SYLLABUS

COMMERCIAL PILOT

CESSNA FLIGHT TRAINING SYSTEM

Cessna
Flight Training System

Cleared for Hire
Commercial Pilot Training Course

SYLLABUS

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Version 1.03

Cleared for Hire
Commercial Pilot Syllabus
Your Path to Becoming a Commercial Pilot

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COMMERCIAL PILOT SYLLABUS
REVISION RECORD

Revision Number	*Revision Date*	*Online Date*	*Change Description*
Ver. 1.00	10-15-18	ORIGINAL	ORIGINAL
Ver. 1.01	11-31-21	02-28-22	Pg vi, 3, 19, 30, 44, 45, 47, 49, 52, 55 & 72 added description of Integrating Flight Simulation Devices into specific scenarios and annotated affected scenarios
Ver. 1.01	11-31-21	02-28-22	Pg 2,11,12, 22, 23, 34, 42, 43, 60, 69 & 77 added digital designation to knowledge lesson listings for identification purposes
Ver. 1.01	11-31-21	02-28-22	Pg xviii & 60 retitled Lesson Group title from Notices to Airmen to Notices to Air Missions
Ver. 1.01	04-04-22	04-07-22	Pg A5 Revised times in Online Knowledge Lessons and Total columns to correctly reflect lesson updates during 2021.
Ver. 1.02	12-11-23	12-13-23	Pg ii Revised last paragraph under SCENARIOS emphasizing meeting minimum course requirements if not flying all Scenarios.
Ver. 1.02	12-11-23	12-13-23	Pg vi Deleted Phase 1, Scenario 1 from list of scenarios with “Flight Simulation Training Device May be Used.”
Ver. 1.02	12-11-23	12-13-23	Pg 3 Deleted *Flight Simulation Device May Be Used* annotation and added “Logging At Least 2 Hours” to At Least One Landing More Than 100 nm from Departure Airport task under New this Scenario task list.
Ver. 1.02	12-11-23	12-13-23	Pg 6 Added “Logging At Least 2 Hours” to At Least One Landing More Than 100 nm from Departure Airport task under New this Scenario task list.
Ver. 1.02	12-11-23	12-13-23	Pg 9 Added “(2hr XC day)” to At Least One Landing More Than 100 nm from Departure Airport task.
Ver. 1.02	12-11-23	12-13-23	Pg 9 Added task “At Least One Landing More Than 100 nm from Departure Airport (2hr XC night).”
Ver. 1.02	12-11-23	12-13-23	Pg 9 Moved task Use of unfamiliar airports (night) to pg 10.
Ver. 1.03	7-18-24	7-26-24	Pg xiv Updated first paragraph relating to 141 Apndx D 5.(a) 10 hours solo training may be solo or 10 hours of flight time performing the duties of pilot ion command with an authorized instructor on board.

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Cessna Commercial Pilot Syllabus
Your Path to Becoming a Commercial Pilot

Purpose

Your *Cleared for Hire* commercial pilot syllabus provides a complete airplane single-engine curriculum in which the ground and flight training are tracked in the Cessna Flight Training System online *Course Tracking Application* (CTA). Each ground element refers to the *Cleared for Hire* online home-study lessons augmented by instructor/trainee one-on-one sessions guided by the respective *Phase Ground Training Checklists*. The flight lessons are represented by individual training *Scenarios*.

The FAA has reviewed the *Cleared for Hire* syllabus and determined that when incorporated into a fully developed curriculum, it will adequately meet the requirements of a 14 CFR part 141 commercial pilot training curriculum for an airplane single-engine. *Cleared for Hire* is organized into a three-stage structure, training sequence and integrated ground and flight training.

The stages of *Cleared for Hire* are subdivided into two or more “phases”, each containing multiple knowledge lessons and flight scenarios. Progress checks are located in phases at key points in the course including those marking the end of a stage.

You will use your *Cleared for Hire* syllabus as your day-to-day guide for training since it provides all the curriculum details. You will also find a mapping of the 14 CFI part 141 knowledge and flight training requirements later in this Introduction.

Cleared for Hire may also be used with a 14 CFR part 61 commercial pilot training curriculum when adjusted for the part 61 requirements.

STEPS FOR BECOMING A COMMERCIAL PILOT

Earning a commercial pilot certificate is a major milestone in a pilot’s career since it is the gateway to flying for hire. Your flight school will explain in detail the course enrollment requirements shown below:

- Be at least 18 years old prior to course graduation (you can start training earlier).
- Hold at least a private pilot certificate.
- For a Part 141 course, hold an instrument rating or be concurrently enrolled in an instrument rating course.
- Hold a current third class medical certificate.
- Pass a test on aeronautical knowledge (this course prepares you for that test).
- Complete the required flight training for the course (see Appendix A).
- Pass a commercial pilot practical test.

COURSE ELEMENTS

The Cessna online pilot training

- Provides innovative and interactive learning exercises.
- Is accessible anywhere you have an Internet connection.

The unique design of the training program

- Integrates web-based knowledge sessions with flight scenarios.
- Ensures that before every flight you will have the required knowledge to succeed

You and your instructor will discuss the schedule for your training and you will know

- When to complete the appropriate web-based knowledge instruction
- What to prepare for each flight scenario.

Upon completion of each flight scenario you and your instructor will

- Review the elements of the flight scenario and the scenario outcome.
- Compare your performance to the completion standards.
- Independently evaluate the tasks in the flight scenario.
- Discuss and compare the results.
- Discuss the next flight scenario.

Please note that it may take you more than one flight to complete a flight scenario to the established standards.

COURSE STRUCTURE

STAGES

The course is divided into three stages:

- Stage 1: Cross-Country, Night and Maneuvers Review
- Stage 2: Complex and/or TAA Airplanes and Commercial Pilot Maneuvers
- Stage 3: Commercial Pilot Practical Test Preparation

PHASES

Each stage is divided into phases. There are a total of eight phases:

Stage 1: Cross-Country, Night and Maneuvers Review

Phase 1: Learning Professional Cross-Country and Night Procedures
Phase 2: Refining Navigation and Basic Maneuver Skills
Phase 3: Building Cross-Country Experience

Stage 2: Complex and/or TAA Airplanes and Commercial Pilot Maneuvers

Phase 4: Flying Complex and/or TAA Airplanes
Phase 5: Flying Commercial Maneuvers

Stage 3: Commercial Pilot Practical Test Preparation

Phase 6: Preparing for your Commercial Pilot Checkride
Phase 7: Fine Tuning Skills
Phase 8: Achieving Your Goal

SCENARIOS

There are multiple flight scenarios within each phase. The completion standards for the scenario tasks in each phase are found in that phase's Phase Proficiency Checklist.

Once all items on the phase proficiency checklist are completed to the level of performance required for that phase, you can then move on to the next phase of training.

You are not required to complete every flight scenario within a phase if all tasks in the phase proficiency checklist are completed and the minimum course requirements are met by course completion. However, it is highly recommended that you still do fly every scenario as the scenarios progress in complexity to give you maximum efficiency in your training. Progress Checks are required scenarios.

PROGRESS/STAGE CHECKS
Each stage has at least one Progress Check at the end of the last phase of each stage which serves as a Stage Check. The progress/stage checks are found:

- Stage 1, phase 2
- Stage 1, phase 3 (Stage Check with Check Instructor)
- Stage 2, phase 4
- Stage 2, phase 5 (Stage Check with Check Instructor)
- Stage 3, phase 8 (Stage Check with Check Instructor)

PHASE SEQUENCE
The eight phases are:

1. LEARNING PROFESSIONAL CROSS-COUNTRY AND NIGHT PROCEDURES — In this phase you will review and gain experience in cross-country planning and execution, using electronic, pilotage, and DR navigation. You will control the aircraft and navigate referring only to the flight instruments and recover from unusual flight attitudes without looking outside. You will also perform recovery from power off and power on stalls.

2. REFINING NAVIGATION AND BASIC MANEUVER SKILLS — Here you will examine GPS and VOR systems and the use of HSI presentations. You will also refresh and sharpen your understanding of the different types of airspace and the operating considerations. You will also add to your cross-country experience exercising both visual and electronic navigation skills as well as those involved with short field and soft field takeoffs and landings. And finally, you will fly with another instructor for a progress check.

3. BUILDING CROSS-COUNTRY EXPERIENCE — In this phase you will expand your knowledge of weather theory and the reports, forecasts and charts used for preflight planning. You will also dig deeper into weight and balance concepts, calculations, proper loading, and CG changes due to fuel burn. In flight you will continue to build cross-country experience including a long flight with one leg that has a straight line distance of more than 250 nm, and you will complete another progress check.

4. FLYING COMPLEX and/or TAA AIRPLANES — Your knowledge concentration in this phase includes aerodynamic topics of stability, rate and radius of turn, CG effect on spins and load factor. You will also explore airspeed limitations and aerodynamic hazards including high-speed flight. Your flight scenarios involve using a complex and/or a TAA airplane for normal operations, slow flight, stalls, instrument maneuvers and recovery from unusual attitudes. This phase is completed with a progress check.

5. FLYING COMMERCIAL MANEUVERS — In this phase, you will become knowledgeable about and then perform the commercial performance and ground reference maneuvers of Steep Spirals, Chandelles, Lazy Eights, Eights on Pylons, and Power-off 180° accuracy approaches. You will also study the environmental factors and review techniques for calculating aircraft performance under different conditions. You will wrap up this phase by completing a progress check.

6. PREPARING FOR YOUR COMMERCIAL PILOT CHECKRIDE — In this phase, you will study concepts involved with specialized operations, hazards, engines and propellers, aeromedical factors, and key topics in the Aeronautical Information Manual. In flight, you will refine your skill with Commercial Pilot maneuvers and expand your proficiency and risk management skills involving cross-country operations.

7. FINE TUNING SKILLS — Here you will review the general Federal Aviation Regulations and become familiar with those more closely associated with Commercial operations. In flight, you will hone your skill with Commercial Pilot maneuvers and complete the final cross-country of this course.

8. ACHIEVING YOUR GOAL — In this final phase you will learn tips for making your checkride go more smoothly, and ways to manage the risks unique to being a commercial pilot. You will also review the commercial pilot flight maneuvers and participate in a one-on-one pre-check ride briefing with your instructor. You will complete the course with the Final Progress Check.

Since each phase builds on what you have learned before, it is important that you complete the phases in the proper sequence. However, some degree of flexibility is necessary.

- Weather and other factors may make it impractical to conduct a particular flight scenario while another may be possible.
- In this case your instructor, with the approval of the chief instructor, may suggest out-of-phase and out-of-stage scenarios that can be completed with the current conditions.
- If available at your flight school and approved for this course, you may complete all or portions of a flight scenario using an aviation training device, flight training device, or flight simulator.

IMPORTANT: The syllabus does not address your local flight school's safety practices and procedures; review these key items before or after the first flight with your instructor.

PHASES

There are 8 phases of training. Each phase has

- *Required* **Web-based Knowledge Instruction**
- *Suggested* **Flight Scenarios**
- *Required* **Phase Ground Training Checklists**
- *Required* **Phase Proficiency Checklists**

Web-based Knowledge Instruction

- Forms the customer's knowledge foundation to be used for the flight scenarios
- Is directly correlated to the phase
- Is to be completed before the corresponding phase can be considered complete

Flight Scenarios

- Are placed in a suggested order of completion
- Can be flown
    - Once
    - More than once
    - Not at all
- Can be customized to for your local training environment
- Can be completed out of phase or stage if approved by the Chief or Assistant Chief Instructor

- **Phase Ground Training Checklists**
- Can be prepared for through study of the web-based curriculum and course library materials
    - Including FAA publications such as the Pilot's Handbook of Aeronautical Knowledge and Airplane Flying Handbook
    - Recorded as 'Instruction Given', 'Describe' or 'Explain'
        - 'Instruction Given' indicates that your instructor briefed you on the subject
        - 'Describe' indicates that you are able to describe the physical characteristics of the maneuver or knowledge area
        - 'Explain' indicates that you are able to describe the task or knowledge area and understand the underlying concepts, principles and procedures
    - Must be demonstrated to the 'Explain' level to complete the phase

Phase Proficiency Checklists

- Contain tasks that are to be completed in order to the 'Perform' level in order to complete the phase
- Contain single-pilot resource management that is to be completed to the 'Manage/Decide' level
    - Grading criteria is discussed in detail later in this document
- Contain completion standards for the phase

PROGRESSING THROUGH THE SYLLABUS

A phase is considered complete when all the tasks are completed to the 'Perform' or 'Manage/Decide' level as appropriate for the completions standards given on the Phase Proficiency Checklist.

