		FLT 15: Soft-Fields
		FLT 16: Solo – Maneuvers & Landings
GND 12: Navigation	∞	FLT 17: Basic Navigation
		FLT 18: Solo – Maneuvers & Landings

LESSON	DUAL	SOLO	XC	NIGHT	INST	TOTAL
FLT 13: Solo		1.1				1.1
FLT 14: Short-Fields	1.3					1.3
FLT 15: Soft-Fields	1.3				0.3	1.3
FLT 16: Solo		1.1				1.1
FLT 17: Basic Navigation	1.4				0.3	1.4
FLT 18: Solo		1.1				1.1
TOTALS	4.0	3.3			0.6	7.3

FAR REQUIREMENTS:
- 61.109(a)(1) – 3 hours cross country flight training
- 61.109(a)(2) – 3 hours of night flight training (10 takeoffs & landings, 100 nm cross-country)
- 61.109(a)(3) – 3 hours flight training by reference to instruments
- 61.109(a)(5)(i) – 5 hours of solo cross country flight time
- 61.109(a)(5)(ii) – Long solo cross-country

COMPLETION STANDARDS
All training is completed leading up through FLT 18.

GND 10: Airspace & ATC

TIME: 2.5 hours

INSTRUCTOR REFERENCES

- CFI Lesson Plans
  - II.C. Runway Incursion Avoidance
  - II.G. National Airspace System
  - VI.A. Comm, Light Signals & Runway Lighting
  - VI.B. Traffic Patterns

LEARNER REFERENCES

- Pilot's Handbook of Aeronautical Knowledge
  - Ch. 14: Airport Operations
  - Ch. 15: Airspace
- Airspace Overview (TheBackseatPilot.com)
- AIM: Ch. 4
- Private Pilot ACS Review
  - I.E. National Airspace System
  - III.A. Comms, Light Signals, Runway Lighting

OVERVIEW

In-depth overview of airports (with a focus on runway incursions), airspace, and ATC. The basics of this lesson were taught in GND 3. Build off the basics, expanding from the local area to cross country flights and procedures utilizing multiple types of airspace, controllers, and airports. Review windshear avoidance & wake turbulence. Review other concepts from GND 3 as required.

NOTES

Planned to be completed with/prior to FLT 14: Short-Fields
In addition to the concepts taught in GND 3: Local Procedures, the learner has likely picked up a decent amount of knowledge from operating in the local environment. Build off this knowledge rather than re-teach it.

PLAN OF ACTION

1. Runway Incursion Avoidance (II.C.)
   A. Runway Incursions
   B. Taxi Instructions
   C. Plan, Review, Brief
   D. Appropriate Flight Deck Activities
   E. Airport Markings, Signs & Lights (as required)
   F. Airport Operations & Runway Incursions
   G. Case Study: United 1448
2. Airspace (II.G.)
   A. Classes, Rules, and requirements
   B. VFR Weather Minimums
   C. Special Use & Other Airspace
   D. ADS-B
3. Com, Light Signals, & Runway Lighting (VI.A.)
   A. Radio Procedures & Phraseology
   B. ATC Clearances & Instructions
   C. Frequencies
   D. Radar Assistance
   E. Transponders
   F. ATC Lights Signals & Lost Coms
   G. Runway Status Lights
4. Traffic Patterns (VI.B.)
   A. Windshear and Wake Turbulence

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of airspace, airport and ATC procedures and can use the knowledge to plan and operate in different types of airspace and at different airfields.

GND 11: Weather & Weather Services

TIME: 3.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ III.C. Weather Information
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 12: Weather Theory
	  ○ Ch. 13: Aviation Weather Services
	• Aviation Weather Handbook
	• Private Pilot ACS Review
	  ○ I.C. Weather Information

OVERVIEW

Basic weather theory explaining various common weather phenomena followed by weather reports and charts provided to the pilot for planning and decision making.

NOTES

Planned to be completed with/prior to FLT 15: Soft-Fields

Aviation Weather Handbook is an exceptionally long read. Time likely does not permit the learner to review all applicable information. The learner can skim over it to get familiar with different weather theory, reports, charts, and information.

PLAN OF ACTION

1. Weather Information (III.C.)
   - A. Atmospheric Composition
   - B. Wind
   - C. Temperature
   - D. Moisture & Precipitation
   - E. Weather System Formation
   - F. Clouds
   - G. Turbulence
   - H. Thunderstorms
   - I. Frost & Icing
   - J. Fog & Mist
   - K. Weather Reports & Charts
   - L. In-flight Weather Advisories
   - M. Recognizing Weather Hazards
   - N. Go/No Go Decision

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of weather's effects on flight and can obtain a proper weather briefing, competently and thoroughly analyze the expected weather, and use the information to make an educated go / no go decision.

GND 12: Navigation

TIME: 3.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES

• CFI Lesson Plans
  ○ II.H. Navigation Systems & Radar Services
  ○ II.I. Navigation and Flight Planning
	• Pilot's Handbook of Aeronautical Knowledge
	  ○ Ch. 16: Navigation
	• Private Pilot ACS Review
	  ○ VI.A. Pilotage and Dead Reckoning
	  ○ VI.B. Navigation Systems and Radar Services

OVERVIEW

Basic navigation concepts, and how to use them to effectively navigate in the NAS. The instructor and learner will plan a short trip to and from a satellite field to practice pilotage and dead reckoning as well as radio navigation.

NOTES

Tied (∞) to FLT 17: Navigation

Only necessary to teach the navigation systems applicable to the training/practical test aircraft.

As the learner becomes more familiar with the navigation systems, these topics can be revisited to introduce more advanced skills such as VOR triangulation, navigating direct to a point (with or without GPS), etc.

PLAN OF ACTION

1. Navigation & Flight Planning (II.I.)
   A. Terms
   B. Aeronautical Charts & Chart Supplement
   C. Navigation
2. Navigation Systems and Radar Services (II.H.)
   A. VOR/VORTAC
   B. DME
   C. ADF & NDB
   D. Satellite Based Navigation
   E. Radar Services and Procedures
   F. ADS-B Basics
3. Basic Plan for FLT 17: Basic Navigation
   A. Pilotage & dead reckoning leg
   B. Pilotage & dead reckoning + Radio nav leg

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of the aircraft's navigation capabilities and how to use them together to effectively navigate in the NAS. The learner should also anticipate tying these skills into planning cross country flights, as well as determining location (i.e., find or verify position).

