Private Pilot Airplane Single-Engine Land Syllabus

Version 1
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Syllabus Introduction

Course Objective: The objective of this syllabus is to train students to earn an FAA certified private pilot certificate with an airplane single-engine land rating.

Course Training Standards: The training standards for all flight maneuvers and aeronautical knowledge areas in this syllabus are specified in the private pilot Practical Test Standards (PTS).

FAR Part 61 Operations: This syllabus was designed for use in flight training conducted under Part 61 of the Federal Aviation Regulations (FARs). As such, the minimum flight time requirements for dual instruction, solo flight, simulated instrument conditions, and night flying which have been incorporated into this syllabus are intended to meet the requirements of Subpart E “Private Pilots” of Part 61 of the FARs. However, it is ultimately the responsibility of the certified flight instructor (CFI) endorsing the student to take the practical test to ensure the student has met the requirements specified in the FARs.

Syllabus Content: This syllabus consists of 33 flying lessons (40 hours of planned flight time) and 17 ground lessons (27 hours of planned ground instruction). These flight and ground lessons are separated into four distinct stages of flight training: “Stage 1: Pre-Solo”, “Stage 2: Post-Solo”, “Stage 3: Pre-Solo Cross-Country”, and “Stage 4: Post-Solo Cross-Country”. Below is a diagram of the flight and ground training included in this syllabus:

**Flight Training**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 Night dual</td>
<td>1 Night XC</td>
<td>One 3 Leg Solo XC</td>
</tr>
<tr>
<td></td>
<td>At least 3 Solo</td>
<td>Flown as Cross-Countries (XCs)</td>
<td>Cross-Country or Local</td>
</tr>
</tbody>
</table>

**Ground Training**

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Solo Knowledge Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Estimated Lesson Duration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
<tr>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>1.5</td>
<td>2.0</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>1.5</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

Total Estimated Lesson Duration = 27.0
Course Administration

**Conduct of Ground Training:** The student should read, in entirety, the source materials cited for the ground lesson before meeting with the CFI to conduct the training. This will enhance the student’s retention of the material, and will shorten the time required to complete the lesson.

**Conduct of Flight Training:** Before meeting with the CFI, the flight student should print out two copies of the flying lesson profile card (one for the instructor and the other for the student). The lesson profile cards are designed with the intent of being folded in half (along the depicted fold line) and placed on a kneeboard for reference during the flying lesson.

Also, before meeting with the CFI, the student should reference appropriate sections of the Airplane Flying Handbook (FAA-H-8083-3A) and the Pilot’s Operating Handbook (POH) for their training aircraft for any new maneuvers covered in the flight lesson. If necessary, the CFI should assist the student in finding the appropriate information in each of those publications prior to the lesson (i.e. give the student specific reading assignments prior to the lesson).

During the flight lesson pre-brief the instructor should briefly explain the overall conduct of the flight lesson, as well as thoroughly explain any new maneuvers introduced in the flight. The CFI should also re-address any weak areas in the student’s performance from the previous flight lesson, and provide guidance on how to improve in those areas.

During the flight lesson the instructor should demonstrate new maneuvers before allowing the student to attempt them. The instructor should always provide inflight instruction as necessary to train the student up to PTS.

After the flight, the instructor should thoroughly debrief the flight student on the overall flying lesson, weak areas needing improvement (and how to improve), as well as answering any questions the student may have.

Furthermore, the instructor should maintain a record of the student’s progress in the flying lessons to keep track of their progression, and serve as a means of continuity if the student should need to switch to a different instructor.

**Stage Checks:** The “stage checks” built into the syllabus are designed with the intent of evaluating the student’s knowledge and flying proficiency for a particular stage of training. If the student exhibits satisfactory proficiency during the stage check (as specified by PTS) they will “pass”, and should be allowed to progress to the next stage of training. If they do not demonstrate adequate proficiency (i.e. “fail” a stage check) they should be administered “Remedial Training” as explained later in this section.

Furthermore, although it is possible for the student to progress through the entire syllabus with only one instructor, it is desired that the stage checks be flown with an experienced instructor with whom the student doesn’t normally fly. This will facilitate an unbiased and objective evaluation of the student’s skill level.

**Remedial Training:** If, at the end of a stage of training, the CFI administering the training determines the student is not ready to progress to the stage check he or she may administer extra remedial training, as deemed necessary, to bring the student up to proficiency standards.

Furthermore, if during the conduct of a stage check, the check pilot determines a student’s performance is not up to practical test standards the stage check should be re-administered following remedial training of sufficient scope to bring the student’s performance up to standards.
Syllabus Flexibility: Both the flight and ground training specified in this syllabus may be altered, as required, by the CFI if he or she determines that such an alteration will enhance student training.

Specifically, with regards to flight training, the maneuvers listed in the flight training profiles may be omitted, re-ordered, or expanded as deemed necessary by the CFI. Ultimately, the intent of the flight training profiles is to provide training of sufficient scope in order for the student to perform to PTS on the maneuvers included in the stage check. If the student requires more, or less, training in certain maneuvers, before progressing to the stage check, the CFI may alter the training profiles as required.

Furthermore, as indicated on the introduction page for a particular stage of training, the syllabus gives the CFI the option to conduct certain flight lessons as dual -or- solo. Additionally, there are also flight training lessons which can be flown as local flights -or- cross-country flights. All of these options are listed on the introduction page of a stage of training. The intent of this flexibility is to give the CFI the ability to custom tailor certain portions of the syllabus to the student’s individual needs.

With regards to ground training, this syllabus suggests a specific sequence of ground lessons intermixed with the flight lessons for a particular stage of training. However, the ground lessons may be completed in advance of, or after, the flight lessons as determined necessary by the CFI. A reason for advancing forward in the ground lessons before completing the flight lessons would be poor weather (i.e. if the student and instructor have already coordinated to conduct a flight lesson, but weather conditions prevent the successful conduct of the flight lesson the instructor could administer a ground lesson instead). Another reason for advancing forward in ground lessons before flight lessons would be if the student, or CFI, has a medical condition that prevents them from flying (i.e. a sinus problem), but they are otherwise healthy enough to conduct ground lessons.

Ultimately, regardless of whether the ground and flight lessons are conducted in the exact sequence specified by the syllabus, the ground lessons for a particular stage of training should be completed before the student progresses to the stage check for that stage of training.

Cost Effectiveness: This syllabus aims to significantly decrease the cost of flight training by enhancing the efficiency of the training process, as well as utilizing free and readily accessible training materials. As such, the source materials for this syllabus were derived entirely from open source government publications (the Airplane Flying Handbook (FAA-H-8083-3A), the Pilot’s Handbook of Aeronautical Knowledge (FAA-H-8083-25A), the Private Pilot Practical Test Standards (FAA-S-8081-14A), the Federal Aviation Regulations (14 CFR), etc.). As a result, the use of this syllabus does not require the student, or CFI, to purchase any commercially produced study materials. All of the information is accessible for free from www.faa.gov.

Additionally, part of the cost-effectiveness intended for this syllabus requires the flight student’s initiative to study and prepare for the ground and flight lessons by reading the source materials covered in the lessons. Overall, a well-executed and disciplined home study program will drastically reduce the billable time necessary to complete the ground lessons, as well as significantly accelerate the learning process for the flight lessons.
Stage 1
Pre-Solo
**Stage 1: Pre-Solo**

**Objective:** The objective of Stage 1 “Pre-Solo” is to prepare the student for his or her first solo flight in a single engine airplane.

**Completion Standards:** The training requirements which must be met before the student may fly solo are specified in FAR Part 61.87 “Solo requirements for student pilots.”