It is recommended that the order of the suggested scenarios be followed.

- However, with the approval of your Chief or Assistant Chief Instructor you can complete scenarios that are out of the current phase
- This flexibility allows greater efficiency in course of flight training

You do not need to complete all scenarios in a phase in order to complete that particular phase. The scenarios are simply suggested flights to get you to the 'Perform' and 'Manage/Decide' level for the tasks and standards for that phase.

It is more common to repeat the scenarios in order to obtain the desired level of proficiency and safety than to skip them.

If you are able meet all of the phase standards and skip a scenario, you and your instructor must make sure that you meet the hourly training requirements if they are applicable to your approved training course. It is possible that you could finish up the course and have to make up time at the end.

INTEGRATING FLIGHT SIMULATION TRAINING DEVICES INTO THE COURSE
Flight Simulation Training Devices (FSTD) have proven valuable at all levels of flight training and their use is authorized within the limitations of 14 CFR Parts 61 and 141 for Commercial Pilot training. This syllabus may be adapted for training with any of three FSTD categories: Full Flight Simulators (FSS), Flight Training Devices (FTD) and Aviation Training Devices (ATD).

Part 141 Appendix D (Commercial Pilot Certification Courses) addresses the maximum allowable credit for the flight training hour requirements in Full Flight Simulators—FFS (30%) and Flight Training Devices—FTD (20%), but it does not mention Aviation Training Devices–ATD (Basic Aviation Training Devices, BATD or Advanced Aviation Training Devices, AATD). However, the FAA has evaluated several ATDs and has provided some manufacturers with a Letter of Authorization (LOA) permitting use of specified AATDs for up to 20% of a Part 141 Commercial Pilot Course flight training hour requirements.

Flight Scenarios in this syllabus labeled *FLIGHT SIMULATION TRAINING DEVICE MAY BE USED* have tasks that are easily trained and evaluated in an FSS, FTD and AATD such as those involving Instrument Reference (IR). However, many other tasks in this course are visually based, and although they may be procedurally introduced in a FSTD, they are best perfected and evaluated in an aircraft.

You will want to be aware that if all scenarios labeled *FLIGHT SIMULATION TRAINING DEVICE MAY BE USED* are flown in a Flight Simulation Training Device, you may exceed the maximum number device hours that may be credited toward the total course requirements, but there are no restrictions on the total device hours that may be logged. Note the permitted Flight Simulation Training Device hours are different depending on whether enrolled in a Part 141 or a Part 61 curriculum. You and your instructor will want to make sure that you meet all the *in-the-airplane* training requirements (see Appendix A for minimum Flight Training hours) before you complete the course.

The following scenarios have the annotation *FLIGHT SIMULATION TRAINING DEVICE MAY BE USED*:

- Stage 1
  - Phase 2, Scenario 5
  - Phase 3, Scenario 5
  - Phase 5, Scenario 4
- Stage 2
  - Phase 5, Scenario 1
  - Phase 5, Scenario 2
  - Phase 5, Scenario 6
  - Phase 5, Scenario 9
  - Phase 5, Scenario 10
- Stage 3
  - Phase 7, Scenario 2

OVERALL SYSTEM USE

The Cessna Commercial Pilot course is designed to provide the most benefit when

- The instructor assigns preparation for the next scenario
  - Web-based study
  - Suggested study materials
  - Scenario planning

- Prior to the next scenario, you
    - Study the assigned materials
    - Perform the necessary scenario planning

- Prior to the flight, the instructor
    - Prints your training package including the
        - Phase Ground Training Checklist
        - Phase Proficiency Checklist
        - Scenario

- During the preflight briefing
    - Your instructor evaluates the applicable items on the Phase Ground Training Checklist
    - You ask any questions you may have and clarify your understanding of the knowledge areas and the upcoming scenario you will fly and brief the instructor on the scenario planning

- During the postflight briefing
    - You independently grade the applicable tasks on the Phase Proficiency Checklist
    - Your instructor independently grades the tasks on the Phase Proficiency Checklist
    - You then discuss the scenario outcome and compare grading
    - The instructor logs the scenario into the Course Tracking Application on the computer at your flight school

FAA INDUSTRY TRAINING STANDARDS (FITS)

This flight training syllabus uses the concepts developed under the FAA Industry Training Standards (FITS) program. FITS incorporates three tenets

- Scenario-based training (SBT)
- Single-pilot resource management (SRM)
- Learner-centered grading (LCG)

Scenario-Based Training (SBT) uses real-world scenarios as the foundation of training. Flight maneuvers are still a vital part of flight training, but the use of real-world scenarios help to develop a pilot's decision making skills. The training presents situations and circumstances that pilots face every day as learning experiences.

Single-Pilot Resource Management (SRM) includes the concepts of aeronautical decision making (ADM), risk management (RM), task management (TM), automation management (AM), controlled flight into terrain (CFIT) awareness, and situational awareness (SA). SRM training helps the pilot to accurately assess and manage risk, thereby making logical and timely decisions.

Learner-Centered Grading (LCG) includes two parts: learner self assessment and a detailed debrief by the instructor. The purpose of the self assessment is to stimulate growth in the learner's thought processes and, in turn, behaviors. The self assessment is followed by an in-depth discussion between the instructor and the customer that compares the instructor's assessment to the customer's self assessment.

SCENARIO-BASED TRAINING

The scenario-based approach to training pilots emphasizes the development of critical thinking and flight management skills, rather than focusing solely on traditional maneuver-based skills. The goal of this training philosophy is the accelerated acquisition of higher-level decision making skills. Such skills are necessary to prevent pilot-induced accidents.

Scenario-based training goals include the development of

- Critical thinking skills
- Aeronautical decision making skills
- Situational awareness
- Pattern recognition (emergency procedures) and judgment skills
- Automation competence
- Planning and execution skills
- Procedural knowledge
- Psychomotor (hand-eye coordination) skills
- Risk management skills
- Task management skills
- Automation management skills
- Controlled flight into terrain (CFIT) awareness

For scenario-based training to be effective there must be a purpose for the flight and consequences if the flight is not completed as planned.

It is vital that you, the pilot in training, and the instructor communicate the following information well in advance of every training flight:

- Purpose of the flight
- Pressures to complete the flight (real or simulated)
- Risks/hazards associated with the scenario (real or simulated)
- Scenario destination(s)
- Desired outcomes
- Possible in-flight scenario changes or deviations (during later stages of the program)

With the guidance of your instructor, you should plan and fly the scenario as realistic as possible. This means that you will know where you are going and what will transpire during the flight. While the actual flight may deviate from the original plan, this method allows you to be placed in a realistic scenario.

SCENARIO PLANNING

Prior to the flight, you will be briefed on the scenario to be planned. You will plan the scenario; your instructor will help you the first few times. The flight scenario should include

- Simulated real-world reason to go flying
- Route
    - Destination(s)
    - Weather
    - NOTAMs
- Pressures to complete the flight (real or simulated)
- Risks associated with the scenario (real or simulated)
- Possible deviations

Reality is the ultimate learning situation, and scenario-based training attempts to get as close as possible to this ideal. The more realistic the training scenario, the better we learn

- Core safety habits, and
- Decision-making skills that can be applied in the real-world

SINGLE-PILOT RESOURCE MANAGEMENT (SRM)

Single-pilot resource management is defined as the art and science of managing all the resources (both onboard the aircraft and from outside sources) available to a pilot flying in a single-pilot operation (prior to and during flight) to ensure that the successful outcome of the flight is never in doubt.

SRM includes the concepts of

- Task management (TM)
- Automation management (AM)
- Risk management (RM)
- Aeronautical decision making (ADM)
- Situational awareness (SA)
- Controlled flight into terrain (CFIT) awareness

SRM training helps a pilot maintain situational awareness by

- Managing the technology in the aircraft as well as aircraft control and navigation tasks
- Enabling the pilot to accurately assess and manage risk while making accurate and timely decisions
- Helping pilots learn how to gather information, analyze it and make decisions

In most flight scenarios, there is no one correct answer. Pilots are expected to analyze each situation in light of their

- Experience level
- Personal minimums
- Current physical and mental condition
- Ability to make their own decisions as best as possible

Below are standards for each training concept of SRM:

Performance The training task is:	**Standards** You will:
Task management (TM)	Prioritize and select the most appropriate tasks (or series of tasks) to ensure successful completion of the training scenario.
Automation management (AM)	Program and utilize the most appropriate and useful modes of cockpit automation to ensure successful completion of the training scenario.

Risk management (RM)	Utilize risk management tools to assess and mitigate risk associated with the planned flight both during the preflight planning and in flight.
Aeronautical decision-making (ADM)	Consistently make informed decisions in a timely manner based on the task at hand and a thorough knowledge and use of all available resources.
Situational Awareness (SA)	Be aware of all factors such as traffic, weather, fuel state, aircraft mechanical condition, and pilot fatigue level that may have an impact on the successful completion of the training scenario.
Controlled Flight Into Terrain (CFIT) Awareness	Understand, describe, and apply techniques to avoid CFIT during inadvertent encounters with IMC during VFR flight, periods of reduced visibility, or at night.

LEARNER-CENTERED GRADING

Learner-centered grading includes two parts
- Learner self-assessment
- A detailed debrief by the instructor

The purpose of the self-assessment is to stimulate growth in the learner's thought processes and, in turn, behaviors. The self-assessment is followed by an in-depth discussion between you and your flight instructor that compares your self-assessment to the instructor's assessment.

Pre- and postflight briefings are essential for setting goals. During events and tasks that require high levels of attention, there may be little time for learning as the bulk of your cognitive resources are given to performing the actual task.

INDEPENDENTLY GRADING THE SCENARIO

After the scenario is complete, you and your instructor should independently grade your performance for maneuvers and single-pilot resource management (SRM). Note that any grade that would not apply to the task has been grayed out in this syllabus.

It is very important that enough time is allowed. Simply assigning grades and signing logbooks within a limited period of time will not work with this grading system.

After independently evaluating the *actual scenario outcomes* compared to the *desired outcomes*
- You and your instructor come together to compare and discuss your individual evaluations during the postflight discussion

You and your instructor may disagree on the evaluations.
- This should be used as an opportunity to discuss the scenario further
- The instructor has the final authority in assigning the final grade for the desired outcomes

MANEUVER (TASK) GRADES

- **Describe** – At the completion of the ground training session, the pilot in training will be able to describe the physical characteristics of the task at a rote level.
- **Explain** – At the completion of the ground training session, the pilot in training will be able to describe the task and display an understanding of the underlying concepts, principles, and procedures.
- **Practice** – At the completion of the scenario, the pilot in training will be able to plan and execute the scenario. *Coaching, instruction, and/or assistance from the instructor will correct deviations and errors identified by the instructor.*
- **Perform** – At the completion of the scenario, the pilot in training will be able to perform the activity without assistance from the instructor. *Errors and deviations will be identified and corrected by the customer in an expeditious manner.* At no time will the successful completion of the activity be in doubt. ('Perform' will be used to signify that the pilot is satisfactorily demonstrating proficiency in traditional piloting and systems operation skills.)
- **Not Observed** – Any event not accomplished or required in the scenario.

Example:

- Once the pilot in training can explain the effect of crosswind and speed reduction on rudder effectiveness, they have achieved a level of learning that will allow for meaningful "Practice."
- The "Perform" level is met when the completion standards for the particular scenario or phase are met.

SINGLE-PILOT RESOURCE MANAGEMENT (SRM) GRADES

- **Explain** – At the completion of the ground training session, the pilot in training can verbally identify the risks inherent in the flight scenario.
- **Practice** – The pilot in training can identify, describe, and understand the risks inherent in the scenario. The customer may need to be prompted to identify risks and make decisions.
- **Manage/Decide** - The pilot in training can correctly gather the most important data available both within and outside the cockpit, identify possible courses of action, evaluate the risk inherent in each course of action, and make the appropriate decision. *Instructor intervention is not required for the safe completion of the flight.*
- **Not Observed** – Any event not accomplished or required in the scenario.

Example:

- A pilot who is becoming proficient at aeronautical decision making (ADM) and risk management (RM) would be graded first at the "Practice" level.
- The "Manage/Decide" level is met once a pilot makes decisions on their own, for instance, the decision to go-around without being prompted.