FLT 13: Solo – Maneuvers & Landings

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	1.1	-	-	-	0.0

REFERENCES
- N/A

OVERVIEW
Solo flight to the practice area. Learner builds confidence and independence practicing maneuvers and landings.

NOTES
N/A

PLAN OF ACTION

Ground Discussion
- N/A

Pre-Flight
- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight
- Normal / Crosswind takeoff
- Standard climb procedures & checklists
- Scanning, Clearing turns
- Steep Turns
- Turns Around a Point
- Traffic Patterns
  - Normal approaches and landings
  - Go-arounds

Post-Flight
- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief
- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS
The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures. Safety is not in question. Decision making and confidence in the airplane increases. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If abilities allow it, have the learner hold themself to higher standards.

FLT 14: Short-Fields

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	-	1.0

REFERENCES

- VII.E. Short-Field Takeoff and Maximum Performance Climb
- VII.F. Short-Field Approach and Landing

OVERVIEW

Review and discuss short-field procedures. In the airplane, demo a short-field takeoff, climb, and landing in the pattern. Have the learner perform a short-field takeoff and climb enroute to the practice area. Review maneuvers as required and return to the pattern for a short-field landing, followed by additional patterns.

NOTES

Planned to be completed with GND 10: Airspace & ATC
If desired, you could also start with a couple short-field patterns for the learner prior to the practice area

PLAN OF ACTION

Ground Discussion

- Short-field takeoff & landing procedures (VII.E. & VII.F.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Short-field pattern (CFI demo)
- Short-field takeoff
- Short-field climb procedures
- Scanning, Clearing turns
- Slow flight
- Power-on or power-off stalls (switch next flight)
- Steep turns
- Engine failure / Emergency procedures
- S-Turns
- Traffic Patterns
  - Short-field takeoffs & landings
  - Go-arounds

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can competently perform the short-field procedures with instructor guidance. Confidence and abilities continue to increase in prior maneuvers and procedures. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, challenge the learner, and require above these standards.

FLT 15: Soft-Fields

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.3	1.0

REFERENCES

- VII.C. Soft-Field Takeoff and Climb
- VII.D. Soft-Field Approach and Landing
- XI.E. Recovery from Unusual Flight Attitudes

OVERVIEW

Discuss soft-field procedures and unusual attitudes. In the airplane, demo a soft-field takeoff, climb, and landing in the pattern. Have the learner perform a soft-field takeoff and climb enroute to the practice area. Review maneuvers as required focusing on unusual attitudes and then return to the pattern for a soft-field landing followed by additional patterns.

NOTES

Planned to be completed with GND 11: Weather & Weather Services

PLAN OF ACTION

Ground Discussion

- Soft-field takeoff & landing procedures (VII.C. & VII.D.)
- Unusual attitudes (XI.E.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Soft-field pattern (CFI demo)
- Soft-field takeoff and climb procedures
- Scanning, Clearing turns
- Slow flight
- Power-on or power-off stalls (opposite of last flight)
- Unusual attitudes
- Engine failure / Emergency procedures
- Traffic Patterns
  - Soft-field takeoffs & landings
  - Go-arounds

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can competently perform soft-field procedures with instructor guidance. Confidence and abilities continue to increase in prior maneuvers and procedures. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, challenge the learner, and require above these standards.

FLT 16: Solo – Maneuvers & Landings

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	1.1	-	-	-	0.0

REFERENCES
- N/A

OVERVIEW
Learner continues to practice maneuvers and landings.

NOTES
Perform solo short and soft-field takeoffs and landings if the instructor is comfortable with it, and deems the learner safe, otherwise short, and soft-field procedures are practiced with an instructor in FLT 17.

PLAN OF ACTION

Ground Discussion
- N/A

Pre-Flight
- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Risk Management – PAVE Checklist
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight
- Short/Soft-field takeoff (instructor permitting)
- Climb procedures & checklists
- Scanning, Clearing turns
- Steep turns, slow flight, stalls, as desired
- Ground reference maneuvers, as desired
- Traffic Patterns
  - Normal approaches and landings
  - Short/soft-fields (instructor permitting)
  - Slip to a landing
  - Go-arounds

Post-Flight
- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief
- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS
The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures. Safety is not in question. Decision making and confidence in the airplane increases. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If abilities allow it, have the learner hold themself to higher standards.

FLT 17: Navigation

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.4	-	-	-	0.3	0.5

REFERENCES

- II.H. Navigation Systems & Radar Services
- II.I. Navigation & Flight Planning

OVERVIEW

Use pilotage and dead reckoning to navigate to a nearby airfield for pattern work (planning done in GND 12). Perform maneuvers as appropriate for the flight (practice area, enroute to the satellite field, a practice area near the satellite field, etc.). Return using radio navigation in addition to pilotage and dead reckoning, finishing with an instrument approach.

NOTES

Tied (∞) to GND 12: Navigation
GND 12 covered the ground discussion topics listed below. Review only if necessary.

PLAN OF ACTION

Ground Discussion

- Pilotage & dead reckoning (II.I.)
- Radio navigation (VOR, ADF, GPS, as applicable) (II.H.)
- Basic localizer / ILS navigation
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Short / Soft-field takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Pilotage & dead reckoning
- Maneuvers, as applicable
- Traffic Pattern
  - Normal/short/soft-field approach & landing
- Return to home field
  - Radio navigation + Pilotage & dead reckoning
  - Instrument approach
  - Approaches and landings

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner understands the basics of navigation and can use different types of navigation to plan, fly, and verify their position on a route of flight. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots) If learner abilities allow it, challenge the learner, and require higher standards.

FLT 18: Solo – Maneuvers & Landings

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	1.1	-	-	-	0.0

REFERENCES
- N/A

OVERVIEW
Learner continues to practice maneuvers and landings, building confidence and independence.

NOTES
N/A

PLAN OF ACTION

Ground Discussion
- N/A

Pre-Flight
- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Risk Management – PAVE Checklist
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight
- Normal, Short/Soft-field takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Steep turns, slow flight, stalls, as desired
- Ground reference maneuvers, as desired
- Traffic Patterns
  - Normal approaches and landings
  - Soft and Short-field takeoffs & landings
  - Go-arounds

Post-Flight
- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief
- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS
The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures. Safety is not in question. Decision making and confidence in the airplane increases. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If abilities allow it, have the learner hold themself to higher standards.

Stage 2b: Cross Country & Night

OVERVIEW
The learner progresses through cross country planning and navigation as well as night flying.