**Flight and Ground Lessons:** The training in Stage 1 consists of 9 flight lessons (10.8 hours), 8 ground lessons (12.0 hours), and a pre-solo knowledge test. The specific lessons are listed below:

<table>
<thead>
<tr>
<th>Flight Lessons</th>
<th>Ground Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1001 (Dual)</td>
<td>1. Introduction to Flight Training</td>
</tr>
<tr>
<td>L1002 (Dual)</td>
<td>2. Aerodynamics</td>
</tr>
<tr>
<td>L1003 (Dual)</td>
<td>3. Aircraft Systems 1</td>
</tr>
<tr>
<td>L1004 (Dual)</td>
<td>4. Aircraft Systems 2</td>
</tr>
<tr>
<td>L1005 (Dual)</td>
<td>5. Stalls and Spins</td>
</tr>
<tr>
<td>L1006 (Dual)</td>
<td>6. Rules and Regulations</td>
</tr>
<tr>
<td>L1007 (Dual)</td>
<td>7. Flight Operations 1</td>
</tr>
<tr>
<td>L1190 (Dual) – <strong>Stage Check</strong></td>
<td>8. Flight Operations 2</td>
</tr>
<tr>
<td>L1201 (Solo) – First Solo Flight</td>
<td>-AND-</td>
</tr>
</tbody>
</table>

A Pre-Solo Knowledge Test
(Required by Part 61.87)
Lesson Content:

Provide the student with a brief overview of the flight training process. You should explain:

1. Required flight time to get a pilot’s license
2. The phases of training (Pre-solo, Post-solo, Pre-solo Cross-Country, Post-solo Cross-Country)
3. The expected cost and how to reduce the cost by studying at home to the max extent possible
4. Introduce the student to this syllabus (AceCFI’s Private Pilot Single-Engine Land syllabus). Show them how to access it for free (they can either download it from www.acecfi.com, you can send them a pdf copy via email, or you can print a hard copy).
5. Introduce the student to the following source materials. Specifically, tell them where they can access the materials, and generally what each one of them pertains to:

Accessed for free from www.faa.gov or other online sources:
- Aeronautical Information Manual
- Pilot’s Handbook of Aeronautical Knowledge (FAA-H-8083-25A)
- Airplane Flying Handbook (FAA-H-8083-3A)
- Federal Aviation Regulations (14 CFR)
- Practical Test Standards (FAA-S-8081-14A)
- FAA Chart User’s Guide
- Advisory Circulars (ACs)

Accessed in print:
- Airport/Facility Directory (AFD)
- Pilot’s Operating Handbook (POH)
In addition to the maneuvers covered in flight, the following should also be discussed:

- Weather Information (METARs and TAFs)
- Cockpit Management
- Airport, runway, and taxiway signage
- A brief overview of radio communication
- VFR Traffic Patterns
- Discuss your training aircraft’s systems: Primary flight controls and secondary flight controls (flaps)

**Flight**

**Pre-flight:**
- Pre-Flight Inspection (Demo)
- Engine Start (Demo)
- Taxiing (Demo/Do)
- Normal Takeoff (Demo)

**Practice Area:**
- Basic Aircraft Control (Demo/Do)
  - Straight and level (Demo/Do)
  - Climbs and descents (Demo/Do)
  - Turns (Demo/Do)
- Power-Off Stall (Demo/Do)
- Power-On Stall (Demo/Do)
- Slow Flight (Demo/Do)
- Simulated Engine Failure (Demo)
- Simulated Emergency Approach and Landing (Demo)
- Rectangular Pattern (Demo/Do)

**Traffic Pattern:**
- Normal approaches and landings (Demo/Do)

**Post-flight:**
- Engine Shutdown (Demo)
- Securing the aircraft (Demo)
Ground Lesson 2: Aerodynamics  
(2.0 Hours Estimated)

Part I

Chapter 3 of the Pilot's Handbook of Aeronautical Knowledge: Principles of Flight
Structure of the Atmosphere - 3-1
Atmospheric Pressure - 3-2
Pressure Altitude - 3-2
Density Altitude - 3-3
  Effect of Pressure on Density - 3-3
  Effect of Temperature on Density - 3-3
  Effect of Humidity (Moisture) on Density - 3-3
Theories in the Production of Lift - 3-4
  Newton's Basic Laws of Motion - 3-4
  Magnus Effect - 3-4
    Flow of Air Against a Nonrotating Cylinder - 3-5
    A Rotating Cylinder in a Motionless Fluid - 3-5
    A Rotating Cylinder in a Moving Fluid - 3-5
  Bernoulli's Principle of Differential Pressure - 3-7
Airfoil Design - 3-7
  Low Pressure Above - 3-8
  High Pressure Below - 3-9
  Pressure Distribution - 3-9
  Airfoil Behavior - 3-10

Part II

Chapter 4 of the Pilot's Handbook of Aeronautical Knowledge: Aerodynamics of Flight (Applicable Sections)
Forces Acting on the Aircraft - 4-1
  Thrust - 4-2
  Drag - 4-3
    Parasite Drag - 4-4
    Induced Drag - 4-5
    Lift/Drag Ratio - 4-6
  Weight - 4-7
  Lift - 4-7
Wingtip Vortices - 4-8
  Formation of Vortices - 4-8
  Avoiding Wake Turbulence - 4-8
Ground Effect - 4-9
Axes of an Aircraft - 4-11
Moment and Moment Arm - 4-12
Aircraft Design Characteristics - 4-12
Stability - 4-12
  Static Stability - 4-13
  Dynamic Stability - 4-13
  Longitudinal Stability (Pitching) - 4-14
  Lateral Stability (Rolling) - 4-16
  Vertical Stability (Yawning) - 4-17
Free Directional Oscillations (Dutch Roll) - 4-18
Spiral Instability - 4-18

Aerodynamic Forces in Flight Maneuvers - 4-19
Forces in Turns - 4-19
Forces in Climbs - 4-21
Forces in Descents - 4-21

Stalls - 4-22

Basic Propeller Principles - 4-23
Torque and P-Factor - 4-26
Torque Reaction - 4-26
Corkscrew Effect - 4-26
Gyroscopic Action - 4-27
Asymmetric Loading (P-Factor) - 4-27

Load Factors - 4-28
Load Factors in Aircraft Design - 4-28
Load Factors in Steep Turns - 4-29
Load Factors and Stalling Speeds - 4-30
Load Factors and Flight Maneuvers - 4-31
Vg Diagram - 4-32
Rate of Turn - 4-33
Radius of Turn - 4-34

Weight and Balance - 4-35
Effect of Weight on Flight Performance - 4-37
Effect of Weight on Aircraft Structure - 4-37
Effect of Weight on Stability and Controllability - 4-38
Effect of Load Distribution - 4-38
L1002 (Dual)
(1.2 Hours Estimated)

Ground

In addition to the new maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information (METAR)
- Carburetor and/or induction icing
- Discuss your training aircraft’s systems: Powerplant and propeller

Flight

Pre-flight:
- Normal Takeoff

Practice Area:
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument):
  - Straight-and-level flight (Demo/Do)
  - Constant Airspeed Climbs (Demo/Do)
  - Constant Airspeed Descents (Demo/Do)
  - Turns to Headings (Demo/Do)
  - Recovery from Unusual Flight Attitudes (Demo/Do)
- Power-Off Stall
- Power-On Stall
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- Turns around a point (Demo/Do)

Traffic Pattern:
- Normal approaches and landings
- Forward slip to a landing (Demo/Do)
- Go around (Demo/Do)

Post-flight:
- Engine Shutdown
- Securing the aircraft
Ground Lesson 3: Aircraft Systems 1  
(1.5 Hours Estimated)

Part I

Chapter 2 of the Pilot’s Handbook of Aeronautical Knowledge: Aircraft Structure

Lift and Basic Aerodynamics - 2-2
Major Components - 2-3
  Fuselage - 2-3
  Wings - 2-3
  Empennage - 2-5
  Landing Gear - 2-6
  The Powerplant - 2-6
Subcomponents - 2-7
Types of Aircraft Construction - 2-7
  Truss Structure - 2-7
  Monocoque - 2-8
  Semimonocoque - 2-8
Composite Construction - 2-8
  History - 2-8
  Composite Materials in Aircraft - 2-9
  Advantages of Composites - 2-9
  Disadvantages of Composites - 2-9
  Fluid Spills on Composites - 2-10
  Lightning Strike Protection - 2-10
  The Future of Composites - 2-11
Instrumentation - 2-11
  Performance Instruments - 2-12
  Control Instruments - 2-12
  Navigation Instruments - 2-12
Global Positioning System (GPS) - 2-12