EVERYDAY USE OF FITS CONCEPTS

The PAVE Checklist

Use the PAVE Checklist as an easy way to implement the FITS concepts.

The PAVE checklist is

- A simple way to remember and examine the risk factors before you fly, and
- Can also help you manage the specific risks associated with taking off and landing

The PAVE checklist puts risk factors into four categories:

Pilot
Aircraft
en**V**ironment
External pressures

The pilot. Are you fatigued? When was the last time you were flying in the weather conditions that you will encounter? What are your personal minimums?

The aircraft. Are you familiar with the aircraft? Its avionics? Is it airworthy? What is the density altitude? How does that affect your climb rate? What is your maximum crosswind component?

The environment. Are the temperature and dew point close? Are you familiar with the area and its topography? Are there any NOTAMs?

External pressures. Are others influencing the flight? Do you have people waiting for you at the airport?

KNOWLEDGE CONTENT

WEB-BASED KNOWLEDGE INSTRUCTION

The web-based knowledge instruction should be completed before beginning the flight scenarios in each corresponding phase; you can work ahead as far in the course as you like at your discretion. However, the course is designed so that the web-based knowledge instruction corresponds to the flight scenarios within a phase.

If you have an extended time lapse between studying the web-based knowledge instruction and flying the companion scenario, you will find it very helpful to take some time to review your last knowledge sessions just before you fly the associated scenario.

You complete the web-based knowledge instruction satisfactorily by answering all the questions correctly. Your instructor will

- Review your results before you fly
- Answer any questions you may have

KNOWLEDGE TEST

Cessna's online pilot training includes an FAA Question Review and Test Prep feature which

- Contains examples of FAA knowledge test questions
- Provides the answers and explanations of the correct and incorrect answer choices
- Prepares you to take a practice test and the FAA knowledge test

Upon completing Phase 7, you will want to prepare for and take the FAA knowledge test. As a part of your preparation, your flight school will likely want you to take a practice graded test as a part of their course. The flight school test

- Has questions covering the required FAA knowledge areas
- Counts as your flight school's final exam for the course.
- Is taken and proctored at your flight school using the randomly generated exam feature of the Question Review in your course by selecting
    - Practice Exams
    - Randomly Generated Exam
    - Start New, and
    - If previous random exams taken, select OK to overwrite previous results

When you have completed all the questions in your flight school's knowledge test

- Select "Finish / Suspend"
- Select "Finish", and then
- Your proctor will
    - Select View Exam Results
    - Print the Exam Results Summary, and
    - Select View Exam Detail and note any question not answered correctly

When you have finished the test, your instructor will

- Review the results with you.
- Assign appropriate areas for review if necessary

After taking the flight school knowledge test you should then take the FAA knowledge test as soon as possible, as the information will be fresh in your memory.

FLIGHT SCENARIOS

PREFLIGHT BRIEFING

Before each flight scenario you and your instructor will review the scenario objectives to make sure you both understand what you will be doing during the lesson.

- Use this opportunity to ask any questions.
- Make sure you understand what is expected of you

DUAL FLIGHTS

A dual flight is one performed with your instructor. A scenario conducted as a dual flight will usually begin with a review of tasks from previous flights, and then new tasks will be introduced. This will help you to see the relationships between what you have previously learned and the new tasks to be performed on the flight.

For dual flights, (IR) means "instrument reference," or reference to the flight display or instruments only.

- You will need a view-limiting device such as a hood or view-restricting glasses for a scenario having (IR) associated with any task

SOLO FLIGHTS

Before your solo flights, you and your instructor will agree on

- The assigned destination and route
- What you should accomplish during the flight
- Any additional requirements
- Any limitations regarding weather and airspace

Note: 14 CFR Part 141 Appendix D5.(a) under “Solo training” requires at least ten hours solo flight time in a single engine airplane or *10 hours of flight time while performing the duties of pilot in command in a single engine airplane with an authorized instructor onboard*.

PIC FLIGHTS

Pilot in Command (PIC) flights are flights that can be flown solo or as PIC with other individuals aboard (i.e. fellow pilots in training) per your flight school’s policies and approved course. Again you and your instructor will agree on

- The assigned destination and route
- What you should accomplish during the flight
- Any additional requirements
- Any limitations regarding weather and airspace

POSTFLIGHT DISCUSSION AND EVALUATION

After each flight, you and your instructor will

- Review your flight and evaluate your performance independently
- Compare and discuss your self-evaluation with his or her evaluation

Your instructor will make recommendations to help you in your learning. Make sure you ask questions about any area that is not clear.

You will then complete your flight training record based on the completion standards for the phase. Any tasks requiring additional practice to meet the phase completion standards will be carried over to the next flight scenario.

You may expect at least one-half hour for preflight and postflight briefings for each scenario.

PROGRESS CHECKS

Progress checks are designed to ensure that you progress at the appropriate level of proficiency and are safe to move on to the next level. Normally, the Chief Instructor, Assistant Chief Instructor or an assigned instructor will fly with you.

Progress checks are nothing to get nervous about; they are to ensure the completeness of your training. You will find that flying with another instructor often provides fresh insight and new techniques.

REQUIRED AERONAUTICAL KNOWLEDGE AREAS

The Federal Aviation Regulations, 14 CFR Parts 61 and 141, list aeronautical knowledge areas that must be included in the ground training for a Commercial Pilot Course. All required areas are covered in this course, but they are distributed throughout the curriculum for subject continuity and logical development with the flight elements. Labs are identified by Syllabus phase, e.g. Lab 4.1 Aerodynamics Lesson Groups and Lessons are listed in Phase 4. You will find these required topics included in lessons of your online Cleared for Hire Course as follows:

Part 141 Appendix	Aeronautical Knowledge Area	Phase/Lab/Lesson Group(s)	Lesson(s)
D 3(b)(1)	Federal Aviation Regulations that apply to commercial pilot privileges, limitations, and flight operations	**Lab: Federal Aviation Regulations (7.1)**	
		Documents and Certifications (7.1.1)	.1 Category, Class, Type Ratings and Recency
			.2 Pilot and Medical Certificates
			.3 Aircraft Certifications and Registration
		Responsibilities and Restrictions (7.1.2)	.1 Pilot Responsibilities and Authority
			.2 Commercial Pilot Restrictions
		Checks and Experience (7.1.3)	.1 Checks and Experience
		Preflight Action (7.1.4)	.1 PIC Preflight Responsibilities
		Maintenance (7.1.5)	.1 Maintenance Responsibilities
			.2 Inspection and Repair
			.3 Airworthiness Directives
			.4 Life-Limited Parts
			.5 Preventive Maintenance
		Collision Avoidance (7.1.6)	.1 Right-of-Way Rules
			.2 Position Lights
			.3 Altitude and Pattern Separation
		Equipment Requirements (7.1.7)	.1 Safety Belts and Shoulder Harnesses
			.2 Oxygen Use
			.3 Emergency Locator Transmitter (ELT)
			.4 Transponder and ADS-B Requirements
		Safe Operations (7.1.8)	.1 Aerobatics and Dropping Objects
		FAA and NTSB Notification (7.1.9)	.2 Alcohol and Drugs
			.3 Change of Address
		Abbreviations and Symbols (7.1.10)	.1 V Speeds

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(1)	Federal Aviation Regulations that apply to commercial pilot privileges, limitations, and flight operations (Cont.)	**Lab: Federal Aviation Regulations (7.1)**	
		Commercial Operations (7.1.11)	.1 Commercial Operator
			.2 Rules for Commercial Operations
			.3 Applying Operating Rules
D 3(b)(2)	Accident reporting requirements of the National Transportation Safety Board	**Lab: Federal Aviation Regulations (7.1)**	
		FAA and NTSB Notification (7.1.9)	.1 Accident and Incident Notification
D 3(b)(3)	Basic aerodynamics and the principles of flight	**Lab: Aerodynamics (4.1)**	
		Basic Aerodynamics (4.1.1)	.1 Angle of Attack and Lift
			.2 Stalls
			.3 Secondary Flight Controls
		Forces of an Aircraft (4.1.2)	.1 Four Forces
			.2 Drag
			.3 Angle of Attack, Lift, and Drag
			.4 Torque
		Stability (4.1.3)	.1 Static and Dynamic Stability
			.2 Center of Gravity and Spins
		Turns (4.1.4)	.1 Angle of Bank
			.2 Rate and Radius
		Load Factor (4.1.5)	.1 Total Loading and Wing Loading
			.2 G Forces
		Structural Limitations (4.1.6)	.1 Airspeed Indicator, Maneuvering Speed, and Flying within the Envelope
		Aerodynamic Hazards (4.1.7)	.1 High Speed Flight
			.2 Wingtip Vortices
			.3 Ground Effect
D 3(b)(4)	Meteorology, to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts	**Lab: Weather (3.1)**	
		Measurements (3.1.1)	.1 Standard Temperature, Pressure, and lapse rate
		The Atmosphere (3.1.2)	.1 Circulation
			.2 Convection
		Moisture and Stability (3.1.3)	.1 Moisture and Stability
			.2 Air Masses and Clouds

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(4)	Meteorology, to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts (Cont.)	**Lab: Weather (3.1)**	
		Fog (3.1.4)	.1 Fog Formation
			.2 Effects of Wind and Frontal Activity
		Freezing Rain and Ice (3.1.5)	.1 Occluded Fronts
			.2 Frost, Freezing Rain, and Wet Snow
		Thunderstorms (3.1.6)	.1 Thunderstorm Stages
			.2 Thunderstorm Hazards
			.3 Weather Radar
		Other Atmospheric Hazards (3.1.7)	.1 Wind Shear and Turbulence
			.2 Mountain Waves
			.3 Jet Stream
		Sources of Weather Information (3.1.8)	.1 Preflight Weather Briefings
			.2 Flight Service and Weather Forecast Office
		Surface Observation Reports (3.1.9)	.1 Remarks and SPECI Reports
			.2 Interpreting METAR Data
		Obtaining Weather Enroute (3.1.10)	.1 Enroute Weather and Advisories
		Forecasts (3.1.11)	.1 TAF – Format
			.2 TAF – From Grouping
			.3 TAF – Becoming Grouping
			.4 TAF – Wind, Sky Cover, and Significant Weather
			.5 Graphical Forecasts for Aviation
		Inflight Weather Advisories (3.1.12)	.1 AIRMETS and SIGMENTS
		Inflight Weather Broadcasts (3.1.13)	.1 Weather Advisory Broadcasts
			.2 ADS-B Weather
		Observed Weather Charts (3.1.14)	.1 Surface Analysis Chart
			.2 Wind Aloft, and Weather Depiction Charts
		Forecast Charts (3.1.15)	.1 Low Level Significant Weather Prog Chart
			.2 High Level Significant Weather Prog Chart

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(5)	Safe and efficient operation of aircraft	**Lab: Flight Operations 6.1**	
		Some Flying Basics (6.1.1)	.1 Fundamentals of Flight
			.2 Cold Weather Operations
			.3 Night Flying
			.4 LAHSO
		Taxiing Safely (6.1.2)	.1 Airport Signs and Markings
			.2 Chart Supplement – Hot Spots
		Wind, Wind Shear, and Turbulence (6.1.3)	.1 Taxiing in the Wind
			.2 Takeoff and Landing
			.3 Landing Downwind
			.4 Wind Shear
			.5 Reporting Turbulence
		Managing Risks (6.1.4)	.1 Collision Avoidance
			.2 Minimum Fuel
		Engine Operations (6.1.5)	.1 Engine Stress
			.2 Oil
			.3 Ignition Systems
			.4 Mixture
			.5 Carburetor Heat
		Propellers (6.1.6)	.1 Propeller Efficiency
			.2 Constant Speed Propellers
		Notices to Air Missions (6.1.7)	.1 NOTAMs
		Aeromedical Factors (6.1.8)	.1 Hyperventilation
			.2 Hypoxia and Carbon Monoxide
			.3 Spatial Disorientation, Alcohol, and Night Vision
			.4 Somatogravic Illusion
D 3(b)(6)	Weight and balance computations	**Lab: Weight & Balance 3.2**	
		Weight and Balance Principles (3.2.1)	.1 Weight and Balance Principles
			.2 Formulas
		Computing Weight and Balance (3.2.2)	.1 Aircraft Empty Weight
			.2 Calculating Moment and CG
			.3 Balancing the Load
			.4 Weight Shift