NOTES
GND 12, 13, 14 & 16 should be completed prior to their associated flights (17, 19, 20 & 25). GND 10, 11, & 15 are flexible but should be completed prior to the cross-country flights.

TRAINING SCHEDULE		
GND 13: XC Flight Planning & ADM	∞	FLT 19: Dual Cross Country
GND 14: Aeromedical Factors & Night	∞	FLT 20: Night
		FLT 21: Dual Night Cross Country
		FLT 22: Solo Cross-Country
		FLT 23: Maneuvers Review
		FLT 24: Long Solo Cross Country
GND 16: Stage 2 Knowledge Check	∞	FLT 25: Stage Check

LESSON	DUAL	SOLO	XC	NIGHT	INST	TOTAL
FLT 19: Dual Cross-Country	1.5		1.5			1.5
FLT 20: Night	1.3			1.3	0.2	1.3
FLT 21: Dual Night Cross-Country	1.7		1.7	1.7		1.7
FLT 22: Solo Cross Country		2.0	2.0			2.0
FLT 23: Maneuvers Review	1.3				0.3	1.3
FLT 24: Long Solo Cross-Country		3.0	3.0			3.0
FLT 25: Stage Check	1.4				0.2	1.4
TOTALS	7.2	5.0	8.2	3.0	0.7	12.2

FAR REQUIREMENTS:
- 61.109(a)(1) – 3 hours cross country flight training
- 61.109(a)(2) – 3 hours of night flight training (10 takeoffs & landings, 100 nm cross-country)
- 61.109(a)(3) – 3 hours flight training by reference to instruments
- 61.109(a)(5)(i) & (ii) – 5 hours of solo cross country flight time & Long solo cross-country

COMPLETION STANDARDS
All required cross-country and night training is completed and the stage 2 check is passed. Learner progresses to maintain ± 150', 15°, and 15 knots.

GND 13: XC Flight Planning & ADM

TIME: 3.5 hours

INSTRUCTOR REFERENCES

- CFI Lesson Plans
  - II.I. Navigation and Flight Planning
  - XV.D. ADM, CRM, SRM (Appendix)

LEARNER REFERENCES

- Pilot's Handbook of Aeronautical Knowledge
  - Ch. 2: Aeronautical Decision Making
  - Ch. 16: Navigation
- Private Pilot ACS Review
  - I.D. Cross Country Flight Planning
  - I.H. Human Factors
    - K3. Aeronautical Decision Making
    - RM2: Hazardous Attitudes
  - VI.C. Diversion
  - VI.D. Lost Procedures

OVERVIEW

Building off GND 11: Navigation, introduce the flight planning process from the flight log to the weather briefing, filing, opening, and closing flight plans, and diversion and lost procedures. Build off the Risk Management basics in GND 1 with a focus on ADM, CRM & SRM. The instructor and learner will build a cross country flight plan for FLT 19, and apply the ADM, CRM, and SRM concepts to all flights going forward.

NOTES

Tied (∞) to FLT 19: Dual Cross Country

Build as much of the flight plan as possible. Complete the details with expected conditions prior to the cross country. ADM, CRM, SRM and Risk Management are difficult concept to learn solely in a classroom. Prior experience (especially from the CFI, and other pilots) goes a long way in helping the learner establish boundaries and learn from other people's mistakes.

PLAN OF ACTION

1. Navigation and Flight Planning (II.I.)
   A. Review Terms, Charts & Navigation as desired
   B. Flight Planning & VFR Flight Plans
   C. Weather Check &Decision Making
   D. GPS Navigation
   E. Planned vs. Actual Results
   F. Diversion to an Alternate
   G. Lost Procedures
   H. Flight Following & Intercept Procedures
2. ADM, CRM, & Risk Management (XV.D.)
   A. ADM
   B. Hazardous Attitudes
   C. Stress
   D. Risk Assessment & Management (as desired)
   E. SRM & CRM
   F. Decision Making Process
   G. Evaluation
3. Cross Country Flight Plan
   A. Plan FLT 19: Dual Cross Country

OBJECTIVE / COMPLETION STANDARDS

The learner gains an understanding of the flight planning process and can compile the necessary information to build an effective, well-planned flight between two (or more) airports, and apply advanced ADM, CRM, SRM, and Risk Management concepts to all future flights.

GND 14: Aeromedical Factors & Night

TIME: 1.5 hours

INSTRUCTOR REFERENCES

- CFI Lesson Plans
  - II.A. Human Factors
  - II.M. Night Operations
  - II.N. & O. High Altitude Operations

LEARNER REFERENCES

- Pilot's Handbook of Aeronautical Knowledge
  - Ch. 17: Aeromedical Factors
  - Ch. 7: High Altitude - Pgs.12-15 & 34-40
- FAR 61.31(g): High Alt Training
- Private Pilot ACS Review
  - I.H. Human Factors
    - K1: Aeromedical & Physiological Issues
    - K2: Alcohol & Drug Regulations
    - RM1: Aeromedical & Physiological Issues
    - RM3: Distractions, Loss of SA, Task Mgmt.

OVERVIEW

A discussion of flying's effects on the human body and night operations.

NOTES

Tied (∞) to FLT 20: Night

PLAN OF ACTION

1. Human Factors (II.A.)
   A. Hypoxia
   B. Hyperventilation
   C. Middle Ear & Sinus Problems
   D. Spatial Disorientation
   E. Motion Sickness
   F. Carbon Monoxide Poisoning
   G. Fatigue & Stress
   H. Dehydration
   I. Hypothermia
   J. Optical Illusions
   K. Nitrogen & Scuba Diving
   L. Alcohol & Other Drugs
   M. ADM, CRM, & SRM
2. Night Operations (II.M.)
   A. Disorientation & Optical Illusions
   B. In-flight Orientation
3. High Altitude Operations (as applicable) (II.N. & O.)
   A. Supplemental Oxygen
   B. Pressurization

OBJECTIVE / COMPLETION STANDARDS

The learner obtains an understanding of the various factors that can affect human physiology in flight, and how to prevent and/or counter any adverse conditions.

GND 15: Stage 2 Knowledge Review

TIME: 1.5 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES
• Private Pilot ACS • CFI Lesson Plans • Private Pilot ACS Review	• POH • Private Pilot ACS • Private Pilot ACS Review • Pilot's Handbook of Aeronautical Knowledge • Airplane Flying Handbook

OVERVIEW

Ground based knowledge review of Stage 1 and 2 concepts. Structure similar to the ground portion of the practical test.

NOTES

Tied (∞) to FLT 25: Stage 2 Check

Review Stage 1 knowledge topics as required.