Part II

Chapter 5 of the Pilot’s Handbook of Aeronautical Knowledge: Flight Controls

Flight Control Systems - 5-2
Primary Flight Controls - 5-2
  Elevator - 5-5
  T-Tail - 5-6
  Stabilator - 5-6
  Canard - 5-7
  Rudder - 5-7
  V-Tail - 5-8
Secondary Flight Controls - 5-8
  Flaps - 5-8
  Leading Edge Devices - 5-9
  Spoilers - 5-10
  Trim Tabs - 5-10
  Balance Tabs - 5-11
  Antiservo Tabs - 5-11
  Ground Adjustable Tabs - 5-11
Adjustable Stabilizer - 5-12
Autopilot - 5-12
L1003 (Dual)
(1.2 Hours Estimated)

Ground

In addition to the new maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information (METAR)
- Briefly cover some performance and limitations information for your training aircraft (basic speeds [Vy, Vx, etc.], G-limits)
- Emergency Procedures: Electrical Malfunction
- Discuss your training aircraft’s systems: Electrical System

Flight

Pre-flight:
- Normal Takeoff

Practice Area:
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument)
- Power-Off Stall
- Power-On Stall
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- S-Turns along a road (Demo/Do)

Traffic Pattern:
- Normal approaches and landings
- Forward slip to a landing
- Go around

Post-flight:
- Engine Shutdown
- Securing the aircraft
Ground Lesson 4: Aircraft Systems 2
(2.0 Hours Estimated)

Part I

Chapter 6 of the Pilot’s Handbook of Aeronautical Knowledge: Aircraft Systems
(Applicable Sections)

Powerplant - 6-1
  Reciprocating Engines - 6-2
  Propeller - 6-4
    Fixed-Pitch Propeller - 6-5
    Adjustable-Pitch Propeller - 6-6
  Induction Systems - 6-7
  Carburetor Systems - 6-7
    Mixture Control - 6-8
    Carburetor Icing - 6-8
    Carburetor Heat - 6-9
    Carburetor Air Temperature Gauge - 6-10
  Outside Air Temperature Gauge - 6-10
  Fuel Injection Systems - 6-10

Superchargers and Turbosuperchargers - 6-11
  Superchargers - 6-12
  Turbosuperchargers - 6-12
    System Operation - 6-13
    High Altitude Performance - 6-14

Ignition System - 6-14

Oil Systems - 6-15

Engine Cooling Systems - 6-16

Exhaust Systems - 6-17

Starting System - 6-18

Combustion - 6-18

Full Authority Digital Engine Control (FADEC) - 6-19

Airframe Systems - 6-25

Fuel Systems - 6-25
  Gravity-Feed System - 6-25
  Fuel-Pump System - 6-25
  Fuel Primer - 6-25
  Fuel Tanks - 6-25
  Fuel Gauges - 6-26
  Fuel Selectors - 6-26
  Fuel Strainers, Sumps, and Drains - 6-26
  Fuel Grades - 6-26
  Fuel Contamination - 6-27

Refueling Procedures - 6-27

Electrical System - 6-28

Hydraulic Systems - 6-30

Landing Gear - 6-31
  Tricycle Landing Gear Airplanes - 6-31
  Tailwheel Landing Gear Airplanes - 6-31
  Fixed and Retractable Landing Gear - 6-31

Brakes - 6-32
Anti-Ice and Deice Systems - 6-37
   Airfoil Anti-Ice and Deice - 6-37
   Windscreen Anti-Ice - 6-38
   Propeller Anti-Ice - 6-38
   Other Anti-Ice and Deice Systems - 6-39

Part II

In addition to Chapter 6 of the Pilot’s Handbook of Aeronautical Knowledge, you should also show your student Section 7 of the Pilot’s Operating Handbook (POH) for your training aircraft, because it pertains to the specific systems of your make and model training aircraft.
**L1004 (Dual)**
*(1.2 Hours Estimated)*

**Ground**

In addition to the *new* maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information (METAR)
- Discuss spins. Specifically, how they happen, how to prevent them, and how to recover
- Discuss the airspace surrounding your airport and general practice areas
- Emergency Procedures: Engine roughness or overheat
- Emergency Procedures: Smoke/fire/engine compartment fire
- Discuss your training aircraft’s systems: Landing gear and Fuel, Oil, and Hydraulic Systems

**Flight**

**Pre-flight:**
- Normal Takeoff

**Practice Area:**
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument)
- Stalls (Power Off and Power On)
- Slow Flight
- Simulated Engine Fire and Emergency Approach and Landing
- Rectangular course

**Traffic Pattern:**
- Normal approaches and landings

**Post-flight:**
- Engine Shutdown
- Securing the aircraft
Ground Lesson 5: Stalls and Spins
(1.0 Hours Estimated)

Chapter 4 of the Airplane Flying Handbook

Slow Flight - 4-1
  Flight at Less than Cruise Airspeeds - 4-1
  Flight at Minimum Controllable Airspeed - 4-1

Stalls - 4-3
  Recognition of Stalls - 4-3
  Fundamentals of Stall Recovery - 4-4
  Use of Ailerons/Rudder in Stall Recovery - 4-5
  Stall Characteristics - 4-6
  Approaches to Stalls (Imminent Stalls)—Power-On or Power-Off - 4-6
  Full Stalls Power-Off - 4-7
  Full Stalls Power-On - 4-8
  Secondary Stall - 4-9
  Accelerated Stalls - 4-9
  Cross-Control Stall - 4-10
  Elevator Trim Stall - 4-11

Spins - 4-12
  Spin Procedures - 4-13
  Entry Phase - 4-13
  Incipient Phase - 4-13
  Developed Phase - 4-14
  Recovery Phase - 4-14

Intentional Spins - 4-15
  Weight and Balance Requirements - 4-16
L1005 (Dual)  
(1.2 Hours Estimated)  

Ground  

In addition to the *new* maneuvers covered in flight, the following should also be discussed:  

- The student should present the weather information (METAR)  
- Emergency Procedures: Electrical Malfunctions  
- Discuss your training aircraft’s systems: Pitot-static and vacuum system, as well as the associated instruments  

Flight  

Pre-flight:  
- Normal Takeoff  

Practice Area:  
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)  
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument)  
- Stalls (Power Off and Power On)  
- Slow Flight  
- Emergency Descent *(Demo/Do)*  
- Simulated Engine Failure and Emergency Approach and Landing  
- Turns around a point  

Traffic Pattern:  
- Normal approaches and landings  
- No flap approaches and landings *(Demo/Do)*  
- Forward slip to a landing  
- Go around  

Post-flight:  
- Engine Shutdown  
- Securing the aircraft
Ground Lesson 6: Rules and Regulations
(2.0 Hours Estimated)

Part 91 – General Operating and Flight Rules
  Subpart A – General
    91.3 – Responsibility and authority of the pilot-in-command
    91.7 – Civil aircraft airworthiness
    91.13 – Careless or reckless operation
    91.15 – Dropping objects
    91.17 – Alcohol or drugs
  Subpart B – Flight Rules
    91.103 – Preflight action
    91.107 – Use of safety belts, shoulder harnesses, and child restraint systems
    91.111 – Operating near other aircraft
    91.113 – Right-of-way rules: Except water operations
    91.119 – Minimum safe altitudes: General
    91.123 – Compliance with ATC clearances and instructions
    91.125 – ATC light signals
    91.151 – Fuel requirements for flight in VFR conditions
    91.155 – Basic VFR weather minimums
    91.159 – VFR cruising altitude or flight level
  Subpart C – Equipment, Instrument, and Certificate Requirements
    91.203 – Civil aircraft: Certifications required
    91.205 – Powered civil aircraft with standard category U.S. airworthiness certificates: Instrument and equipment requirements
    91.209 – Aircraft lights
    91.211 – Supplemental oxygen
    91.213 – Inoperative instruments and equipment
    91.215 – ATC transponder and altitude reporting equipment use
  Subpart D – Special Flight Operations
    91.303 – Aerobatic flight
  Subpart E – Maintenance, Preventative Maintenance, and Alterations
    91.409 – Inspections
    91.411 – Altimeter system and altitude reporting equipment tests and inspections
    91.413 – ATC transponder tests and inspections