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(7)	Use of performance charts	**Lab: Aircraft Performance 5.2**	
		Pressure and Density Altitude (5.2.1)	.1 Figuring Pressure and Density Altitude
			.2 Airspeed Corrections
		Takeoff and Climb (5.2.2)	.1 Obstacle Takeoff
			.2 Maximum Climb Rate
			.3 Fuel, Time and distance with Maximum Climb
			.4 Climbing to Cruise Altitude
			.5 Normal Climb
		Cruise Performance (5.2.3)	.1 Maximum Flight Time
			.2 Fuel Consumption vs. Brake Horsepower
			.3 Endurance
			.4 Available Flight Time
		Landing (5.2.4)	.1 Figuring the Wind Component
			.2 Normal Landing – Landing Distance
D 3(b)(8)	Significance and effects of exceeding aircraft performance limitations	**Lab: Aerodynamics 4.1**	
		Load Factor (4.1.5)	.1 Total Loading and Wing Loading
			.2 G Forces
		Structural Limitations (4.1.6)	.1 Maneuvering Speed
			.2 Airspeed and Load Factor Limits
		Aerodynamic Hazards (4.1.7)	.1 High Speed Flight
D 3(b)(9)	Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning	**Lab: Sectional Charts 1.2**	
		Chart Details and Courses (1.2.1)	.1 Chart Details
			.2 Courses
		Lab: Electronic Navigation & Flight Instruments 2.1	
		Flight Instruments (2.1.4)	.3 Instruments That Help You Turn

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(9)	Use of aeronautical charts and a magnetic compass for pilotage and dead reckoning (Cont.)	**Lab: Cross-Country Planning 1.1**	
		Inflight Calculations (1.1.1)	.1 Fuel Required
			.2 Descent calculations
			.3 Pilotage
			.4 Dead Reckoning
			.5 Determining Wind Direction and Speed
			.6 Climb Calculations
D 3(b)(10)	Use of air navigation facilities	**Lab: Electronic Navigation & Flight Instruments 2.1**	
		GPS Navigation (2.1.1)	.1 Global Positioning System
		VOR Navigation (2.1.2)	.1 Sensitivity and Checks
			.2 Using Your VOR
D 3(b)(11)	Aeronautical decision making and judgment	**Lab: Flight Operations 6.1**	
		Aeronautical Decision Making (6.1.9)	.1 Making Decisions as a Pilot
			.2 Classic Behavioral Traps
			.3 Hazardous Attitude Habits
			.4 Neutralizing Hazardous Attitude Habits
			.5 Stress Management
			.6 Using the DECIDE Model for Making Decisions
		Lab: Achieving Your Goal 8.1	
		Now That You're About to Become a Commercial Pilot (8.1.1)	.2 Managing the Risks When You're Being Paid to Fly
			.3 The Consummate Professional
D 3(b)(12)	Principles and functions of aircraft systems	**Lab: Electronic Navigation & Flight Instruments 2.1**	
		HSI (2.1.3)	.1 Using Your HSI
		Flight Instruments (2.1.4)	.1 Instruments That Help You Turn
			.2 Checking Altimeter Accuracy
			.3 Pitot-Static and Gyroscopic Digital Instruments

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(12)	Principles and functions of aircraft systems (Cont.)	**Lab: Flight Operations 6.1**	
		Engine Operations (6.1.5)	.1 Engine Stress
			.2 Oil
			.3 Ignition Systems
			.4 Mixture
			.5 Carburetor Heat
		Propellers (6.1.6)	.1 Propeller Efficiency
			.2 Constant Speed Propellers
D 3(b)(13)	Maneuvers, procedures, and emergency operations appropriate to the aircraft	**Lab: Commercial Maneuvers 5.1**	
		Steep Turns and Steep Spirals (5.1.1)	.1 The Whats and Whys of Steep Turns
			.2 Load Factor and You
			.3 How to do Great Steep Turns
			.4 Performing Steep Spirals
		Chandelles (5.1.2)	.1 Introduction to the Chandelle
			.2 How to do Chandelles
			.3 Techniques for a Perfect Chandelle
		Lazy Eights (5.1.3)	.1 Introduction to Lazy Eights
			.2 How to do Lazy Eights
			.3 Techniques for Perfect Lazy Eights
		Eights on Pylons (5.1.4)	.1 Introduction to Eights on Pylons
			.2 How to do Eights on Pylons
			.3 Techniques for Perfect Eights on Pylons
		Power-Off Approach (5.1.5)	.1 How to do Power-Off 180°Accuracy Approaches and Landings
D 3(b)(14)	Night and high-altitude operations	**Lab: Weather 3.1**	
		Other Atmospheric Hazards (3.1.7)	.2 Mountain Waves
			.3 Jet Stream
		Lab: Flight Operations 6.1	
		Some Flying Basics (6.1.1)	.3 Night Flying
		Aeromedical Factors (6.1.8)	.2 Hypoxia and Carbon Monoxide
			.3 Spatial Disorientation, Alcohol, and Night Vision
		Lab: Federal Aviation Regulations 7.1	
		Equipment Requirements (7.1.7)	.2 Oxygen Use

Part 141 Appendix	Aeronautical Knowledge Area	Lab/Lesson Group(s)	Lesson(s)
D 3(b)(15)	Descriptions of and procedures for operating within the National Airspace System	**Lab: Airspace & Weather Minimums 2.2**	
		Class E Airspace (2.2.1)	.1 Overview
			.2 Airways
			.3 At Airports
			.4 With a Control Tower
		Class D Airspace (2.2.2)	.1 Requirements and Use
		Class C Airspace (2.2.3)	.1 Boundaries
			.2 Satellite Airports
		Class B Airspace (2.2.4)	.1 Flight Operations Class B
		Class A Airspace (2.2.5)	.1 Flight Operations Class A
		Speed Limits and Airport Symbols (2.2.6)	.1 Speed Limits
			.2 Airport Symbols
		Special Use Airspace (2.2.7)	.1 Restricted Areas and Warning Areas
			.2 Military Operations Areas and Alert Areas
			.3 Military Training Routes
			.4 Temporary Flight Restrictions
		Weather Minimums (2.2.8)	.1 Basic VFR
			.2 Special VFR

REQUIRED FLIGHT TRAINING AREAS

The Federal Aviation Regulations, 14 CFR Parts 61 and 141, list flight training requirements that must be included in the curriculum for a Commercial Pilot Course. All required areas are covered, but they are distributed throughout this syllabus as appropriate for progressive development. You will find the required topics included in syllabus scenarios as follows:

Part 141 Appendix	**Flight Training Requirement**	
D 4(b)(1)(i)	Ten hours of instrument training using a view-limiting device including attitude instrument flying, partial panel skills, recovery from unusual flight attitudes, and intercepting and tracking navigational systems. Five hours of the 10 hours required on instrument training must be in a single engine airplane.	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)
1	1	2: Night Maneuvers (Dual)
1	1	4: Night Cross-Country (Dual)
1	2	5: Cross-Country and Progress Check (Dual)
1	3	5: Cross-Country and Progress Check (Dual)
2	4	2: Complex or TAA Airplane, Stalls and Instrument Reference (Dual)
2	4	3: Complex or TAA Airplane, Maneuvers and Progress Check (Dual)
2	5	1: Steep Turns/Spirals, Emergency Descent and Maneuvers Review (Dual)
2	5	2: Chandelles and Maneuvers Review (Dual)
2	5	4: Lazy Eights and Maneuvers Review (Dual)
2	5	6: Eights on Pylons and Maneuvers Review (Dual)
2	5	9: Commercial Maneuvers Review (Dual)
2	5	10: Progress Check (Dual)
3	6	1: Commercial Maneuvers Review (Dual)
3	6	3 Cross-Country, Complex or TAA, Maneuvers Review (Dual)
3	7	1: Commercial Maneuvers Review (Dual)
3	7	2: Cross-Country Review (Dual)
3	8	1: Commercial Maneuvers Review (Dual)
3	8	2: FINAL PROGRESS CHECK

Part 141 Appendix	Flight Training Requirement	
D 4(b)(1)(ii)	Ten hours of training in a complex airplane, a turbine-powered airplane or a technically advanced airplane that meets the requirements of § 61.129(j) of this chapter, or any combination thereof. The airplane must be appropriate to land or sea for the rating sought.	
Stage	**Phase**	**Scenario**
2	4	1: Complex or TAA Airplane (Dual)
2	4	2: Complex or TAA Airplane, Stalls and Instrument Reference (Dual)
2	4	3: Complex or TAA Airplane, Maneuvers and Progress Check (Dual)
3	6	3: Cross-Country, Complex or TAA, Maneuvers Review (Dual)
3	8	2: FINAL PROGRESS CHECK
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(b)(1)(iii)	One 2-hour cross country flight in daytime conditions in a single engine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure.	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)
1	2	5: Cross-Country and Progress Check (Dual)
3	7	2: Cross-Country Review (Dual)
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(b)(1)(iv)	One 2-hour cross country flight in nighttime conditions in a single engine airplane that consists of a total straight-line distance of more than 100 nautical miles from the original point of departure.	
Stage	**Phase**	**Scenario**
1	1	4: Night Cross-Country (Dual)
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(i)	(i) Preflight preparation	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(ii)	(ii) Preflight procedures	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*

* Included in multiple Scenarios

Part 141 Appendix	Flight Training Requirement (Airplane Single-Engine)	
D 4(d)(1)(iii)	(iii) Airport operations	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(iv)	(iv) Takeoffs, landings, and go-arounds	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*
1	1	4: Night Cross-Country (Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(v)	(v) Performance maneuvers	
Stage	**Phase**	**Scenario**
2	5	1: Steep Turns/Spirals, Emergency Descent and Maneuvers Review (Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(vi)	(vi) Navigation	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(vii)	(vii) Slow flight and stalls	
Stage	**Phase**	**Scenario**
1	1	2: Night Maneuvers (Dual)*
2	4	1: Complex or TAA Airplane (Dual)*
Part 141 Appendix	**Flight Training Requirement (Airplane Single-Engine)**	
D 4(d)(1)(viii)	(viii) Emergency operations	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*

* Included in multiple Scenarios

Part 141 Appendix	Flight Training Requirement (Airplane Single-Engine)	
D 4(d)(1)(ix)	(ix) High-altitude operations	
Stage	**Phase**	**Scenario**
2	5	1: Steep Turns/Spirals, Emergency Descent and Maneuvers Review (Dual)*

Part 141 Appendix	Flight Training Requirement (Airplane Single-Engine)	
D 4(d)(1)(x)	(x) Postflight procedures	
Stage	**Phase**	**Scenario**
1	1	1: Cross-Country and Instrument Reference (Day Dual)*

Part 141 Appendix	Solo Training Requirement (Airplane Single-Engine)	
D 5(a)	Ten hours of solo flight time in a single engine airplane, or 10 hours of flight time while performing the duties of pilot in command in a single engine airplane with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(1) of section 4 of this appendix, and include—	
D 5(a)(1)	One cross-country flight, if the training is being performed in the State of Hawaii, with landings at a minimum of three points, and one of the segments consisting of a straight-line distance of at least 150 nautical miles, or	
D 5(a)(2)	One cross-country flight, if the training is being performed in a State other than Hawaii, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 nautical miles.	
Stage	**Phase**	**Scenario**
1	3	4: Long Cross-Country (Day Solo)

Part 141 Appendix	Solo Training Requirement (Airplane Single-Engine)	
D 5(a)	Ten hours of solo flight time in a single engine airplane, or 10 hours of flight time while performing the duties of pilot in command in a single engine airplane with an authorized instructor on board. The training must consist of the approved areas of operation under paragraph (d)(1) of section 4 of this appendix, and include—	
D 5(a)(3)	5 hours in night VFR conditions with 10 takeoffs and 10 landings (with each landing involving a flight with a traffic pattern) at an airport with an operating control tower.	
Stage	**Phase**	**Scenario**
1	1	5: Night Maneuvers (Solo)
1	2	2: Night Maneuvers (Solo)
1	2	3: Night Cross-Country (Solo)

CREDIT FOR PREVIOUS TRAINING (WHEN ENROLLING INTO PART 141 CURRICULUM)
According to FAR 141.77(c), when you transfer from one FAA-approved school to another approved school, course credits you earned in your previous course of training may be credited for part of your training by your new school.