PLAN OF ACTION

1. Knowledge Review

OBJECTIVE / COMPLETION STANDARDS

The learner demonstrates their understanding of Stage 1 and 2 aeronautical knowledge concepts. Inconsistencies are reviewed and corrected with the instructor.

FLT 19: Dual Cross Country

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.5	-	1.5	-	-	1.0

REFERENCES

- N/A

OVERVIEW

The learner will fly the cross country planned in GND 13. Apply and build on the skills learned in FLT 17: Basic Navigation. Combine pilotage, dead reckoning, and radio navigation, as appropriate. Enroute, talk through/simulate lost and diversion procedures (one concept per leg).

NOTES

Tied (∞) to GND 13: Cross Country Flight Planning

PLAN OF ACTION (x2)

Ground Discussion

- Cross country preparation
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, Short/Soft-Field takeoff, as desired
- Climb procedures & checklists
- Scanning, Clearing turns
- Pilotage & Dead reckoning, Radio navigation
- Lost & diversion/emergency procedures
- Normal approach and landing
  - Short/Soft-Field landing, if desired

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner obtains a tighter grasp on navigation principles and concepts. With some instructor assistance, the learner can navigate to and from an airport over a distance greater than 50 nm. Aim for ± 150', 15° heading, 15 knots (Pattern: +10/-5 knots). If learner abilities allow it, require above these standards. Keep in mind that the ACS Navigation (Section VI) standards are ± 200', 15° heading, and 10 knots.

FLT 20: Night

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	1.3	0.2	1.0

REFERENCES

- II.M. Night Operations

OVERVIEW

The learner is introduced to night operations, as well as the similarities and, most importantly, differences relative to flying during the day.

NOTES

Tied (∞) to GND 14: Aeromedical Factors & Night
FAR 61.109(a)(2): Between this flight and FLT 21 (dual night XC), 3 hours of night flying and 10 full stop night landings are required. Plan for at least two landings on the night cross country.
This flight and FLT 21 can be combined into one 3-hour night cross country with 10 full stop landings, if desired.

PLAN OF ACTION

Ground Discussion

- Night operations (II.M.)
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal / Crosswind takeoff
- Standard climb procedures & checklists
- Scanning, Clearing turns
- Unusual Attitudes
- Slow flight, stalls, steep turns
- Engine failure / emergency procedures
- Ground reference maneuvers, as desired
- Traffic Patterns
  - Normal approach and landings
  - Go-arounds

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner recognizes the differences associated with night flying and can safely takeoff, fly, and land the airplane at night. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, require above these standards.

FLT 21: Dual Night Cross Country

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.7	-	1.7	1.7	-	1.0

REFERENCES

- II.M. Night Operations

OVERVIEW

Building off FLT 19 and FLT 20, and in preparation for their first solo cross-country, the learner will plan and fly a night cross country of over 100 nm total distance. Simulate/talk through lost and diversion/emergency procedures.

NOTES

FAR 61.109(a)(2)(ii): 3 hours of night training and 10 full stop night landings required between FLT 20 and this flight
Night procedures were discussed in FLT 20. Only discuss/review pertinent topics in this ground discussion

PLAN OF ACTION (x2)

Ground Discussion

- Night operations, as required (II.M.)
- Cross country preparation
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, Short/Soft-Field takeoff, as desired
- Climb procedures & checklists
- Scanning, Clearing turns
- Pilotage & Dead reckoning, Radio navigation
- Lost & diversion/emergency procedures
- Traffic Patterns
  - Normal, short/soft-field, as desired

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can apply the night and navigation principles to plan and safely navigate a night cross country. Instructor assistance should be minimal in preparation for the solo cross-country flights. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, require above these standards.

FLT 22: Solo Cross Country

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	2.0	2.0	-	-	1.0

REFERENCES
- N/A

OVERVIEW
The learner plans and flies their first solo cross country. Planning work should be reviewed with an instructor.

NOTES
Per FAR 61.109(5)(i), the learner needs a minimum of 5 hours of solo cross-country experience. The 5 hours are broken up between this flight and FLT 24
Solo cross-country requirements and endorsements are on next page

PLAN OF ACTION (x2)

Ground Discussion
- Cross country preparation
- Endorsements
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight
- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight
- Normal, Short/Soft-field takeoff, as desired
- Climb procedures & checklists
- Scanning, Clearing turns
- Pilotage & dead reckoning, Radio navigation
- Lost & diversion/emergency procedures
- Normal approach and landing
  - Short/Soft-Field landing, if desired

Post-Flight
- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief
- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS
The learner can make independent decisions, competently and safely navigating between two airports without instructor assistance. Aim for ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots).

SOLO CROSS COUNTRY REQUIREMENTS

FAR 61.93
Received ground and flight training from an authorized instructor on the maneuvers and procedures of this section that are appropriate to the make and model of aircraft for which solo cross-country privileges are sought

Demonstrated cross-country proficiency on the appropriate maneuvers and procedures of this section to an authorized instructor

Satisfactorily accomplished the pre-solo flight maneuvers and procedures required by § 61.87 in the make and model of aircraft or similar make and model of aircraft for which solo cross-country privileges are sought

Comply with any limitations included in the authorized instructor's endorsement that are required by paragraph (c) of this section.

Received ground and flight training from an authorized instructor on the cross-country maneuvers and procedures listed in this section that are appropriate to the aircraft to be flown

SOLO CROSS-COUNTRY ENDORSEMENTS

Solo Cross-Country Training: § 61.93(c)(1) and (2)
I certify that [First name, MI, Last name] has received the required solo cross-country training. I find [he or she] has met the applicable requirements of § 61.93, and is proficient to make solo cross-country flights in a [make and model] aircraft, [aircraft category].

Solo Cross-Country Planning: § 61.93(c)(3)
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 [origination airport] to [origination airport] via [route of flight] with landings at [names of the airports] in a [make and model] aircraft on [date]. [List any applicable conditions or limitations.]

FLT 23: Maneuvers Review

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.3	-	-	-	0.3	0.5

REFERENCES
- As required

OVERVIEW
Maneuvers refresher. A break from the cross countries to keep maneuver procedures current.

NOTES
N/A

PLAN OF ACTION

Ground Discussion
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight
- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight
- Normal / Crosswind takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Slow flight, stalls, & steep turns
- Instrument failures / Unusual attitudes
- Engine failure / emergency procedures
- Ground reference maneuvers, as required
- Traffic Patterns
  - Short & soft-field takeoff and landing
  - Go-around

Post-Flight
- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief
- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS
The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures with minimal instructor assistance. Safety is not in question. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). Aim for ± 100', 10° heading, 10 knots.