Part 61 – Certification: Pilots, Flight Instructors, and Ground Instructors
  Subpart A – General
    61.57 – Recent flight experience: Pilot in command
  Subpart C – Student Pilots
    61.83 – Eligibility Requirements for a student pilot certificate
    61.87 – Solo Requirements for student pilots
    61.89 – General Limitations of the student pilot certificate
    61.93 – Solo Cross-Country requirements for student pilots
    61.95 – Requirements for Student Pilots to operate in Class B airspace
  Subpart E – Private Pilots
    61.103 – Eligibility requirements to get private pilot certificate
    61.105 – Aeronautical Knowledge requirements to get private pilot certificate
    61.107 – Flight Proficiency requirements to get private pilot certificate
    61.109 – Aeronautical Experience requirements to get private pilot certificate
    61.113 – Private Pilot Privileges and Limitations as Pilot-In-Command
**L1006 (Dual)**
*(1.2 Hours Estimated)*

**Ground**

In addition to the *new* maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information (METAR)
- Certificates and Documents
- Airworthiness Requirements
- Emergency Procedures:
  - Inoperative Trim
  - Structural Icing
  - The location of emergency equipment and survival gear
- Discuss your training aircraft’s systems: De-icing and anti-icing equipment (pitot heat)

**Flight**

**Pre-flight:**
- Normal Takeoff

**Practice Area:**
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument)
- Stalls (Power Off and Power On)
- Slow Flight
- Emergency Descent
- Simulated Engine Failure and Emergency Approach and Landing
- S-Turns along a road

**Traffic Pattern:**
- Normal approaches and landings
- No flap approaches and landings

**Post-flight:**
- Engine Shutdown
- Securing the aircraft
Ground Lesson 7: Flight Operations 1
(1.5 Hours Estimated)

Chapter 13 of the Pilot’s Handbook of Aeronautical Knowledge: Airport Operations

Types of Airports - 13-1
  Towered Airport - 13-2
  Nontowered Airport - 13-2

Sources for Airport Data - 13-2
  Aeronautical Charts - 13-3
  Airport/Facility Directory (A/FD) - 13-3
  Notices to Airmen (NOTAMs) - 13-3

Airport Markings and Signs - 13-4
  Runway Markings - 13-4
  Taxiway Markings - 13-5
  Other Markings - 13-5
  Airport Signs - 13-6

Airport Lighting - 13-6
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  Runway Lighting - 13-8
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  Control of Airport Lighting - 13-9
  Taxiway Lights - 13-9
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Wind Direction Indicators - 13-10

Traffic Patterns - 13-10
  Key to Traffic Pattern Operations—Single Runway - 13-11
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Air Traffic Control (ATC) Services - 13-13
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  ATC Radar Beacon System (ATCRBS) - 13-14
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  Radar Traffic Advisories - 13-14

Wake Turbulence - 13-15
  Vortex Generation - 13-16
  Vortex Strength - 13-16
  Vortex Behavior - 13-16
  Vortex Avoidance Procedures - 13-17

Collision Avoidance - 13-17
  Clearing Procedures - 13-18
  Runway Incursion Avoidance - 13-18
L1007 (Dual) 
(1.2 Hours Estimated)

Ground

In addition to the new maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information (METAR)
- Emergency Procedures:
  - Inadvertent door opening in flight
  - Loss of oil pressure
  - Fuel starvation
- Sample the student’s knowledge on a variety of the aircraft’s systems

Flight

Pre-flight:
- Normal Takeoff

Practice Area:
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)
- Basic Instrument Maneuvers (fly 0.3 hours simulated instrument)
- Stalls (Power Off and Power On)
- Slow Flight
- Simulated Engine Failure and Emergency Approach and Landing
- S-Turns along a road

Traffic Pattern:
- Normal approaches and landings
- No flap approaches and landings
- Forward slip to a landing
- Go around

Post-flight:
- Engine Shutdown
- Securing the aircraft
Ground Lesson 8: Flight Operations 2
(1.5 Hours Estimated)

Chapter 14 of the Pilot’s Handbook of Aeronautical Knowledge: Airspace
(Applicable sections)

Controlled Airspace - 14-2
  Class A Airspace - 14-2
  Class B Airspace - 14-2
  Class C Airspace - 14-2
  Class D Airspace - 14-2
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Uncontrolled Airspace - 14-3
  Class G Airspace - 14-3

Special Use Airspace - 14-3
  Prohibited Areas - 14-3
  Restricted Areas - 14-3
  Warning Areas - 14-4
  Military Operation Areas (MOAs) - 14-4
  Alert Areas - 14-4
  Controlled Firing Areas (CFAs) - 14-4

Other Airspace Areas - 14-4
  Local Airport Advisory (LAA) - 14-4
  Military Training Routes (MTRs) - 14-6
  Temporary Flight Restrictions (TFR) - 14-6
  Published VFR Routes - 14-6
  Terminal Radar Service Areas (TRSAs) - 14-6
  National Security Areas (NSAs) - 14-6

Air Traffic Control and the National Airspace System - 14-7
  Coordinating the Use of Airspace - 14-7
  Operating in the Various Types of Airspace - 14-7
    Basic VFR Weather Minimums - 14-7
    Operating Rules and Pilot/Equipment Requirements - 14-7
Pre-Solo Written Test

At this stage of training (before advancing to the stage check) the student should be tested with a written test as specified by FAR Part 61.87(b):

(b) Aeronautical knowledge. A student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that meets the requirements of this paragraph:

(1) The test must address the student pilot's knowledge of—

(i) Applicable sections of parts 61 and 91 of this chapter;

(ii) Airspace rules and procedures for the airport where the solo flight will be performed; and

(iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.

(2) The student's authorized instructor must—

(i) Administer the test; and

(ii) At the conclusion of the test, review all incorrect answers with the student before authorizing that student to conduct a solo flight.
L1190 (Dual)  
Stage Check  
(1.2 Hours Estimated)  

Ground  

The student should demonstrate the ability to prepare for the flight unassisted (just like they were solo). Furthermore, the check instructor should evaluate the following items:  

- The student should present the weather information (METAR)  
- A sampling of the student’s knowledge in a variety of emergency procedures and aircraft systems  

Flight  

The student should demonstrate the ability to execute the following maneuvers to PTS standards without assistance from the instructor. If the student is unable to do so remedial training, followed by another phase check, should be administered before allowing the student to fly solo.  

Pre-flight:  
- Normal Takeoff  

Practice Area:  
- Basic Aircraft Control (straight-and-level, climbs, descents, & turns)  
- Stalls (Power Off and Power On)  
- Slow Flight  
- Simulated Engine Failure and Emergency Approach and Landing  
- A ground reference maneuver of the check instructor’s choice (Rectangular Pattern, S-Turns, or Turns Around a Point)  

Traffic Pattern:  
- Normal approaches and landings  

Post-flight:  
- Engine Shutdown  
- Securing the aircraft
Logbook Endorsements Required Before L1201

If the student successfully passed their stage check, and their pre-solo written test, they are ready for solo. As such, the following logbook endorsements should be made before the student progresses to the next lesson (L1201 [their first solo flight]):

**Presolo aeronautical knowledge: section 61.87(b).**

I certify that *(First name, MI, Last name)* has satisfactorily completed the presolo knowledge exam of section 61.87(b) for the *(make and model aircraft).*

/s/[date] J. J. Jones 987654321CFI Exp. 12-31-05

**Presolo flight training: section 61.87(c).**

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

/s/[date] J. J. Jones 987654321CFI Exp. 12-31-05
L1201 (First Solo)  
(1.2 Hours Estimated)

**Flight #1 (Dual)**  
(0.6 Hours Estimated)

**Pre-flight:**  
- Normal Takeoff

**Traffic Pattern:**  
- Normal approaches and landings

**Post-flight:**  
- Instructor exits the aircraft and lets the student go solo

**Flight #2 (Solo)**  
(0.6 Hours Estimated)

**Traffic Pattern:**  
- Three normal approaches and landings

**Post-flight:**  
- Engine Shutdown  
- Securing the aircraft
Stage 2
Post-Solo
Stage 2: Post-Solo

Objective: The objective of Stage 2 “Post-Solo” is to further refine the maneuvers taught in Stage 1, as well as introduce the student to night operations, soft and short field takeoffs and landings, steep turns, and navigation systems/facilities/radar services under simulated instrument conditions. Furthermore, Stage 2 aims to expand the student’s aeronautical knowledge through additional ground training.