- Your new school may determine the amount of credit you are allowed by a knowledge test and a flight proficiency test
- Credit for aeronautical knowledge instruction may be determined by a knowledge test alone
- Maximum credit allowed is 50% of the curriculum requirements of your new school

If you transfer from other than an FAA-approved school, you may receive credit for the knowledge and flight experience. Up to a maximum of 25% of the curriculum requirements of the course to which you are transferring to may be credited.

CREDIT FOR PREVIOUS TRAINING (WHEN ENROLLING INTO PART 61 CURRICULUM)
If you are enrolling into a Part 61 course, all flight training logged, from an authorized instructor, applies to the minimum required flight time under Part 61. Your new flight school

- Will evaluate your flight proficiency and knowledge in all required areas of operation and aeronautical knowledge
- Determine the appropriate starting point in the syllabus to continue your training

GUARANTEE OF QUALITY
This multimedia online pilot training system is available through authorized flight schools. It is structured so that you receive the highest quality pilot training at any flight school located around the world using the Cessna Flight Training System.

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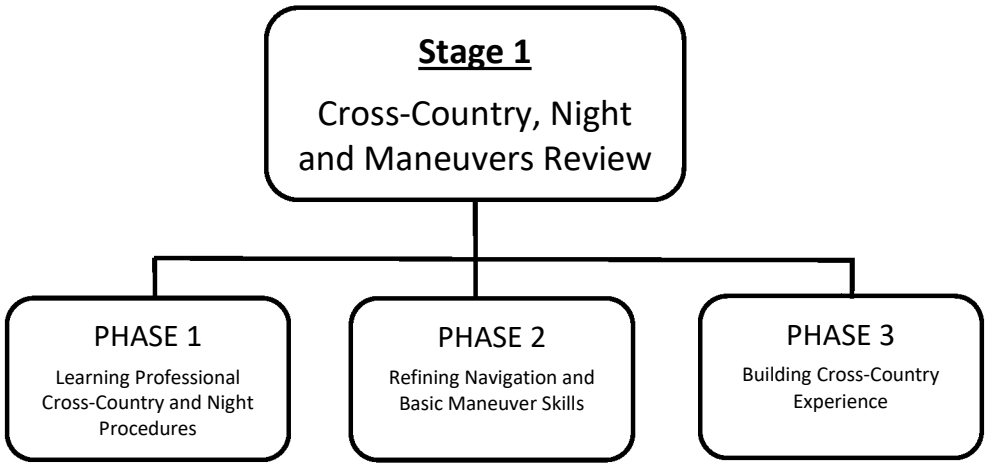


Stage 1 consists of three Phases

- Learning Professional Cross-Country and Night Procedures
- Refining Navigation and Basic Maneuver Skills
- Building Cross-Country Experience

Stage Objective: During this stage you will

- Review safe practices and checklist usage
- Demonstrate planning and piloting skills during a cross-country flights
- Build cross-country experience to multiple destinations
- Exercise and build skill with precise navigation using pilotage, DR, and electronic systems
- Increase proficiency with instrument control
- Quickly recognize and make an appropriate recovery from an aerodynamic stall
- Be able to recover from unusual flight attitudes referring only to the flight instruments
- Fly with a check instructor to evaluate your progress and instructor pairing

Each phase contains **Web-based Knowledge Instruction**

- The web-based knowledge instruction for the phase should be completed prior to starting the flight scenarios to ensure fundamental knowledge before the flight.

Each phase contains multiple **Flight Scenarios** that can be

- Customized for your local training environment
- Repeated, or
- Omitted if all items in the Phase Proficiency Checklist are completed to standard.

At the end of each Phase are the **Ground Training Checklist** and **Phase Proficiency Checklist**

- All items in the checklist must be completed to the appropriate standard listed before the Phase is considered complete.

PHASE 1: Learning Professional Cross-Country and Night Procedures

Phase Objective: During this phase you will demonstrate, review and gain experience in

- Cross-country planning, charts, and in-flight navigation and procedures
- Use of electronic navigation systems
- Aircraft control and navigation using instrument reference
- Recovery from power off and power on stalls
- Recovery from unusual flight attitudes while using instrument reference
- Local and cross-country night operations
- Normal and crosswind takeoffs and landings

Web-based KNOWLEDGE

CROSS-COUNTRY PLANNING
SECTIONAL CHARTS

1.1 CROSS-COUNTRY PLANNING

Objectives: You will learn how to calculate how much fuel you are using during a flight and during a descent. You'll also discover how to calculate wind speed and direction at your altitude using your E-6B computer. And you'll see how angles between you and a navigation station can tell you how far away you are and how long it will take to get there.

1.1.1 Inflight Calculations

.1 Fuel Required
.2 Descent Calculations
.3 Pilotage
.4 Dead Reckoning
.5 Determining Wind Direction and Speed
.6 Climb Calculations

1.2 SECTIONAL CHARTS

Objective: You will learn how to determine the elevation of obstructions and terrain from your sectional charts. You'll also see how to use courses properly on the charts and some short cuts when you need to divert to a new course.

1.2.1 Chart Details and Courses

.1 Chart Details
.2 Courses

FLIGHT SCENARIOS

CROSS-COUNTRY AND INSTRUMENT REFERENCE (DAY DUAL)
NIGHT MANEUVERS (DUAL)
CROSS-COUNTRY (DAY PIC)
NIGHT CROSS-COUNTRY (DUAL)
NIGHT MANEUVERS (SOLO)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Cross-Country and Instrument Reference (Day Dual)

Objectives:
Conduct a cross-country flight with your instructor to evaluate your piloting skills and to gain experience in cross-country flight operations. During a portion of this flight you will also exercise control and navigation referring only to the instruments.
Purpose/pressures (real or simulated):
You are working for a package delivery company serving remote small communities. Your company has a strong risk management policy, but widely advertises a near-perfect on-time delivery rate. You feel a personal pressure to meet the on-time commitment.
Where to go:
To at least one airport more than 100 nm from the departure airport
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
As necessary to react to inadvertent IMC
Planned malfunctions:
None
Risks (real or simulated):
Marginal VFR at departure, destination expected better
Unfamiliar destination

Preflight Discussion:

New this scenario:
Risk Management
Cross-Country Flight Planning
Preflight Inspection/Checklist Use
Fire Extinguisher
Doors, Safety Belts and Shoulder Harnesses
Engine Starting and Warmup
Use of ATIS
Taxiing and Runway Incursion Avoidance Procedures
Before Takeoff Check, Engine Runup and Checklist Use
Normal and Crosswind Takeoff and Climb
Tower Controlled Airports/High Density Airport Operations
Departure
Opening/Closing Flight Plan
Radar Services (Approach Control, Departure Control and Center)
Course Interception
Pilotage
Dead Reckoning
Attitude Instrument Flying (IR)
Intercepting and tracking VOR Courses (IR)
Intercepting and tracking ADF/GPS Courses (IR) (if aircraft equipped)
Power Settings and Mixture Control
Diversion to an Alternate
Lost Procedures
Simulated System and Engine Failures
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport Logging At Least 2 Hours
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing
Postflight Procedures

Postflight Discussion:

SCENARIO 2: Night Maneuvers (Dual)

Objective:
Gain experience in night operations that will allow you to fly at night with more precision and confidence including recovering from unusual attitudes using instrument reference only.
Purpose/pressures (real or simulated):
Night area familiarization, maneuvers refresher, and takeoff and landing currency in preparation for upcoming night revenue flight.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage
Planned deviations:
As necessary to react to inadvertent IMC
Planned malfunctions:
None
Risks (real or simulated):
Unreported low ceilings and visibilities en route (VFR pilot possibly flying into IMC / spatial disorientation)

Preflight Discussion:

New this scenario:
Night Flight
Risk Management
Taxiing and Runway Incursion Avoidance Procedures
Normal and Crosswind Takeoffs and Climbs (night)
Constant Airspeed Climbs
Constant Airspeed Descents
Recovery from Unusual Attitudes (IR)
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Local VFR Navigation (night)
Normal Approaches and Landings with/without Landing Light

Postflight Discussion:

SCENARIO 3: Cross-Country (Day PIC)

Objective:
Gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are flying a frequent charter customer to an essential meeting at her remote manufacturing plant.
Where to go:
To at least one airport more than 100 nm from the departure airport
How to get there:
Pilotage, DR, VOR/GPS courses, airways
Planned deviations:
None
Planned malfunctions:
GPS failure
Risks (real or simulated):
Ceiling drops as you approach your destination (inadvertent IMC and possible loss of control)

Preflight Discussion

Improving your skills:
Risk Management
Cross-Country Flight Planning
Preflight Inspection/Checklist Use
Taxiing and Runway Incursion Avoidance Procedures
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services (Approach Control, Departure Control and Center)
Course Interception
Pilotage
Dead Reckoning
VOR Navigation
GPS Navigation (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 4: Night Cross-Country (Dual)

Objective:
Conduct a cross-country flight at night with your instructor to gain experience in night cross-country flight operations. You will control the airplane using instrument reference while intercepting and tracking navigation systems.
Purpose/pressures (real or simulated):
You are flying a surgical team to a distant city to obtain donor organs for a critical patient. The organs' viability allows you a two and a half hour window for an hour and a half flight.
Where to go:
To at least one airport more than 100 nm from the departure airport
How to get there:
Pilotage, DR, VOR/GPS courses, airways
Planned deviations:
As necessary for weather
Planned malfunctions:
Emergencies as introduced by the instructor
Risks (real or simulated):
Isolated non-embedded thunderstorms

Preflight Discussion

New this scenario:
Night Cross-Country Flight
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Cross-Country Flight Planning
Taxiing and Runway Incursion Avoidance Procedures
Pilotage
Dead Reckoning
Attitude Instrument Flying (IR)
Intercepting and tracking VOR Courses (IR)
Intercepting and tracking ADF/GPS Courses (IR) (if aircraft equipped)
Emergency Operations
Go-Around (night)
Use of Unfamiliar Airports (night)
Collision Avoidance Procedures
Diversion to Alternate
Lost Procedures
Normal Approaches and Landings with/without Landing Light
At Least One Landing More Than 100 nm from Departure Airport Logging At Least 2 Hours

Postflight Discussion

SCENARIO 5: Night Maneuvers (Solo)

Objective:
Gain experience in night operations in the local area as well as at an airport with an operating control tower.
Purpose/pressures (real or simulated):
You are a videographer who has been contracted by a local land development company to take night video of proposed sites. The contracted editor needs the footage by 8 am tomorrow.
Where to go:
A point within 30 minutes flight time in suitable airspace free from obstructions and dense traffic and to an airport with an operating control tower (if not available at home field)
How to get there:
Pilotage
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Forecast low ceilings and visibility two hours after your planned landing

Preflight Discussion

Improving Your Skills:
Risk Management
Normal and Crosswind Takeoffs and Climbs (night)
Constant Airspeed Climbs
Constant Airspeed Descents
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Local VFR Navigation (night)
*Normal Approaches and Landings with Landing Light

Postflight Discussion
*A total of 10 takeoffs and 10 landings (each landing a flight with a traffic pattern) at an airport with an operating control tower must be completed within the night solo scenarios in this syllabus.