FLT 24: Long Solo Cross Country

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	3.0	3.0	-	-	0.8

REFERENCES

- N/A

OVERVIEW

The learner plans and flies their second solo cross country covering at least 150 nm total distance, with one segment consisting of a straight-line distance greater than 50 nm, and full stop landings at 3 points. Planning work should be reviewed with an instructor.

NOTES

Meets the requirements of FAR 61.109(a)(5)(ii) – 150 nm, 3 points, one segment > 50 nm
FAR 61.109(a)(5)(i): The learner needs a minimum of 5 hours of solo cross-country experience. This is the last scheduled solo cross-country. Ensure the learner meets the time requirements.

PLAN OF ACTION (x3)

Ground Discussion

- Cross country preparation
- Endorsements
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, Short/Soft-field takeoff, as desired
- Climb procedures & checklists
- Scanning, Clearing turns
- Pilotage & dead reckoning, Radio navigation
- Approach and landing
  - Normal, Short/Soft-field landing, as desired

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely navigating between the three airports. The learner also completes their solo cross-country FAR requirements. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). If abilities allow, have the learner hold themself to higher standards.

SOLO CROSS COUNTRY REQUIREMENTS

FAR 61.93
Received ground and flight training from an authorized instructor on the maneuvers and procedures of this section that are appropriate to the make and model of aircraft for which solo cross-country privileges are sought

Demonstrated cross-country proficiency on the appropriate maneuvers and procedures of this section to an authorized instructor

Satisfactorily accomplished the pre-solo flight maneuvers and procedures required by § 61.87 in the make and model of aircraft or similar make and model of aircraft for which solo cross-country privileges are sought

Comply with any limitations included in the authorized instructor's endorsement that are required by paragraph (c) of this section.

Received ground and flight training from an authorized instructor on the cross-country maneuvers and procedures listed in this section that are appropriate to the aircraft to be flown

SOLO CROSS-COUNTRY ENDORSEMENTS

Solo Cross-Country Training: § 61.93(c)(1) and (2)
I certify that [First name, MI, Last name] has received the required solo cross-country training. I find [he or she] has met the applicable requirements of § 61.93, and is proficient to make solo cross-country flights in a [make and model] aircraft, [aircraft category].

Solo Cross-Country Planning: § 61.93(c)(3)
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 [origination airport] to [origination airport] via [route of flight] with landings at [names of the airports] in a [make and model] aircraft on [date]. [List any applicable conditions or limitations.]

FLT 25: Stage 2 Check

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.4	-	-	-	0.2	0.5

REFERENCES

- As required

OVERVIEW

Review of Stage 2 concepts and maneuvers in preparation for the practical test. In flight, review cross-country navigation (a couple checkpoints, lost and diversion procedures is often enough to suffice), as well as unusual attitudes, and short and soft-field takeoffs and landings. Other maneuvers can be flown as desired. Post-flight, discuss strengths and weaknesses and areas to focus on going forward.

NOTES

Tied (∞) to GND 15: Stage 2 Knowledge Check

PLAN OF ACTION

Ground Discussion

- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist
- Diversion & lost procedures
- Unusual attitudes
- Other maneuvers, as required
- Traffic Patterns
  - Short & soft-field takeoff and landing

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Short or soft-field takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Navigation procedures

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures without instructor assistance. Safety is not in question. Require ± 150', 15° heading, 15 knots (Emergency approach/Pattern: +10/-5 knots). Aim for ± 100', 10° heading, 10 knots.

Stage 3: Practical Test Prep

OVERVIEW
The learner progresses from the basics into more advanced maneuvers and landings, followed by cross country planning and navigation, culminating with the long solo cross-country flight. Stage 2b focuses on cross-country and night flying.

NOTES
Preparation for the practical test. The only formal ground training is GND 17: Stage 3 Knowledge Check which is tied to FLT 29: Stage Check.

STAGE 3		
		FLT 26: Practical Test Prep
		FLT 27: Solo Prep
		FLT 28: A Little More Practical Test Prep
GND 17: Stage 3 Knowledge Check	∞	FLT 29: Stage Check

LESSON	DUAL	SOLO	XC	NIGHT	INST	TOTAL
FLT 26: Practical Test Prep	1.5				0.3	1.5
FLT 27: Solo Prep		1.1				1.1
FLT 28: More Practical Test Prep	1.5					1.5
FLT 29: Stage Check	1.5				0.3	1.5
TOTALS	4.5	1.1	-	-	0.6	5.6

FAR REQUIREMENTS:

- 61.109(a)(4) – 3 hours of flight training in preparation for the practical test

COMPLETION STANDARDS
All Private Pilot certificate requirements have been met and the learner completes the FAR required practical test prep and passes the stage 3 check. The learner should progress to maintain ± 100', 10° heading, and 10 knots.

GND 16: Stage 3 Knowledge Review

TIME: 2.0 hours

INSTRUCTOR REFERENCES	LEARNER REFERENCES
• Private Pilot ACS • CFI Lesson Plans • Private Pilot ACS Review	• POH • Private Pilot ACS • Private Pilot ACS Review • Pilot's Handbook of Aeronautical Knowledge • Airplane Flying Handbook

OVERVIEW

Ground based knowledge review of private pilot ACS required knowledge. Structure similar to the ground portion of the practical test. Cover knowledge areas from stages 1-3.

NOTES

Tied (∞) to FLT 29: Stage 3 Check

Learner should have a nav log prepared for the knowledge review and the flight

PLAN OF ACTION

1. Knowledge Review

OBJECTIVE / COMPLETION STANDARDS

The learner demonstrates their understanding of private pilot aeronautical knowledge concepts. Any/all inconsistencies are reviewed and corrected with the instructor.

FLT 26: Practical Test Prep

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.5	-	-	-	0.3	0.5

REFERENCES

- As required

OVERVIEW

Maneuvers review in preparation for the practical test. Intended to fine tune and clean up inconsistencies. Review all maneuvers. Mirror a practical test profile as much as possible. Note strengths and weaknesses to create a plan/focus areas for the next two flights.