Completion Standards: The new maneuvers introduced in this stage should be performed to PTS by the end of the stage.

Flight and Ground Lessons: The training in Stage 2 consists of 7 flight lessons (8.4 hours) and 6 ground lessons (12.0 hours).

Furthermore, flight lessons L2002, L2003, L2004, L2005, and L2006 may be accomplished either dual or solo. However, of those five lessons (L2002-L2006), three must be completed solo and one must be flown as a dual night sortie. During the night sortie, attempt to make as many night landings as training will allow in order to meet the night landing requirements specified by FAR Part 61.109.

The specific lessons are listed below:

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<th>Flight Lessons</th>
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<td>9. Radio Communication</td>
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Ground Lesson 9: Radio Communication
(1.0 Hours Estimated)

Aeronautical Information Manual (AIM) - Chapter 4

Section 1. Services Available to Pilots
4-1-1 – Air Route Traffic Control Centers
4-1-2 – Control Towers
4-1-3 – Flight Service Stations
4-1-8 – Approach Control Service for VFR Arriving Aircraft
4-1-9 – Traffic Advisory Practices at Airports Without Operating Control Towers
4-1-13 – Automatic Terminal Information Service (ATIS)
4-1-15 – Radar Traffic Information Service
4-1-16 – Safety Alert
4-1-17 – Radar Assistance to VFR Aircraft
4-1-18 – Terminal Radar Services for VFR Aircraft
4-1-19 – Tower En Route Control (TEC)
4-1-20 – Transponder Operation
4-1-21 – Hazardous Area Reporting Service

Section 2: Radio Communications Phraseology and Techniques
4-2-1 – General
4-2-2 – Radio Technique
4-2-3 – Contact Procedures
4-2-4 – Aircraft Call Signs
4-2-6 – Ground Station Call Signs
4-2-7 – Phonetic Alphabet
4-2-8 – Figures
4-2-9 – Altitudes and Flight Levels
4-2-10 – Directions
4-2-11 – Speeds
4-2-12 – Time
4-2-13 – Communications with Tower when Aircraft Transmitter or Receiver or Both are Inoperative
4-2-14 – Communications for VFR Flights
L2001 (Dual)  
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Short-field takeoff (Demo)

Practice Area:
- Basic Aircraft Control
- Basic Instrument Maneuvers (0.1 hours of simulated instrument time)
- Use of onboard navigation systems (VOR, GPS, etc.) (0.2 hours of simulated instrument time) (Demo/Do)
- Steep Turns (Demo/Do)
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- S-Turns along a road

Traffic Pattern:
- Short-field landing (Demo) to a full stop and taxi back
- Soft-field takeoff (Demo)
- Soft-field landing (Demo)
- Short and Soft landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Logbook Endorsements Which May Be Necessary In This Stage

Presolo flight training at night: section 61.87(c) and (o).

I certify that (First name, MI, Last name) has received the required presolo training in a (make and model aircraft). I have determined he/she has demonstrated the proficiency of section 61.87(o) and is proficient to make solo flights at night in a (make and model aircraft).

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo flight (each additional 90-day period): section 61.87(p).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo takeoffs and landings at another airport within 25 nm: section 61.93(b)(1).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo flight in Class B airspace: section 61.95(a).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo flight to, from, or at an airport located in Class B airspace: section 61.95(a) and section 91.131(b)(1).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05
Ground Lesson 10: Aircraft Performance
(2.0 Hours Estimated)

Part I

Chapter 10 of the Pilot's Handbook of Aeronautical Knowledge: Aircraft Performance (Applicable sections)

Importance of Performance Data - 10-1
Structure of the Atmosphere - 10-2
Atmospheric Pressure - 10-2
Pressure Altitude - 10-3
Density Altitude - 10-3
  Effects of Pressure on Density - 10-4
  Effects of Temperature on Density - 10-5
  Effects of Humidity (Moisture) on Density - 10-5
Performance - 10-5
  Straight-and-Level Flight - 10-5
  Climb Performance - 10-6
  Range Performance - 10-8
  Region of Reversed Command - 10-10
Takeoff and Landing Performance - 10-11
  Runway Surface and Gradient - 10-11
  Water on the Runway and Dynamic Hydroplaning - 10-13
  Takeoff Performance - 10-13
  Landing Performance - 10-15
Performance Speeds - 10-17
Performance Charts - 10-17
  Interpolation - 10-18
  Density Altitude Charts - 10-18
  Takeoff Charts - 10-19
  Climb and Cruise Charts - 10-20
  Crosswind and Headwind Component Chart - 10-24
  Landing Charts - 10-25
  Stall Speed Performance Charts - 10-26

Part II

In addition to the Pilot's Handbook of Aeronautical Knowledge you should also reference Section 5 of the Pilot's Operating Handbook (POH) for your training aircraft as it pertains to the specific performance characteristics of your make and model training airplane. Show the student how to use the performance tables and charts.
L2002 (Solo)
(1.2 Hours Estimated)

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Short-field takeoff

**Practice Area:**
- Basic Aircraft Control
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- Turns around a point

**Traffic Pattern:**
- Short-field landing to a full stop and taxi back
- Soft-field takeoff
- Soft-field landing
- Normal approaches and landings
- No flap approaches and landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
Ground Lesson 11: Weight and Balance
(2.0 Hours Estimated)

Part I

Chapter 9 of the Pilot’s Handbook of Aeronautical Knowledge: Weight and Balance
Weight Control - 9-1
  Effects of Weight - 9-1
  Weight Changes - 9-2
Balance, Stability, and Center of Gravity - 9-2
  Effects of Adverse Balance - 9-3
    Stability - 9-3
    Control - 9-3
  Management of Weight and Balance Control - 9-4
Terms and Definitions - 9-4
Principles of Weight and Balance Computations - 9-6
Weight and Balance Restrictions - 9-7
Determining Loaded Weight and CG - 9-7
  Computational Method - 9-7
  Graph Method - 9-7
  Table Method - 9-9
  Computations With a Negative Arm - 9-10
  Computations With Zero Fuel Weight - 9-10
  Shifting, Adding, and Removing Weight - 9-10
    Weight Shifting - 9-10
    Weight Addition or Removal - 9-11

Part II – Weight and Balance Lab Exercise

In addition to the material covered in the Pilot’s Handbook of Aeronautical Knowledge, you should also reference Section 6 of the Pilot’s Operating Handbook (POH) for your training aircraft as it pertains to the specific weight and balance data of your make and model training aircraft. Run through a sample weight and balance calculation with your student.
L2003 (Solo)
(1.2 Hours Estimated)

Ground
In addition to the maneuvers covered in flight, the following should also be discussed:
- The student should present the weather information
- A sampling of the student's general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Soft-field takeoff

Practice Area:
- Basic Aircraft Control
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- S-turns along a road

Traffic Pattern:
- Soft-field landing to a full stop and taxi back
- Short-field takeoff
- Short-field landing
- Normal approaches and landings
- No flap approaches and landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Ground Lesson 12: Weather 1
(2.0 Hours Estimated)