Phase 1 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Cross-country flight planning			
PAVE checklist			
Aircraft systems			
Aircraft flight instruments and navigation equipment			
Instrument cockpit check			
Runway incursion avoidance procedures			
Spin awareness			
Recovery from unusual attitudes			
Lost procedures			
Single-pilot resource management (SRM)			
Commercial Pilot Airman Certification Standards (ACS)			

Phase 1 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage / Decide
Single-pilot resource management			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles along intended route and diversion to alternates, uses tools available*			
Preflight procedures			
Cross-country flight planning *Plans assigned X-C accurately and completely using appropriate resources*			
Preflight inspection/checklist use *Performs preflight inspection using the checklist to confirm that all steps have been completed*			
Fire extinguisher *Knows location and can describe/demonstrate use (without activating or breaking seals)*			
Doors, safety belts, and shoulder harnesses *Demonstrates operation, explains when safety belt and shoulder harness use is required*			
Engine starting and warmup *Positions airplane appropriately, uses checklist and safety procedures considering other persons/property*			
Use of ATIS *Obtains, records and correctly interprets ATIS information*			
Taxiing and runway incursion avoidance procedures *Records taxi instructions, uses airport diagram, applies full attention to taxiing*			
Before takeoff check, engine runup and checklist use *Uses checklist for preflight and all phases of flight*			
In-flight			
Normal and crosswind takeoff and climb *Rejected TO procedures, checks wind, rotates recommended V_R, climb power, configuration $V_Y \pm$ 5kts*			
Normal and crosswind takeoffs and climbs (night) *Checks lights, instruments, wind and power before TO, cross checks instruments in climb, $V_Y \pm$ 5kts*			

Phase 1 Proficiency Checklist *continued*

Tower controlled airports/high density airport operations *Uses appropriate procedures and radio communications, aware of airspace boundaries*			
Departure *Complies with appropriate procedures for that airspace/airport and ATC instructions*			
Opening/closing flight plan *Uses appropriate procedures and frequencies*			
Radar services (Approach Control, Departure Control and Center) *Uses correct frequencies and procedures to access services*			
Course interception *Anticipates and recognizes when intercepting planned course*			
Pilotage *Flies course by preplanned landmarks, identifies landmarks by surface features to chart symbols*			
Dead reckoning *Maintains navigation log, demonstrates mag compass use, track ± 1 nm of route, ETA ±3 min*			
VOR navigation *Selects appropriate radial, intercepts and tracks radial, identifies station passage*			
GPS navigation (if aircraft equipped) *Selects appropriate waypoints/course, intercepts and tracks course, identifies waypoint passage*			
Attitude instrument flying (IR) *Maintains Alt ± 100 ft, Hdg ± 10°, A/S ± 10 kts*			
Intercepting and tracking VOR courses (IR) *Tracks VOR courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Intercepting and tracking ADF/GPS courses (IR) (if aircraft equipped) *Tracks GPS and/or ADF courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Power settings and mixture control *Sets engine controls conforming to manufacturer's procedures and flight plan*			
Diversion to an alternate *Chooses appropriate alternate and route, accurate ETA, fuel estimate, Alt ±100 feet, Hdg ± 10*			
Lost procedures *Uses appropriate procedures and confirms position*			
Simulated system and engine failures *Uses recommended procedures*			
Estimates of ground speed and ETA *Arrives at checkpoints and destination ±3 minutes*			
Position fix by navigation facilities *Verifies position using VOR, ADF, or GPS*			
Flight on Federal Airways *Chooses appropriate altitudes, maintains courses ± ¾ scale deflection, altitude ±100 feet*			
CTAF (UNICOM) airports *Appropriate entry procedures, radio calls, collision avoidance, spacing, Alt ±100 feet, A/S ± 10 kts*			
At least one landing more than 100 nm from departure airport (2hr XC day) *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
At least one landing more than 100 nm from departure airport (2hr XC night) *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
Constant airspeed climbs *Maintains A/S ± 10 kts, Hdg ± 10°, levels Alt ± 100 ft*			
Constant airspeed descents *Maintains A/S ± 10 kts, Hdg ± 10°, levels Alt ± 100 ft*			
Recovery from unusual attitudes (IR) *Applies correct recovery control inputs using only instrument reference*			
Power off stall (approach to landing stall) *Enters at alt so recovery ≥ 1,500 ft AGL, Hdg ± 10, bank ± 5° (if turn), appropriate flap and gear up*			
Power on stall (takeoff and departure stall) *Enters at alt so recovery ≥ 1,500 ft AGL, Hdg ± 10, bank ± 10° (if turn), appropriate flap and gear up*			
Local VFR Navigation (night) *Identifies landmarks, conforms to airspace procedures, aware of obstructions and minimum altitudes*			
Emergency operations *Prioritizes actions, follows appropriate checklist procedures, maintains control*			

Phase 1 Proficiency Checklist *continued*

Use of unfamiliar airports (night) *Knows airport layout, facilities, terrain, preplans traffic pattern entry, approach and go-around*			
Normal and crosswind landing *Uses stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maintains X-W correction*			
Normal approaches and landings (night with/without landing light) *Uses stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maintains X-W correction*			
Go-around (night) *Makes timely decision, climb power and pitch for V_X/V_Y, +10/-5 kts, flaps & gear up as appropriate*			
Collision avoidance procedures *Conforms to regulations and procedures and employs an effective scanning for other aircraft*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

Phase 1 completion standards:

You have completed Phase 1 when you

- Show accurate preflight planning for visual day and night cross-country flights
- Demonstrate effective use of electronic navigation systems
- Employ effective risk management techniques for both local and cross-country flights
- Control the airplane safely and effectively using instrument reference
- Demonstrate recognition and effective recovery procedures from power off and power on stalls and recovery from unusual flight attitudes while only using instrument reference
- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Review your home study results with your instructor

INSTRUCTOR NOTES:

PHASE 2: Refining Navigation and Basic Maneuver Skills

Phase Objective: During this phase you will review and explore in depth

- GPS and VOR navigation concepts
- Navigation using an HSI
- Using visual and electronic navigation techniques while building cross-country experience
- Governing principles of different types of airspace and VFR weather minimums
- Short field and soft field takeoff and landing techniques, and
- Complete a progress check

Web-based KNOWLEDGE

ELECTRONIC NAVIGATION AND FLIGHT INSTRUMENTS
AIRSPACE AND WEATHER MINIMUMS

2.1 ELECTRONIC NAVIGATION AND FLIGHT INSTRUMENTS

Objective: You will discover how GPS and VOR can enhance navigation. You'll also see how to use an HSI to tell you where you are from a VOR station. And you'll find out how some of your flight instruments can help you make a perfect turn.

2.1.1 GPS Navigation
- .1 Global Positioning System

2.1.2 VOR Navigation
- .1 Sensitivity and Checks
- .2 Using Your VOR

2.1.3 HSI
- .1 Using Your HSI

2.1.4 Flight Instruments
- .1 Instruments That Help You Turn
- .2 Checking Altimeter Accuracy
- .3 Pitot-Static and Gyroscopic Digital Instruments

2.2 AIRSPACE AND WEATHER MINIMUMS

Objective: You will learn how the airspace system is put together, so that no matter where you fly, you will know and understand it.

2.2.1 Class E Airspace
- .1 Overview
- .2 Airways
- .3 At Airports
- .4 With a Control Tower

2.2.2 Class D Airspace
- .1 Requirements and Use

2.2.3 Class C Airspace
- .1 Boundaries
- .2 Satellite Airports

2.2.4 Class B Airspace
- .1 Flight Operations Class B

2.2.5 Class A Airspace
- .1 Flight Operations Class A

2.2.6 Speed Limits and Airport Symbols
- .1 Speed Limits
- .2 Airport Symbols

2.2.7 Special Use Airspace
- .1 Restricted Areas and Warning Areas
- .2 Military Operations Areas and Alert Areas
- .3 Military Training Routes
- .4 Temporary Flight Restrictions

2.2.8 Weather Minimums
- .1 Basic VFR
- .2 Special VFR

FLIGHT SCENARIOS

CROSS-COUNTRY (DAY PIC)
NIGHT MANEUVERS (SOLO)
NIGHT CROSS-COUNTRY (SOLO)
CROSS-COUNTRY (DAY PIC)
CROSS-COUNTRY AND PROGRESS CHECK (DUAL)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are taking an out and return parts run to an airport outside the local area to drop off a tire and brake assembly for a stranded pilot. You only have an extra 15 minutes in addition to your ETE to get there before the mechanic runs out of time to complete the job today.
Where to go:
An airport greater than 100 nautical miles straight-line distance from departure
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Intermittent rain showers and a late-in-the day return

Preflight Discussion

Improving your skills:
Risk Management
Cross-Country Flight Planning
Preflight inspection/Checklist use
Runway Incursion Avoidance
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF/GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 2: Night Maneuvers (Solo)

Objective:
You'll gain experience in night operations in the local area as well as at an airport with an operating control tower.
Purpose/pressures (real or simulated):
You are flying a newspaper photo journalist for a night shoot of the local area. Low cloud cover has cancelled two previously scheduled evening attempts and tonight is the last opportunity to meet the story deadline.
Where to go:
A point within 15 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, NAVAIDS
Planned deviations:
Deviation to alternative airport (simulated) due to low ceiling formation at home airport
Planned malfunctions:
NAVAID failure
Risks (real or simulated):
Low clouds are expected to form 3-hours after your scheduled takeoff. You estimate that you will only need 1 hour and 20 minutes to complete the shoot.

Preflight Discussion

Improving your skills:
Risk Management
Situational Awareness (SA)
Normal and Crosswind Takeoffs and Climbs (night)
Constant Airspeed Climbs
Constant Airspeed Descents
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Local VFR Navigation (night)
*Normal Approaches and Landings (night)

Postflight Discussion
*A total of 10 takeoffs and 10 landings (each landing a flight with a traffic pattern) at an airport with an operating control tower must be completed within the night solo scenarios in this syllabus.

SCENARIO 3: Night Cross-Country (Solo)

Objective:
You'll improve your night operations proficiency by conducting a solo cross-country flight with a landing at a minimum of three points. One leg of the flight will include a straight-line distance of at least 250 nm.
Purpose/pressures (real or simulated):
You fly for a charter operator who has a contract with a document courier service. Your schedule this evening involves flying to three remote city destinations to pick up legal documents necessary for next-day's morning court docket.
Where to go:
To at least two other airports with one leg of at least 250 nm straight-line distance
How to get there:
Pilotage, DR, VOR/GPS courses, airways
Planned deviations:
Deviation (simulated) to deal with cockpit lighting failures
Planned malfunctions:
Simulated loss of cockpit lights
Risks (real or simulated):
Navigation and control using portable lights

Preflight Discussion

Improving your skills:
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Situational Awareness (SA)
Cross-Country Flight Planning
Preflight inspection/Checklist Use
Normal and Crosswind Takeoff and Climbs (night)
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF/GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Leg a Straight-Line Distance More Than 250 nm
*Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion
*A total of 10 takeoffs and 10 landings (each landing a flight with a traffic pattern) at an airport with an operating control tower must be completed within the night solo scenarios in this syllabus.

SCENARIO 4: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are flying a charter and the passengers are the owner of a local RV dealership chain and her associate for the purpose of visiting one of their remote sites for several hours of meetings. Your passengers requested that you overfly a small city 10 miles off the direct route for an aerial view of a potential new business site.
Where to go:
An airport over 100 nm away
How to get there:
Pilotage, DR, VOR/GPS courses, airways
Planned deviations:
To a suitable airport to deal with lowering ceilings (simulated)
Planned malfunctions:
None
Risks (real or simulated):
Departure airport weather is broken at 2,800 feet, reported as scattered about 20 miles en route, and clear at destination

Preflight Discussion

Improving your skills:
Risk Management
Cross-Country Flight Planning
Preflight Inspection/ Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF/GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

Phase 2 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Class G and Class E airspace			
Class D and Class C airspace			
Class B airspace			
Class A airspace			
Special Use Airspace			
Instrument cockpit checks			
GPS RAIM and WAAS Fault Detection and Exclusion			
VOR Checks			
Pilot certificates and documents			
Aircraft airworthiness			
Controlled Flight into Terrain Awareness (CFIT)			
Situational Awareness (SA)			
Soft field techniques			
Short field techniques			

Phase 2 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles along intended route and diversion to alternates, uses tools available*			
Situational Awareness (SA) *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Preflight procedures			
Cross-country flight planning *Plans assigned X-C accurately and completely using appropriate resources*			
Preflight inspection/checklist use *Performs preflight inspection using the checklist to confirm that all steps have been completed*			
Runway incursion avoidance *Uses airport diagrams, maintains situational awareness, and complies with ATC instructions as necessary*			
In-flight			
Normal and crosswind takeoff and climb *Rejected TO procedures, checks wind, rotates recommended V_R, climb power, configuration V_Y ± 5kts*			
Normal and crosswind takeoffs and climbs (night) *Checks lights, instruments, wind and power before TO, cross checks instruments in climb, V_Y ± 5kts*			
Departure *Complies with appropriate procedures for that airspace/airport and ATC instructions*			
Opening/closing flight plan *Uses appropriate procedures and frequencies*			