NOTES

FAR 61.109(a)(4): FLT 26 & 28 cover the requirement for 3 hours of training in preparation for the practical test

PLAN OF ACTION

Ground Discussion

- Knowledge review/prep, as desired
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, short, or soft-field takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Slow flight, steep turns, stalls
- Instrument failures / Unusual attitudes
- Engine failure
- Ground reference maneuvers
- Traffic Patterns
  - Normal approach and landing
  - Short & soft-field takeoff and landing
  - Go-around

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures without instructor assistance. Safety is not in question. Aim for ± 100', 10° heading, 10 knots (Emergency approach/Pattern: +10/-5 knots). If learner abilities allow it, require above these standards.

FLT 27: Solo

DUAL	SOLO	XC	NIGHT	INSTR	GND
-	1.1	-	-	-	0.0

REFERENCES

- As required

OVERVIEW

Learner reviews maneuvers in preparation for the practical test, focusing on any weaknesses noted in FLT 26.

NOTES

FAR 61.109(a)(5) requires 10 hours of solo time. Ensure the learner reaches at least 10 hours with this flight.

PLAN OF ACTION

Ground Discussion

- Solo endorsements, as required

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Risk Management – PAVE Checklist
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, short, or soft-field takeoff
- Climb procedures & checklists
- Scanning, Clearing turns
- Steep turns, slow flight, and stalls
- Ground reference maneuvers
- Traffic Patterns
  - Normal approach and landings (full stop)
  - Short and soft-field takeoff and landings
  - Slip to a landing
  - Go-around

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures. Safety is not in question. Aim for ± 100', 10° heading, 10 knots (Emergency approach/Pattern: +10/-5 knots).

FLT 28: A Little More Practical Test Prep

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.5	-	-	-	-	0.5

REFERENCES

- As required

OVERVIEW

Final review prior to the stage check. Mimic the practical test profile as much as possible, focusing on any noted weaknesses. Build confidence heading into the stage check and practical test.

NOTES

FAR 61.109(a)(4): FLT 26 & 28 cover the requirement for 3 hours of training in preparation for the practical test. Ensure 3 hours between the two flights.
Learner should plan a nav log flight to use for FLT 29: Stage Check and their practical test.

PLAN OF ACTION

Ground Discussion

- Knowledge review/prep, as desired
- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, Short/Soft-field takeoff, as desired
- Standard climb procedures & checklists
- Scanning, Clearing turns
- Slow flight, steep turns, stalls
- Engine failure
- Ground reference maneuvers
- Traffic Patterns
  - Normal approaches and landings
  - Short & soft-field takeoffs and landings
  - Slips to a landing
  - Go-arounds

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next

OBJECTIVE / COMPLETION STANDARDS

The learner can make independent decisions, competently and safely performing all maneuvers, landings, and procedures without instructor assistance. Safety is not in question. Require ± 100' 10° heading, 10 knots (Emergency approach/Pattern: +10/-5 knots).

FLT 29: Stage 3 Check

DUAL	SOLO	XC	NIGHT	INSTR	GND
1.5	-	-	-	0.3	0.5

REFERENCES

- As required

OVERVIEW

The flight should mirror the ACS practical test requirements, while reviewing all maneuvers, landings, and concepts. Instructor should take more of the examiner (background) role during the flight but provide advice and ways to improve where able. Verify all practical test requirements have been met.

NOTES

Tied (∞) to GND 16: Stage 3 Knowledge Review
Learner should have a nav log prepared for the knowledge review and flight navigation procedures
Rectangular course was removed to save time since the concepts can be demonstrated in the pattern.
Practical test endorsements on the next page

PLAN OF ACTION

Ground Discussion

- Flight overview
  - Airport diagram, sectional, maneuvers
- Expectations & responsibilities (learner & instructor)
- Risk Management – PAVE Checklist

Pre-Flight

- Weather briefing, NOTAMs, TFRs, etc.
- Performance / Weight & balance
- Required documents / inspections
- Pre-flight inspection
- Engine start
- Taxi / Runup

Flight

- Normal, Short/Soft-field takeoff, as required
- Climb procedures & checklists
- Scanning, Clearing turns
- Navigation Procedures
- Instrument flight (start in climb to save time)
  - Unusual attitudes
  - Instrument failures
- Slow flight
- Stalls
- Steep turns
- Engine failure / emergency procedures
- Turns around a point
- S-Turns
- Traffic Patterns
  - Normal approach and landing
  - Short & soft-field takeoff and landing
  - Go-around

Post-Flight

- After landing checklist
- Taxi
- Parking & Engine shutdown
- Post flight / Securing

Debrief

- Review the flight
- What went well?
- What can be improved?
- What's next
- Practical Test Endorsements (next page)

OBJECTIVE / COMPLETION STANDARDS

The learner meets or exceeds ACS requirements and is deemed ready for their practical test. Safety is not in question.

Practical Test Endorsements

Prerequisites for Practical Test: § 61.39(a)(6)(i) and (ii)
I certify that [First name, MI, Last name] has received and logged training time within 2 calendar-months preceding the month of application in preparation for the practical test and [he or she] is prepared for the required practical test for the issuance of [applicable] certificate.

Review of Deficiencies Identified on Airman Knowledge Test: § 61.39(a)(6)(iii), as required
I certify that [First name, MI, Last name] has demonstrated satisfactory knowledge of the subject areas in which [he or she] was deficient on the [applicable] airman knowledge test

Aeronautical Knowledge Test: §§ 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 or she] is prepared for the [name of] knowledge test.

Flight Proficiency/Practical Test: §§ 61.103(f), 61.107(b), and 61.109
The endorsement for a practical test is required in addition to the § 61.39 endorsements provided above.
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 or she] is prepared for the [name of] practical test.

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APPENDIX

Sample Pre-Solo Test

FARs

1. FAR 91.3 – When flying solo, who is directly responsible for, and the final authority as to, the operation of the aircraft?

2. FAR 91.103 – Each PIC shall, before beginning a flight, become familiar with all available information concerning that flight. For any flight, this includes runway lengths as well as what performance data?

3. FAR 91.113 – Who has the right-of-way over all other air traffic?

4. FAR 91.113 – Who has the right-of-way when two or more aircraft are approaching an airport for landing?
   A. The aircraft closest to the airport
   B. The lower aircraft
   C. The faster aircraft
   D. The slower aircraft

5. FAR 91.3 – True or False?
   In an in-flight emergency requiring immediate action, the PIC may deviate from any rule of this part to the extent required to meet that emergency.

6. FAR 61.89 – What are the visibility requirements for a student pilot?
   Day: _____ statute miles
   Night: _____ statute miles

7. FAR 61.89 – True or False?
   As long as the above visibility requirements are met, a student may pilot fly solo without visual reference to the ground (i.e., above a cloud deck).