Chapter 11 of the Pilot’s Handbook of Aeronautical Knowledge: Weather Theory

Atmosphere - 11-2
  Composition of the Atmosphere - 11-2
  Atmospheric Circulation - 11-3
  Atmospheric Pressure - 11-3
Coriolis Force - 11-3
Measurement of Atmosphere Pressure - 11-4
Altitude and Atmospheric Pressure - 11-5
Altitude and Flight - 11-6
Altitude and the Human Body - 11-6
Wind and Currents - 11-7
  Wind Patterns - 11-7
  Convective Currents - 11-7
  Effect of Obstructions on Wind - 11-8
  Low-Level Wind Shear - 11-11
  Wind and Pressure Representation on Surface Weather Maps - 11-11
Atmospheric Stability - 11-12
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  Moisture and Temperature - 11-13
  Relative Humidity - 11-13
  Temperature/Dew Point Relationship - 11-13
  Methods by Which Air Reaches the Saturation Point - 11-14
  Dew and Frost - 11-15
  Fog - 11-15
  Clouds - 11-15
  Ceiling - 11-17
  Visibility - 11-18
  Precipitation - 11-18
Air Masses - 11-18
Fronts - 11-18
  Warm Front - 11-19
  Cold Front - 11-20
  Comparison of Cold and Warm Fronts - 11-22
  Wind Shifts - 11-22
  Stationary Front - 11-22
  Occluded Front - 11-22
  Thunderstorms - 11-22
    Hazards - 11-23
    Squall Line - 11-23
    Tornadoes - 11-23
    Turbulence - 11-24
    Icing - 11-24
    Hail - 11-24
    Ceiling and Visibility - 11-25
    Effect on Altimeters - 11-25
    Lightning - 11-25
    Engine Water Ingestion - 11-25
L2004 (Night Dual)

*Night Flight*

*(1.2 Hours Estimated)*

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- Night flying operations (pre-flight prep, night vision adjustments, visual illusions, etc.)
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Normal takeoff

**Practice Area:**
- Basic Aircraft Control
- Basic Instrument Maneuvers (0.1 hours of simulated instrument time)
- Use of onboard navigation systems (VOR, GPS, etc.) (0.2 hours of simulated instrument time)
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight

**Traffic Pattern:**
- Normal approaches and landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
Ground Lesson 13: Weather 2
(2.0 Hours Estimated)

Chapter 12 of the Pilot's Handbook of Aeronautical Knowledge: Aviation Weather Services

Observations - 12-2
- Surface Aviation Weather Observations - 12-2
- Upper Air Observations - 12-2
- Radar Observations - 12-2
- Satellite - 12-3
  - Satellite Weather - 12-3
  - Satellite Weather Products - 12-4

Service Outlets - 12-4
- Automated Flight Service Station (AFSS) - 12-4
- Transcribed Information Briefing Service (TIBS) - 12-4
- Direct User Access Terminal Service (DUATS) - 12-4
- En Route Flight Advisory Service (EFAS) - 12-5
- Hazardous Inflight Weather Advisory (HIWAS) - 12-5
- Transcribed Weather Broadcast (TWEB) - 12-5

Weather Briefings - 12-5
- Standard Briefing - 12-5
- Abbreviated Briefing - 12-6
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Aviation Weather Reports - 12-6
- Aviation Routine Weather Report (METAR) - 12-6
- Pilot Weather Reports (PIREPs) - 12-8
- Radar Weather Reports (RAREP) - 12-9

Aviation Forecasts - 12-10
- Terminal Aerodrome Forecasts (TAF) - 12-10
- Area Forecasts (FA) - 12-11
- Inflight Weather Advisories - 12-12
  - AIRMET - 12-12
  - SIGMET - 12-13
  - Convective Significant Meteorological Information (WST) - 12-14

Winds and Temperature Aloft Forecast (FD) - 12-14

Weather Charts - 12-15
- Surface Analysis Chart - 12-15
- Weather Depiction Chart - 12-16
- Radar Summary Chart - 12-17
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- Weather Avoidance Assistance - 12-21

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- Weather Products Age and Expiration - 12-22

The Next Generation Weather Radar System (NEXRAD) - 12-22
- Level II Data Products - 12-22
- Level III Data Products - 12-22
- NEXRAD Abnormalities - 12-23
- NEXRAD Limitations - 12-23
- AIRMET/SIGMET Display - 12-24

Graphical METARs - 12-24
L2005 (Solo)
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Short-field takeoff

Practice Area:
- Basic Aircraft Control
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- Rectangular Pattern

Traffic Pattern:
- Short-field landing to a full stop and taxi back
- Soft-field takeoff
- Soft-field landing
- Normal approaches and landings
- No flap approaches and landings

Post-flight:
- Engine Shutdown
- Secure the aircraft

Notes
Ground Lesson 14: Navigation
(3.0 Hours Estimated)

Part I

Chapter 15 of the Pilot’s Handbook of Aeronautical Knowledge

Aeronautical Charts - 15-2
  Sectional Charts - 15-2
  VFR Terminal Area Charts - 15-2
  World Aeronautical Charts - 15-2
Latitude and Longitude (Meridians and Parallels) - 15-3
  Time Zones - 15-3
  Measurement of Direction - 15-5
  Variation - 15-6
  Deviation - 15-8
Effect of Wind - 15-9
Basic Calculations - 15-11
  Converting Minutes to Equivalent Hours - 15-11
  Time T = D/GS - 15-11
  Distance D = GS X T - 15-11
  GS GS = D/T - 15-11
  Converting Knots to Miles Per Hour - 15-11
  Fuel Consumption - 15-12
  Flight Computers - 15-12
  Plotter - 15-12
Pilotage - 15-12
Dead Reckoning - 15-12
  The Wind Triangle or Vector Analysis - 15-12
Flight Planning - 15-16
  Assembling Necessary Material - 15-16
  Weather Check - 15-17
  Use of Airport/Facility Directory (A/FD) - 15-17
  Airplane Flight Manual or Pilot’s Operating Handbook (AFM/POH) - 15-17
Charting the Course - 15-17
  Steps in Charting the Course - 15-19
Filing a VFR Flight Plan - 15-20
Radio Navigation - 15-21
  Very High Frequency (VHF) Omnidirectional Range (VOR) - 15-22
    Using the VOR - 15-23
    Course Deviation Indicator (CDI) - 15-23
    Horizontal Situation Indicator - 15-24
    Radio Magnetic Indicator (RMI) - 15-24
  Tracking With VOR - 15-25
  Tips on Using the VOR - 15-26
  Time and Distance Check From a Station - 15-26
  Course Intercept - 15-27
    Rate of Intercept - 15-27
    Angle of Intercept - 15-27
  Distance Measuring Equipment (DME) - 15-27
  VOR/DME RNAV - 15-27
  Automatic Direction Finder (ADF) - 15-29
Part II – Flight Planning Lab Exercise

In part II of this lesson you should run through a quick flight planning exercise wherein you and your flight student plan a one way flight to an airport at least 50 miles away. During this exercise you should reference Section 5 of the Pilot’s Operating Handbook (POH) for your training airplane, and show your student how to use the performance charts contained within that section. Furthermore, if your student has any questions regarding chart symbology you can reference the FAA Chart User’s Guide: Section 1 – Visual Flight Rules (VFR) Charts.
L2006 (Dual)  
(1.2 Hours Estimated)

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Soft-field takeoff

**Practice Area:**
- Basic Aircraft Control
- Basic Instrument Maneuvers (0.1 hours of simulated instrument time)
- Use of onboard navigation systems (VOR, GPS, etc.) (0.2 hours of simulated instrument time)
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- Turns around a point

**Traffic Pattern:**
- Soft-field landing to a full stop and taxi back
- Short-field takeoff
- Short-field landing
- Short and Soft landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
**L2190 (Dual)**

**Stage Check**

(1.2 Hours Estimated)

**Ground**

The student should knowledge up to PTS standards in the following areas:

- The student should present the weather information
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

The student should demonstrate the following maneuvers up to PTS standards. If not, remedial training, followed by another phase check, should be administered before allowing the student to progress to the next stage of training.