Phase 2 Proficiency Checklist *continued*

Radar services *Uses correct frequencies and procedures to access services*			
Course interception *Anticipates and recognizes when intercepting planned course*			
Pilotage *Flies course by preplanned landmarks, identifies landmarks by surface features to chart symbols*			
Dead reckoning *Maintains navigation log, demonstrates mag compass use, track ± 1 nm of route, ETA ±3 min*			
Intercepting and tracking VOR courses *Tracks VOR courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Intercepting and tracking ADF/GPS courses (if aircraft equipped) *Tracks GPS and/or ADF courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Power settings and mixture control *Sets engine controls conforming to manufacturer's procedures and flight plan*			
Estimates of ground speed and ETA *Arrives at checkpoints and destination ±3 minutes*			
Position fix by navigation facilities *Verifies position using VOR, ADF, or GPS*			
Flight on Federal Airways *Chooses appropriate altitudes, maintains courses ± ¾ scale deflection, altitude ±100 feet*			
CTAF (UNICOM) airports *Appropriate entry procedures, radio calls, collision avoidance, spacing, Alt ±100 feet, A/S ± 10 kts*			
At least one landing more than 100 nm from departure airport *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
At least one leg with a straight-line distance more than 250 nm *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
Constant airspeed climbs *Maintains A/S ± 10 kts, Hdg ± 10°, levels Alt ± 100 ft*			
Constant airspeed descents *Maintains A/S ± 10 kts, Hdg ± 10°, levels Alt ± 100 ft*			
Power off stall (approach to landing stall) *Enters at alt so recovery ≥ 1,500 ft AGL, Hdg ± 10, bank ± 5° (if turn), appropriate flaps and gear*			
Power on stall (takeoff and departure stall) *Enters at alt so recovery ≥ 1,500 ft AGL, Hdg ± 10, bank ± 5° (if turn), appropriate flaps and gear*			
Local VFR Navigation (night) *Identifies landmarks, conforms to airspace procedures, aware of obstructions and minimum altitudes*			
Normal and crosswind landing *Uses stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maintains X-W correction*			
Normal approaches and landings (night) *Uses stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maintains X-W correction*			
Collision avoidance procedures *Conforms to regulations and procedures and employs an effective scanning for other aircraft*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

Phase 2 completion standards:

You have completed Phase 2 when you

- Understand and effectively utilize available electronic systems and displays
- Understand all airspace classes and special use airspace
- Conform to airspace restrictions and weather minimums during cross-country flights
- Achieve a "Perform" or "Manage/Decide" on all Phase Proficiency Checklist tasks
- Review your home study results with your instructor
- Complete the Progress Check

INSTRUCTOR NOTES:

SCENARIO 5: Cross-Country and Progress Check (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll learn how to use airports that have short or soft runways while on a cross-country flight. You will control the airplane and navigate using instrument reference under simulated primary flight instrument failure. You'll also learn how to make a 180° power off accuracy approach and landing.
For the Progress Check you will have a chance to demonstrate your proficiency in planning and flying a cross-country flight according to the completion standards for a commercial pilot. It is recommended that the Chief/Assistant Chief Flight Instructor give this flight lesson.

Purpose/pressures (real or simulated):
You are scheduled to deliver urgently needed farm equipment parts to two private ranch airfields—one with a 3,000 foot turf runway that has not been mowed for a few weeks due to frequent rains and the other with a 2,000 foot runway with trees over 60 feet tall at either end.

Where to go:
To at least one airport more than 100 nm from the departure airport

How to get there:
Pilotage, DR, VOR/GPS courses

Planned deviations:
Inadvertent IMC en route

Planned malfunctions:
Primary flight instrument failure

Risks (real or simulated):
Stress that arises with having your performance evaluated

Preflight Discussion

New this scenario:
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Partial Panel (IR)

Testing your Skills:
Cross-Country Flight Planning
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Situational Awareness (SA)
Preflight Inspection/Checklist Use
Runway Incursion Avoidance
Opening/Closing Flight Plan
Pilotage
Dead Reckoning
Attitude Instrument Flying (IR)
Intercepting and Tracking VOR Courses (IR)
Intercepting and Tracking ADF Courses (IR) (if equipped)
Intercepting and Tracking GPS Courses (IR) (if equipped)
Recovery from Unusual Attitudes (IR)
Power Settings and Mixture Control
Diversion to an Alternate
Lost Procedures
Simulated Systems Failures
Simulated Engine Failure
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

Phase 2 **Progress Check**

Desired outcome for all tasks for the Progress Check is "Perform" or "Manage/Decide"	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles along intended route and diversion to alternates, uses tools available*			
Situational Awareness (SA) *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Preflight procedures			
Cross-country flight planning *Plans assigned X-C accurately and completely using appropriate resources*			
Preflight inspection/checklist use *Performs preflight inspection using the checklist to confirm that all steps have been completed*			
Runway incursion avoidance *Uses airport diagrams, maintains situational awareness, and complies with ATC instructions as necessary*			
In-flight			
Short field takeoff and climb *Rejected TO procedures, checks wind, rotates recommended V_R, climb power/configuration V_x +5/-0kts*			
Soft field takeoff and climb *Flight controls/configuration to quickly maximize lift, rotates at lowest possible A/S, in Gnd Effect to V_X or V_Y*			
Opening/closing flight plan *Uses appropriate procedures and frequencies*			
Pilotage *Flies course by preplanned landmarks, identifies landmarks by surface features to chart symbols*			
Dead reckoning *Maintains navigation log, demonstrates mag compass use, track ± 1 nm of route, ETA ±3 min*			
Intercepting and tracking VOR courses (IR) *Tracks VOR courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Intercepting and tracking ADF courses (IR) (if aircraft equipped) *Tracks ADF courses ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Intercepting and tracking GPS courses (IR) (if aircraft equipped) *Tracks GPS ± ¾ scale deflection or ± 10° on an RMI, altitude ±100 feet*			
Power settings and mixture control *Sets engine controls conforming to manufacturer's procedures and flight plan*			
Diversion to an alternate *Chooses appropriate alternate and route, accurate ETA, fuel estimate, Alt ±100 feet, Hdg ± 10°*			
Lost procedures *Uses appropriate procedures and confirms position*			
Estimates of ground speed and ETA *Arrives at checkpoints and destination ±3 minutes*			
Position fix by navigation facilities *Verifies position using VOR, ADF, or GPS*			
Flight on Federal Airways *Chooses appropriate altitudes, maintains courses ± ¾ scale deflection, altitude ±100 feet*			
At least one landing more than 100 nm from departure airport *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
CTAF (UNICOM) airports *Appropriate entry procedures, radio calls, collision avoidance, spacing, alt ±100 feet, A/S ± 10 kts*			
Attitude instrument flying (IR) *Maintains Alt ± 100 ft, Hdg ± 10°, A/S ± 10 kts*			
Partial panel (IR) *Maintains control Alt ± 150 ft, Hdg ± 15°, A/S ± 10 kts*			

Phase 2 **Progress Check* continued*

Recovery from unusual attitudes (IR) *Applies correct recovery control inputs using only instrument reference*			
Simulated systems failures *Follows recommended procedures, selects suitable course of action*			
Simulated engine failure *Follows recommended procedures, best glide ± 10 kts, suitable landing site, in position to land in site chosen*			
Power off 180° accuracy approach and landing *Considers wind, obstructions, touches down at or within 200 feet beyond specified touchdown point*			
Short field approach and landing *Stabilized approach, A/S ±5 kt, smooth roundout, touchdown -0/+100 ft specified pt, maintains X-W correction*			
Soft field approach and landing *Stabilized approach, A/S ±5 kt, smooth roundout, touches down softly, no drift, aligned with runway*			
Normal and crosswind landing *Uses stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maintains X-W correction*			
Collision avoidance procedures *Conforms to regulations and procedures and employs an effective scanning for other aircraft*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

*Phase 2 *Progress Check* completion standards:*

You have completed the Phase 2 **Progress Check** when you

- Can efficiently plan and fly a cross-country flight
- Manage both actual and simulated flight risks
- Achieve a grade of Perform or Manage/Decide in all tasks

INSTRUCTOR NOTES:

PHASE 3: Building Cross-Country Experience

Phase Objective: During this phase you will review and explore in depth

- Weather theory, reports, forecasts and charts needed for complete preflight planning
- Weight and balance concepts, calculations, proper loading, and CG changes due to fuel burn, and
- Build cross-country experience including a long flight with one leg that has a straight line distance of more than 250 nm, and
- Complete a progress check

Web-based KNOWLEDGE

WEATHER
WEIGHT AND BALANCE

3.1 WEATHER

Objective: You will learn how to interpret weather reports, forecasts, and charts so you can plan your flights without getting into trouble with the weather. In addition, you will see that you don't just look out the window to get the weather, but you can get weather reports and forecasts from many different places.

3.1.1 Measurements
- .1 Standard Temperature, Pressure, and Lapse Rate

3.1.2 The Atmosphere
- .1 Circulation
- .2 Convection

3.1.3 Moisture and Stability
- .1 Moisture and Stability
- .2 Air Masses and Clouds

3.1.4 Fog
- .1 Fog Formation
- .2 Effects of Wind and Frontal Activity

3.1.5 Freezing Rain and Ice
- .1 Occluded Fronts
- .2 Frost, Freezing Rain, and Wet Snow

3.1.6 Thunderstorms
- .1 Thunderstorm Stages
- .2 Thunderstorm Hazards
- .3 Weather Radar

3.1.7 Other Atmospheric Hazards
- .1 Wind Shear and Turbulence
- .2 Mountain Waves
- .3 Jet Stream

3.1.8 Sources of Weather Information
- .1 Preflight Weather Briefings
- .2 Flight Service and Weather Forecast Office

3.1.9 Surface Observation Reports
- .1 Remarks and SPECI Reports
- .2 Interpreting METAR Data

3.1.10 Obtaining Weather Enroute
- .1 Enroute Weather and Advisories

3.1.11 Forecasts
- .1 TAF – Format
- .2 TAF – From Grouping
- .3 TAF – Becoming Grouping
- .4 TAF – Wind, Sky Cover, and Significant Weather
- .5 Graphical Forecasts for Aviation

3.1.12 Inflight Weather Advisories
.1 AIRMETS and SIGMETs
3.1.13 Inflight Weather Broadcasts
.1 Weather Advisory Broadcasts
.2 ADS-B Weather
3.1.14 Observed Weather Charts
.1 Surface Analysis Chart
.2 Wind Aloft, and Weather Depiction Charts
3.1.15 Forecast Charts
.1 Low Level Significant Weather Prog Chart
.2 High Level Significant Weather Prog Chart

3.2 WEIGHT AND BALANCE

Objective: You will discover how to properly load your airplane and calculate where its center of gravity is located.

3.2.1 Weight and Balance Principles
.1 Weight and Balance Principles
.2 Formulas
3.2.2 Computing Weight and Balance
.1 Aircraft Empty Weight
.2 Calculating Moment and CG
.3 Balancing the Load
.4 Weight Shift

FLIGHT SCENARIOS

CROSS-COUNTRY (DAY PIC)
CROSS-COUNTRY (DAY PIC)
CROSS-COUNTRY (DAY PIC)
LONG CROSS-COUNTRY (DAY SOLO)
CROSS-COUNTRY AND PROGRESS CHECK (DUAL)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You fly for an expedited delivery service and are taking an added flight to deliver a critical climate control component for a major greenhouse flower grower. Unusually cold weather and equipment failure put the grower in danger of losing a significant portion of his crop. Snow and ice conditions have closed roads and prevented this flight for 3 days.
Where to go:
An airport a little over 100 nautical miles away
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Loss of navigation systems
Risks (real or simulated):
Low visibility and snow forecast in 6 hours after your departure

Preflight Discussion

Improving your skills:
Aeronautical Decision Making
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Taxiing and Runway Incursion Avoidance Procedures
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Use of Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF Courses (if aircraft equipped)
Intercepting and Tracking GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 2: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are flying a replacement airplane for a charter scheduled to leave from an outlying airport in two hours. The original aircraft has a passenger seat problem, and you will return it to home base for repair.
Where to go:
An airport over 100 nm from departure
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Simulated rugged terrain en route
Preflight Discussion

Improving your skills:
Aeronautical Decision Making
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Use of Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF Courses (if aircraft equipped)
Intercepting and Tracking GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 3: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
Your charter passenger is a surgeon who is performing multiple procedures in a remote hospital and returning the same day.
Where to go:
An airport over 100 nm from departure
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
As necessary to avoid low visibility in isolated rain showers
Planned malfunctions:
None
Risks (real or simulated):
Isolated rain showers en route

Preflight Discussion

Improving your skills:
Aeronautical Decision Making
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Use of Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF Courses (if aircraft equipped)
Intercepting and Tracking GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 4: Long Cross-Country (Day Solo)

Objective:
You'll improve your cross-country flight operations proficiency by conducting a solo cross-country flight landing at least three points. One leg of the flight will include a straight-line distance of at least 250 nm.
Purpose/pressures (real or simulated):
You are an air ambulance pilot transporting a critical automobile accident patient to a large city where specialized treatment is available. Your second leg involves taking a recovering patient to a third city near home, and the third leg is a Pt 91 (non-revenue) return to home base.
Where to go:
Two other airports where one leg is more than 250 nm miles straight-line distance
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
To a suitable airport as necessary for weather
Planned malfunctions:
GPS failure
Risks (real or simulated):
Departure airport weather is broken at 4,200 feet and tops are unknown as there are no PIREPS, destination is greater than 5,000 feet and 5.