8. FAR 61.89 – Do the FARs allow a student pilot acting as PIC to carry passengers?

9. FAR 91.151 – What are the fuel requirements for day VFR conditions?

10. FAR 91.125 – ATC Light Signals

Color & Type of Signal	On the Ground	In Flight
Steady Green		
Flashing Green		
Steady Red		
Flashing Red		
Flashing White		
Alternating Red & Green		

11. List the required aircraft inspections.
    A:
    V:
    1:
    A:
    T:
    E:

12. List the required aircraft documents.
    A:
    R:
    R:
    O:
    W:

13. FAR 91.205 – List the day VFR required flight instruments (TOMATOFFLAAMES)

T:	F:
O:	F:
M:	L:
A:	A:
T:	A:
O:	M:
	E:
	S:

14. FAR 61.3 – What documents must you have in your possession to fly solo?

AIRSPACE RULES & PROCEDURES

15. Solo Airport – List the following information:

Runway(s)	_____	_____	_____	_____
Pattern Direction	_____	_____	_____	_____
Pattern Altitude	_____	_____	_____	_____
Pattern Entry Procedure	_____	_____	_____	_____

    Frequencies:

ATIS	_____
Ground	_____
Tower	_____
Approach/Departure	_____

16. What class of airspace is the solo airport, and what are the basic VFR weather minimums?
    Class of Airspace _____
    Visibility _____ statute miles
    Cloud Clearances: _____ ft. Above _____ ft. Below _____ft. Horizontal

17. Numeric runway designators (i.e., runway 14 or 32) are in relation to:
    A. Magnetic North
    B. True North

18. AIM 4-3-18 – True or False?
    A clearance must be obtained prior to crossing any *active* runway. Closed or inactive runways do not require an ATC clearance to cross.

19. What do the following transponder codes mean?
    1200: _____
    7500: _____
    7600: _____
    7700: _____

20. Briefly describe the procedures to enter the pattern and land at the solo airport in the case of radio failure/lost communications.

FLIGHT CHARACTERISTICS & LIMITATIONS

21. Aircraft performance is maximized when takeoffs and landings are performed:
    A. With the wind
    B. Into the wind
    C. Without wind
    D. Wind has no effect on performance

22.

	Airspeed	Definition
V_{SO}	_____	_____
V_S	_____	_____
V_R	_____	_____
V_X	_____	_____
V_Y	_____	_____
V_{LE}	_____	_____
V_{LO}	_____	_____
V_{FE}	_____	_____
V_A	_____	_____
V_{NO}	_____	_____
V_{NE}	_____	_____

23. Weights
    Max Ramp Weight: _____
    Max Takeoff Weight: _____
    Max Landing Weight: _____
    Max Zero Fuel Weight: _____
    Max Baggage Weight: _____

24. Fuel
    Approved Type(s): _____
    Color: _____
    Total Capacity: _____

Usable Capacity: _____

25. Oil
    Capacity: _____
    Minimum Capacity: _____

26. Briefly describe the go-around procedures.

27. Describe the engine failure procedures.
    Takeoff Roll:
    Takeoff Climb:
    Cruise:
    Best Glide Airspeed: _____

28. Calculate the CG for the planned solo flight.

29. Calculate performance for the solo flight based on the current conditions.
    Takeoff Distance: _____
    Landing Distance: _____

30. As published in the ACS, slow flight and stalls should be completed no lower than _____ ft AGL (ASEL).

Sample Pre-Solo Test Answers

FARs

1. FAR 91.3 – When flying solo, who is directly responsible for, and the final authority as to, the operation of the aircraft?
   The solo pilot, PIC

2. FAR 91.103 – Each PIC shall, before beginning a flight, become familiar with all available information concerning that flight. For any flight, this includes runway lengths as well as what performance data?
   Takeoff and landing distance information

3. FAR 91.113(c) – Who has the right-of-way over all other air traffic?
   An aircraft in distress

4. FAR 91.113(g) – Who has the right-of-way when two or more aircraft are approaching an airport for landing?
   B. The lower aircraft
   When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

5. FAR 91.3 – TRUE
   In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

6. FAR 61.89(a)(6) – What are the visibility requirements for a student pilot?
   Day: 3 statute miles
   Night: 5 statute miles

7. FAR 61.89(a)(7) – FALSE
   As long as the above visibility requirements are met, a student pilot may fly solo without visual reference to the ground (i.e., above a cloud deck)?
   FAR 61.89(a)(7): A student pilot may not act as PIC of an aircraft when the flight cannot be made with visual reference to the surface.

8. FAR 61.89(a)(1) – Do the FARs allow a student pilot acting as PIC to carry passengers?
   No

9. FAR 91.151 – What are the fuel requirements for day VFR conditions?
   Fly to the first point of intended landing and, assuming normal cruising speed, fly after that for at least 30 mins

10. FAR 91.125 – ATC Light Signals

Color & Type of Signal	On the Ground	In Flight
Steady Green	Cleared for takeoff	Cleared to land
Flashing Green	Cleared to taxi	Return for landing
Steady Red	Stop	Give way and continue circling
Flashing Red	Taxi clear of runway in use	Airport unsafe – do not land
Flashing White	Return to starting point on airport	N/A
Alternating Red & Green	Exercise extreme caution	Exercise extreme caution

11. List the required aircraft inspections.
    Annual
    VOR
    100 hour
    Altimeter/Pitot Static
    Transponder
    ELT

12. List the required aircraft documents.
    Airworthiness
    Registration
    Radio operator's license (if international)
    Operating limitations
    Weight and balance

13. FAR 91.205 – List the day VFR required flight instruments (TOMATOFFLAAMES)
    Tachometer
    Oil pressure gauge
    Manifold pressure gauge
    Airspeed Indicator
    Temperature gauge
    Oil temperature gauge
    Fuel gauge
    Flotation gear
    Landing gear position indicator
    Altimeter
    Anti-Collision Lights
    Magnetic Compass
    ELT
    Safety belts/shoulder harnesses

14. FAR 61.3 – As PIC, what documents must you have in your possession to fly solo?
    Student Pilot Certificate
    Medical Certificate (or driver's license, if applicable)
    Photo ID
    Logbook with solo endorsements

AIRSPACE RULES & PROCEDURES

15. Solo Airport – List the following information:

Runway(s)	_____	_____	_____	_____
Pattern Direction	_____	_____	_____	_____
Pattern Altitude	_____	_____	_____	_____
Pattern Entry Procedure	_____	_____	_____	_____

    Frequencies:
    ATIS _____
    Ground _____
    Tower _____
    Approach/Departure _____

16. What class of airspace is the solo airport, and what are the basic VFR weather minimums?
    Class of Airspace: C or D

Visibility: 3 statute miles
Cloud Clearances: 1,000 ft. Above 500 ft. Below 2,000' Horizontal

17. Numeric runway designators (i.e., runway 14 or 32) are in relation to:
    A. Magnetic North

18. AIM 4-3-18(a)(5) – FALSE
    A clearance must be obtained prior to crossing any *active* runway. Closed or inactive runways do not require an ATC clearance.
    AIM 4-3-18: A clearance must be obtained prior to crossing any runway. ATC will issue an explicit clearance for all runway crossings.