**Pre-flight:**
- Short-field takeoff

**Practice Area:**
- Basic Aircraft Control
- Basic Instrument Maneuvers
- Use of onboard navigation systems
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure
- Simulated Emergency Approach and Landing
- A ground reference maneuver of the check pilot’s choice

**Traffic Pattern:**
- Soft-field landing to a full stop and taxi back
- Soft-field takeoff
- Normal and no-flap takeoffs and landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
Stage 3

Pre-Solo Cross-Country
Stage 3: Pre-Solo Cross-Country

**Objective:** The objective of Stage 3 “Pre-Solo Cross-Country” is to prepare the student for his or her first solo cross-country in a single engine airplane. Furthermore, Stage 3 aims to expand the student’s aeronautical knowledge through additional ground training.

**Completion Standards:** The training and proficiency requirements for a student to fly solo-cross country are specified in FAR Part 61.93.

**Flight and Ground Lessons:** The training in Stage 3 consists of 10 flight lessons (12.0 hours), 3 ground lessons (6.0 hours), and the student should take and pass the FAA Written Test before progressing on to lessons N1190 and N1191 (the stage check).

Concerning the flight lessons, out of lessons N1003, N1004, N1005, and N1006, two must be flown as a dual night cross-country. Furthermore, during those two sorties, attempt to make as many night landings as training will allow in order to meet the night landing requirements specified by FAR Part 61.109. The specific lessons are listed below:

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<tr>
<th>Flight Lessons</th>
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<tr>
<td>N1004 (Dual Cross-Country) Return Leg</td>
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</tr>
<tr>
<td>N1005 (Dual Cross-Country) Out Leg</td>
<td></td>
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<tr>
<td>N1006 (Dual Cross-Country) Return Leg</td>
<td>The student should take and pass the FAA</td>
</tr>
<tr>
<td>N1190 (Dual XC Out) – Stage Check</td>
<td>Written Test before attempting the stage check</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
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</tr>
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<td>N1202 (Solo Cross-Country) Return Leg</td>
<td></td>
</tr>
</tbody>
</table>
### Ground Lesson 15: Aeronautical Decision Making

*(1.5 Hours Estimated)*

**Chapter 17 of the Pilot’s Handbook of Aeronautical Knowledge**

Crew Resource Management (CRM) and Single-Pilot Resource Management – 17-4

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  - Estimate (the Need To React) – 17-19
  - Choose (a Course of Action) – 17-19
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<tr>
<td>Risk Management</td>
<td>17-32</td>
</tr>
</tbody>
</table>
In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The instructor should work with the student to prepare for and plan the cross-country flight
- Discuss pilotage and dead-reckoning
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Soft-field takeoff

**Enroute:**
- Pilotage and dead reckoning (Demo/Do)

**Traffic Pattern at Arrival Airfield:**
- Soft-field landings
- Short-field landings
- No-flap landings
- Normal landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
N1002 (Dual)
Cross-Country Return Leg
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- Discuss diversion procedures
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Practice Diversion (can just be the beginning of the diversion, you don’t have to fly the full diversion) (Demo)

Traffic Pattern at Home Field:
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Ground Lesson 16: National Transportation Safety Board (NTSB) Reporting
(0.5 Hours Estimated)

49 CFR (Transportation) Part 830
Subpart A: General
  830.2 – Definitions (defines what an accident is)
Subpart B: Initial Notification of Aircraft Accidents, Incidents, and Overdue Aircraft
  830.5 – Immediate notification
  830.6 – Information to be given in notification
Subpart C: Preservation of Aircraft Wreckage, Mail, Cargo, and Records
  830.1 – Preservation of aircraft wreckage, mail, cargo and records
Subpart D: Reporting of Aircraft Accidents, Incidents, and Overdue Aircraft
  830.15 – Reports and statements to be filed
N1003 (Dual)
Cross-Country Departure Leg
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- Discuss the use of onboard navigation systems (GPS, VOR, etc.) and radar services provided by ATC (such as flight following, flight watch, flight service stations (FSSs) etc.)
- A sampling of the student's general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Soft-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services (Demo/Do)
- Practice Diversion (can just be the beginning of the diversion, you don't have to fly the full diversion)

Traffic Pattern at Arrival Airfield:
- Soft-field landings
- Short-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- Discuss lost procedures
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services
- Lost Procedures (Demo)

Traffic Pattern at Home Field:
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Ground Lesson 17: Aeromedical Factors
(1.0 Hours Estimated)

Chapter 16 of the Pilot’s Handbook of Aeronautical Knowledge

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Health and Physiological Factors Affecting Pilot Performance - 16-2

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N1005 (Night Dual)
Night Cross-Country Departure Leg
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- Discuss night navigation vs. day navigation
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Normal takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services
- Lost Procedures

Traffic Pattern at Arrival Field:
- Normal takeoffs and landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
N1006 (Night Dual)  
**Night Cross-Country Return Leg**  
*(1.2 Hours Estimated)*

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Normal takeoff

**Enroute:**
- Pilotage and dead reckoning
- Navigation systems and radar services

**Traffic Pattern at Home Field:**
- Normal takeoffs and landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
FAA Written Test

Before progressing to the stage check (the next lesson) the student should take and pass the FAA Written Test if they haven’t already done so.
N1190 (Dual)
Stage Check Part - 1
Cross-Country Departure Leg
(1.2 Hours Estimated)

Ground

The student should demonstrate the ability to gather weather information, successfully plan for a cross-country flight, and exhibit adequate knowledge of aircraft systems and emergency procedures. If the student is unable to perform any of these skills to PTS standards then remedial training, followed by another stage check, should be administered before the student is allowed to progress to the solo cross-country flights.

Flight

The student should demonstrate the following skills to PTS standards without assistance from the instructor. If the student is unable to meet the PTS standards then remedial training, followed by another stage check, should be administered before the student is allowed to progress to the solo cross-country flights.

Pre-flight:
- Soft-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services
- Practice Diversion (can just be the beginning of the diversion, you don’t have to fly the full diversion)

Traffic Pattern at Arrival Airfield:
- Soft-field landing
- Normal landing

Post-flight:
- Engine Shutdown
- Secure the aircraft
Ground

The student should demonstrate the ability to gather weather information, successfully plan for a cross-country flight, and exhibit adequate knowledge of aircraft systems and emergency procedures. If the student is unable to perform any of these skills to PTS standards then remedial training, followed by another stage check, should be administered before the student is allowed to progress to the solo cross-country flights.

Flight

The student should demonstrate the following skills to PTS standards without assistance from the instructor. If the student is unable to meet the PTS standards then remedial training, followed by another stage check, should be administered before the student is allowed to progress to the solo cross-country flights.

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services
- Lost procedures

Traffic Pattern at Home Airfield:
- Short-field landing
- No-flap landing
- Normal landing

Post-flight:
- Engine Shutdown
- Secure the aircraft
Logbook Endorsements for Solo Cross-Country Flight

If the student has successfully passed the stage check, and the FAA written test, then they are ready for solo. The following are five logbook endorsements which may be needed for solo cross-country flight:

Initial solo cross-country flight: section 61.93(c)(1).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo cross-country flight: section 61.93(c)(2).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Repeated solo cross-country flights not more than 50 nm from the point of departure: section 61.93(b)(2).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo flight in Class B airspace: section 61.95(a).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

Solo flight to, from, or at an airport located in Class B airspace: section 61.95(a) and section 91.131(b)(1).

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

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05
N1201 (First Solo XC)
Solo Cross-Country Departure Leg
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The instructor should work with the student to prepare for and plan the cross-country
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Soft-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services

Traffic Pattern at Arrival Airfield:
- Soft-field landings
- Short-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
N1202 (Solo XC)
Solo Cross-Country Return Leg
(1.2 Hours Estimated)

Ground

The student will be at an out-field so they will need to execute the ground portion of this sortie unassisted. They will need to:

- Gather the weather information
- Plan the return leg of the cross country

Flight

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services

Traffic Pattern at Home Field:
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
Stage 4

Post-Solo Cross-Country
Stage 4: Post-Solo Cross-Country

Objective: The objective of Stage 4 “Post-Solo Cross-Country” is to prepare the student for his or her FAA Practical Test in a single engine airplane. This preparation includes completing the remaining aeronautical experience requirements stipulated by FAR Part 61.109 (to include a three leg solo cross-country flight and 3 hours of flight training with an authorized instructor within 2 calendar months of the practical test).