19. What do the following transponder codes mean?
    1200: VFR
    7500: Hijack
    7600: Lost Comm
    7700: Emergency

20. Briefly describe the procedures to land at the solo airport in the case of radio failure/lost communications.
    Squawk 7600
    Remain outside of the airspace until the direction and flow of traffic is determined
    Enter the pattern, clearing aggressively
    Watch for and acknowledge light signals

FLIGHT CHARACTERISTICS & LIMITATIONS

21. Aircraft performance is maximized when takeoffs and landings are performed:
    B. Into the wind

22.

	Airspeed	Definition
V_{SO}	_____	_____
V_S	_____	_____
V_R	_____	_____
V_X	_____	_____
V_Y	_____	_____
V_{LE}	_____	_____
V_{LO}	_____	_____
V_{FE}	_____	_____
V_A	_____	_____
V_{NO}	_____	_____
V_{NE}	_____	_____

23. Weights
    Max Ramp Weight: _____
    Max Takeoff Weight: _____
    Max Landing Weight: _____
    Max Zero Fuel Weight: _____
    Max Baggage Weight: _____

24. Fuel
    Approved Type: _____
    Color: _____

Total Capacity: _____
Usable Capacity: _____

25. Oil
    Capacity: _____
    Minimum Capacity: _____

26. Describe the go-around procedures.
    Generic Procedures: Max power
    Pitch for climb speed
    Clean up flaps on schedule

27. Describe the engine failure procedures.
    Takeoff Roll: Maintain directional control, stop straight ahead
    Takeoff Climb: Pitch for best glide speed, land straight ahead
    Cruise: Aviate/Airspeed, Best Landing Spot, Checklists (restart/troubleshoot), Emergency landing
    Best Glide Airspeed:

28. Calculate the CG for the planned solo flight.

29. Calculate performance for the solo flight based on the current conditions.
    Takeoff Distance: _____
    Landing Distance: _____

30. As published in the ACS, slow flight, and stalls should be completed no lower than _____ ft AGL (ASEL).
    1,500’ AGL

Solo Requirements

FAR 61.87

KNOWLEDGE TEST

- Parts 61 & 91
- Airspace rules & procedures
- Flight characteristics & limitations
- Administered by the CFI (Review all incorrect answers before authorizing solo flight)

FLIGHT TRAINING

- Flight preparation procedures
- Taxiing/surface operations
- Takeoffs and landings
- Straight-and-level flight & turns
- Climbs/climbing turns
- Descents/descending turns (high & low drag configurations)
- Traffic patterns
- Collision avoidance, wind shear, wake turbulence avoidance
- Flight at various speeds (cruise to slow flight)
- Stalls and stall recoveries (various attitudes & power combinations)
- Emergency procedures & equipment malfunctions
- Ground reference maneuvers
- Approach to landing with simulated engine malfunctions
- Slips to a landing
- Go-arounds

Private Pilot Eligibility Requirements

FAR 61.103

APPLICANT

- At least 17 years of age
- Read, speak, write, and understand the English language
- Hold a U.S. student pilot, sport pilot, or recreational pilot certificate

KNOWLEDGE

- Knowledge training (home or with instructor)
- Instructor endorsement
- Pass the Knowledge Test

FLIGHT

- FAR 61.107 Training requirements
- Aeronautical experience requirements
- Instructor endorsement

Aeronautical Experience & Training Requirements

FAR 61.109(a) **40 HOURS TOTAL TIME**

- 20 hours flight training
- 10 hours solo

20 HOURS FLIGHT TRAINING

- 3 hours cross-country
- 3 hours night
  - Cross-country > 100 nm
  - 10 full stop takeoffs and landings
- 3 hours instrument
- 3 hours in preparation for the practical test

10 HOURS SOLO

- 3 takeoffs and landings to a full stop at a controlled airport
- 5 hours cross-country
  - Cross-country > 150 nm, 3 full stop landings at 3 points, and one segment > 50 nm

FAR 61.107(b) **Ground & Flight Training Requirements**

- Preflight preparation
- Preflight procedures
- Airport base operations
- Takeoffs, landings, and go-arounds
- Performance maneuvers
- Ground reference maneuvers
- Navigation
- Slow flight and stalls
- Basic instrument maneuvers
- Emergency operations
- Night operations (exception: FAR 61.110)
- Postflight procedures

Aeronautical Knowledge

REQUIRED KNOWLEDGE AREAS (FAR 61.105)	LESSON
FARs relating to private privileges, limitations, and flight operations	GND 7: FARS & Publications
Accident reporting requirements of the NTSB	GND 7: FARS & Publications
Use of the applicable portions of the AIM and FAA advisory circulars	GND 7: FARS & Publications
Use of charts for pilotage, dead reckoning, and navigation systems	GND 12: Navigation GND 13: Cross Country Flight Planning
Radio communication procedures	GND 3: Local Procedures GND 10: Airspace & ATC
Recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts	GND 3: Local Procedures GND 10: Airspace & ATC GND 11: Weather & Weather Services
Safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence	GND 3: Local Procedures GND 4: Scanning & Collision Avoidance GND 10: Airspace & ATC
Effects of density altitude on takeoff and climb performance	GND 6: Performance
Weight and balance computations	GND 5: Weight and Balance
Principles of aerodynamics, powerplants, and aircraft systems	GND 1: Flt Controls & Aerodynamics GND 2: Systems & Instruments
Stall awareness, spin entry, spins, and spin recovery techniques	FLT 4: Stalls
Aeronautical decision making and judgment	GND 15: Aeronautical Decision Making
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	GND 6: Performance GND 11: Weather & Weather Services GND 13: Cross Country Flight Planning
How to plan for alternatives if the planned flight cannot be completed or delays are encountered	GND 13: Cross Country Flight Planning