Completion Standards: The completion standards for this stage of training are specified by the training and proficiency requirements for a private pilot single-engine land category and class rating listed in FAR Part 61 Subpart E “Private Pilots”

Flight and Ground Lessons: The training in Stage 4 consists of 7 flight lessons (8.4 hours) and no ground lessons (0 hours).

- Lessons T1001, T1002, T1003, T1004, and T1005 may be flown as either dual or solo lessons. Furthermore, they may be either local or cross country flights. However, of those five lessons (T1001 through T1005), three must be flown as a three leg solo cross country.
- Additionally, lessons T1006 and T1190 are intended to be flown locally, but may be flown as a cross-country if the instructor feels it will improve the student’s training.

The specific lessons are listed below:

<table>
<thead>
<tr>
<th>Flight Lessons</th>
<th>Ground Lessons</th>
</tr>
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<td>T1001 (Dual or Solo)</td>
<td></td>
</tr>
<tr>
<td>T1002 (Dual or Solo)</td>
<td>-None-</td>
</tr>
<tr>
<td>T1003 (Dual or Solo)</td>
<td></td>
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<tr>
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<td></td>
</tr>
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<td>T1190 (Dual)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stage Check</td>
</tr>
</tbody>
</table>
**T1001 (Solo XC)**

**First Leg of Three Leg Solo Cross-Country**

*(1.2 Hours Estimated)*

---

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

---

**Flight**

**Pre-flight:**
- Soft-field takeoff

**Enroute:**
- Pilotage and dead reckoning
- Navigation systems and radar services

**Traffic Pattern at Arrival Airfield:**
- Soft-field landings
- Short-field landings
- No-flap landings
- Normal landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
T1002 (Solo XC)
Second Leg of Three Leg Solo Cross-Country
(1.2 Hours Estimated)

Ground

The student will be at an out-field so they will need to execute the ground portion of this sortie unassisted. They will need to:

- Gather the weather information
- Plan the second leg of the three leg cross country

Flight

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services

Traffic Pattern at Arrival Field:
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
**T1003 (Solo XC)**

*Third Leg of Three Leg Solo Cross-Country*

*(1.2 Hours Estimated)*

**Ground**

The student will be at an out-field so they will need to execute the ground portion of this sortie unassisted. They will need to:

- Gather the weather information
- Plan the return leg of the three leg cross country

**Flight**

**Pre-flight:**
- Short-field takeoff

**Enroute:**
- Pilotage and dead reckoning
- Navigation systems and radar services

**Traffic Pattern at Home Field:**
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

**Post-flight:**
- Engine Shutdown
- Secure the aircraft
T1004 (Solo XC)
Solo Cross-Country Departure Leg
(1.2 Hours Estimated)

Ground

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should present the cross-country flight plan
- A sampling of the student's general knowledge (aircraft systems, emergency procedures, etc.)

Flight

Pre-flight:
- Soft-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services

Traffic Pattern at Arrival Airfield:
- Soft-field landings
- Short-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
T1005 (Solo XC)  
Solo Cross-Country Return Leg  
(1.2 Hours Estimated)

Ground

The student will be at an out-field so they will need to execute the ground portion of this sortie unassisted. They will need to:

- Gather the weather information
- Plan the return leg of the cross country

Flight

Pre-flight:
- Short-field takeoff

Enroute:
- Pilotage and dead reckoning
- Navigation systems and radar services

Traffic Pattern at Home Field:
- Short-field landings
- Soft-field landings
- No-flap landings
- Normal landings

Post-flight:
- Engine Shutdown
- Secure the aircraft
T1006 (Dual)  
(1.4 Hours Estimated)

**Ground**

In addition to the maneuvers covered in flight, the following should also be discussed:

- The student should present the weather information
- The student should prepare a *short* cross-country flight plan (to just a few miles away from the airfield) to demonstrate navigation skills during the flight
- Lost procedures
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Soft-field takeoff

**Practice Area:**
- Basic Aircraft Control
- Navigation (pilotage, dead-reckoning, and navigation system use)
- Practice diversion (just the initial phase)
- Basic Instrument Maneuvers (0.1 hours of simulated instrument time)
- Use of onboard navigation systems (VOR, GPS, etc.) (0.2 hours of simulated instrument time)
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure & Simulated Emergency Approach and Landing
- Turns around a point

**Traffic Pattern:**
- Soft-field landing
- Short-field landing
- No-Flap Landing
- Normal Landing
**T1190 (Dual)**

**Stage Check**

(1.4 Hours Estimated)

**Ground**

The student should demonstrate proficiency up to PTS standards in the ground and flight items listed on this sortie. If not, remedial training, followed by another stage check, should be accomplished before letting the student take the Practical Test.

- The student should present the weather information
- The student should prepare a *short* cross-country flight plan (to just a few miles away from the airfield) to demonstrate navigation skills during the flight
- A sampling of the student’s general knowledge (aircraft systems, emergency procedures, etc.)

**Flight**

**Pre-flight:**
- Soft-field takeoff

**Practice Area:**
- Basic Aircraft Control
- Navigation (pilotage, dead-reckoning, and navigation system use)
- Practice diversion (just the initial phase)
- Basic Instrument Maneuvers (0.1 hours of simulated instrument time)
- Use of onboard navigation systems (VOR, GPS, etc.) (0.2 hours of simulated instrument time)
- Steep Turns
- Stalls (power-off and power-on)
- Slow Flight
- Simulated Engine Failure & Simulated Emergency Approach and Landing
- Turns around a point

**Traffic Pattern:**
- Short and Soft field landings and Normal and No Flap landings
Logbook Endorsements Required Before the Practical Test

If your student has completed the phase test for this stage they should be ready for the practical test for their private pilot single engine land certificate. Before endorsing the student to take their checkride you should thoroughly review their logbook to ensure they have met the aeronautical experience requirements specified by FAR Part 61 Subpart E “Private Pilots”.

Once you’ve ensured your student is ready and fully qualified to take the practical test you should sign their logbook with the following endorsements:

**Aeronautical knowledge test: sections 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 section 61.105. I have determined he/she is prepared for the (name the knowledge test).

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05

**Flight proficiency/practical test: sections 61.103(f), 61.107(b), and 61.109.**

I certify that (First name, MI, Last name) has received the required training in accordance with sections 61.107 and 61.109. I have determined he/she is prepared for the (name the practical test).

/s/ [date] J. J. Jones 987654321CFI Exp. 12-31-05
Taking the Practical Test

The student should adhere to the following checklist before taking the Practical Test in order to ensure they are fully prepared to take the test:

APPLICANT’S PRACTICAL TEST CHECKLIST

APPOINTMENT WITH EXAMINER:

EXAMINER’S NAME ____________________________

LOCATION __________________________________

DATE/TIME _________________________________

ACCEPTABLE AIRCRAFT

☐ Aircraft Documents:
  Airworthiness Certificate
  Registration Certificate
  Operating Limitations

☐ Aircraft Maintenance Records:
  Logbook Record of Airworthiness Inspections
  and AD Compliance

☐ Pilot’s Operating Handbook, FAA-Approved
  Airplane Flight Manual

PERSONAL EQUIPMENT

☐ View-Limiting Device
  Current Aeronautical Charts

☐ Computer and Plotter

☐ Flight Plan Form

☐ Flight Logs

☐ Current AIM, Airport Facility Directory, and Appropriate
  Publications

PERSONAL RECORDS

☐ Identification—Photo/Signature ID

☐ Pilot Certificate

☐ Current and Appropriate Medical Certificate

☐ Completed FAA Form 8710-1, Airman Certificate and/or
  Rating Application with Instructor’s Signature (If
  applicable)

☐ Computer Test Report

☐ Pilot Logbook with appropriate Instructor Endorsements

☐ FAA Form 6060-5, Notice of Disapproval (if applicable)

☐ Approved School Graduation Certificate (if applicable)

☐ Examiner’s Fee (if applicable)