Preflight Discussion

Improving your skills:
Aeronautical Decision Making
Risk Management
Controlled Flight into Terrain Awareness (CFIT)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Use of Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR Courses
Intercepting and Tracking ADF Courses (if aircraft equipped)
Intercepting and Tracking GPS Courses (if aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Leg a Straight-Line Distance More Than 250 nm
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

Phase 3 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Icing and freezing level information			
AWOS, ASOS and ATIS reports			
Windshear reports			
Convective Outlook Charts			
Loading the airplane you fly			

Phase 3 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Aeronautical decision making *Uses sound decision-making process, recognizes hazardous attitudes, appropriate response to changes*			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles along intended route and diversion to alternates, uses tools available*			
Preflight procedures			
Cross-country flight planning *Plans assigned X-C accurately and completely using appropriate resources*			
Preflight inspection *Performs preflight inspection using the checklist to confirm that all steps have been completed*			
Checklist use *Appropriate use of checklist while maintaining proper visual scanning and division of attention*			
Taxiing and runway incursion avoidance procedures *Records taxi instructions, uses airport diagram, applies full attention to taxiing*			
In-flight			
Normal and crosswind takeoff and climb *Rejected TO proc, check/calc X-wind, corrects wind drift, rotates V_R, appro climb power, config, V_Y ± 5kts*			
Short field takeoff and climb *Rejected TO procedures, checks wind, rotates recommended V_R, climb power/configuration V_X +5/-0kts*			
Soft field takeoff and climb *Flight controls/configuration to quickly maximize lift, rotates at lowest possible A/S, in Gnd Effect to V_X or V_Y*			
Departure *Complies with appropriate procedures for that airspace/airport and ATC instructions*			

Phase 3 Proficiency Checklist *continued*

Opening/closing flight plan *Uses appropriate procedures and frequencies*			
Use of radar services *Understands range of services available, uses correct frequencies and procedures when accessing*			
Course interception *Anticipates and recognizes when intercepting planned course*			
Pilotage *Flies course by preplanned landmarks, identifies landmarks by surface features to chart symbols*			
Dead reckoning *Maintains navigation log, demonstrates mag compass use, corrects to track ± 1 nm of route, ETA ±3 min*			
Intercepting and tracking VOR courses *Intercepts & tracks VOR courses ± ½ scale deflection or ± 5° on an RMI, altitude ±50 feet*			
Intercepting and tracking ADF courses (if aircraft equipped) *Intercepts & tracks GPS and/or ADF courses ± ½ scale deflection or ± 5° on an RMI, altitude ±50 feet*			
Intercepting and tracking GPS courses (if aircraft equipped) *Intercepts & tracks GPS and/or ADF courses ± ½ scale deflection or ± 5° on an RMI, altitude ±50 feet*			
Power settings and mixture control *Sets engine controls conforming to manufacturer's procedures and flight plan*			
Estimates of ground speed and ETA *Arrives at checkpoints and destination ±3 minutes*			
Position fix by navigation facilities *Verifies position using VOR, ADF, or GPS*			
Flight on Federal Airways *Chooses appropriate altitudes, maintains courses ± ½ scale deflection, altitude ±100 feet*			
CTAF (UNICOM) airports *Appropriate entry procedures, radio calls, collision avoidance, spacing, Alt ±100 feet, A/S ± 10 kts*			
At least one landing more than 100 nm from departure airport *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
At least one leg with a straight-line distance more than 250 nm *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
Power off 180° accuracy approach and landing *Considers wind, obstructions, touches down at or within 200 feet beyond specified touchdown point*			
Short field approach and landing *Stabilized approach, ±5 kt, smooth roundout, touchdown -0/+100 ft specified pt, maintains X-W correction*			
Soft field approach and landing *Stabilized approach, A/S ±5 kt, smooth roundout, touches down softly, no drift, aligned with runway*			
Normal and crosswind landing *Stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maint X-W correct, no drift, aligned w/rwy*			
Collision avoidance procedures *Conforms to regulations and procedures and employs an effective scanning for other aircraft*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

Phase 3 completion standards:

You have completed Phase 3 when you

- Effectively employ available systems and techniques while demonstrating precise cross-country navigation
- Achieve a grade of "Perform" or "Manage/Decide" on all Phase Proficiency Checklist tasks
- Exercise short and soft field takeoff and landing techniques
- Review your home study results with your instructor
- Complete the Phase 3 Progress Stage 1 Check

INSTRUCTOR NOTES:

SCENARIO 5: Cross-Country and Phase 3 Progress Stage 1 Check (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll have a chance to demonstrate your ability to plan and fly a cross-country flight that meets the completion standards in the Commercial Pilot Airman Certification Standards. It is recommended that the Chief/Assistant Chief Flight Instructor give this lesson.

Purpose/pressures (real or simulated):
You have an opportunity to do aerial survey work and you are being evaluated on your ability to use the instruments to precisely fly the airplane.

Where to go:
An airport at least 50 nm from departure airport

How to get there:
Pilotage, DR, VOR/GPS courses

Planned deviations:
None

Planned malfunctions:
Primary instrument or display failure (simulated)

Risks (real or simulated):
Stress that arises with having your performance evaluated

Preflight Discussion

Checking your knowledge and skills:

Aeronautical Decision Making
Risk Management
Controlled Flight into Terrain Awareness (CFIT
Situational Awareness
Task Management
Automation Management
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Fire Extinguisher
Doors, Safety Belts and Shoulder Harnesses
Engine Starting and Warmup
Use of ATIS
Taxiing and Runway Incursion Avoidance Procedures
Before Takeoff Check and Engine Runup
Normal and Crosswind Takeoff and Climb
Tower Controlled Airports/High Density Airport Operations
Departure
Opening/Closing Flight Plan
Use of Radar Services
Course Interception
Pilotage
Dead Reckoning
Attitude Instrument Flying (IR)
Intercepting and Tracking VOR Courses (IR)
Intercepting and Tracking ADF Courses (IR) (if aircraft equipped)
Intercepting and Tracking GPS Courses (IR) (if aircraft equipped)
Partial Panel (IR)
Recovery from Unusual Attitudes (IR)
Power Settings and Mixture Control
Diversion to an Alternate
Lost Procedures
Simulated Systems Failures
Simulated Engine Failure
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 50 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Accuracy Approach and Landing
Normal and Crosswind Landing
Go-Around
Collision Avoidance Procedures
After Landing, Parking and Securing
Postflight Procedures

Postflight Discussion

Phase 3 **Progress Stage 1 Check**

Desired outcome for all tasks for the Progress Check is "Perform" or "Manage/Decide"	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Aeronautical decision making *Uses sound decision-making process, recognizes hazardous attitudes, appropriate response to changes*			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles along intended route and diversion to alternates, uses tools available*			
Situational awareness *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Task management *Prioritizes tasks, completes in timely manner without distractions to flying, uses checklists*			
Automation management *If installed, utilizes autopilot/FMS to reduce workload as appropriate, understands modes and failures*			
Preflight procedures			
Cross-country flight planning *Plans assigned X-C accurately and completely using appropriate resources*			
Preflight inspection *Performs thorough preflight inspection using the checklist to confirm that all steps have been completed*			
Checklist use *Appropriate use of checklist while maintaining proper visual scanning and division of attention*			
Fire extinguisher *Knows location and can describe/demonstrate use (without activating or breaking seals)*			
Doors, safety belts, and shoulder harnesses *Demonstrates operation, explains when safety belt and shoulder harness use is required*			
Engine starting and warmup *Positions airplane appropriately, uses checklist and safety procedures considering other persons/property*			
Use of ATIS *Obtains, records and correctly interprets ATIS information*			
Taxiing and runway incursion avoidance procedures *Records taxi instructions, uses airport diagram, applies full attention to taxiing*			
Before takeoff check and engine runup *Uses checklist, makes thorough pre-takeoff airframe and systems checks and engine runup*			
In-flight			
Normal and crosswind takeoff and climb *Rejected TO proced, check/calc X-wind, corrects wind drift, rotates V_R, appro climb power, config, V_Y ± 5kts*			
Short field takeoff and climb *Rejected TO procedures, checks wind, rotates recommended V_R, climb power/configuration V_x +5/-0kts*			
Soft field takeoff and climb *Flight controls/configuration to quickly maximize lift, rotates at lowest possible A/S, in Gnd Effect to V_X or V_Y*			
Tower controlled airports/high density airport operations *Uses appropriate procedures and radio communications, aware of airspace boundaries*			
Departure *Complies with appropriate procedures for that airspace/airport and ATC instructions*			
Opening/closing flight plan *Uses appropriate procedures and frequencies*			
Use of radar services *Understands range of services available, uses correct frequencies and procedures when accessing*			
Course interception *Anticipates and recognizes when intercepting planned course*			
Pilotage *Flies course by preplanned landmarks, identifies landmarks by surface features to chart symbols*			

Phase 3 **Progress Stage 1 Check* continued*

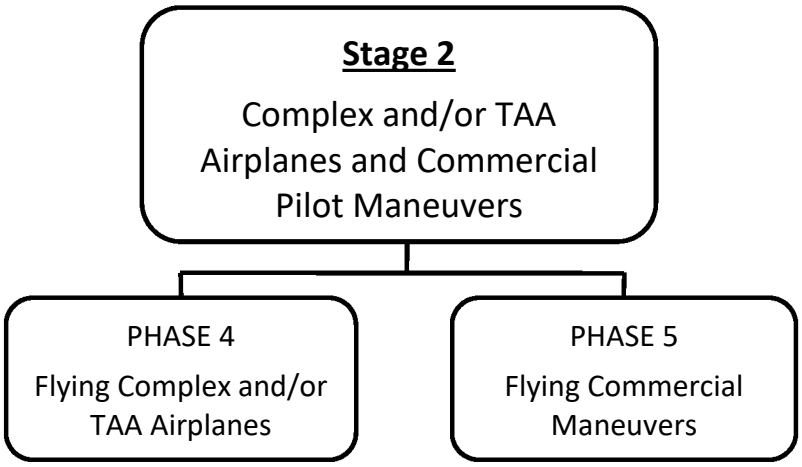
Dead reckoning *Maintains navigation log, demonstrates mag compass use, corrects to track ± 1 nm of route, ETA ±3 min*			
Attitude instrument flying (IR) *Maintains Alt ± 50 ft, Hdg ± 8°, A/S ± 5 kts*			
Intercepting and tracking VOR courses (IR) *Tracks VOR courses ± ½ scale deflection or ± 5° on an RMI, altitude ± 50 feet*			
Intercepting and tracking ADF courses (IR) (if aircraft equipped) *Tracks ADF courses ± ¾ scale deflection or ± 10° on an RMI, altitude ± 50 feet*			
Intercepting and tracking GPS courses (IR) (if aircraft equipped) *Tracks GPS course ± ½ scale deflection or ± 5° on an RMI, altitude ± 50 feet*			
Partial panel (IR) *Maintains control Alt ± 100 ft, Hdg ± 10°, ± A/S 10 kts*			
Recovery from unusual attitudes (IR) *Applies correct recovery control inputs using only instrument reference*			
Power settings and mixture control *Sets engine controls conforming to manufacturer's procedures and flight plan*			
Diversion to an alternate *Chooses appropriate alternate and route, accurate ETA, fuel estimate, Alt ±100 feet, Hdg ± 10°*			
Lost procedures *Uses appropriate procedures and confirms position*			
Simulated systems failures *Follows recommended procedures, selects suitable course of action*			
Simulated engine failure *Follows recommended procedures, best glide ± 10 kts, suitable landing site, in position to land in site chosen*			
Estimates of ground speed and ETA *Arrives at checkpoints and destination ±3 minutes*			
Position fix by navigation facilities *Verifies position using VOR, ADF, or GPS*			
Flight on Federal Airways *Chooses appropriate altitudes, maintains courses ± ½ scale deflection, altitude ±100 feet*			
CTAF (UNICOM) airports *Appropriate entry procedures, radio calls, collision avoidance, spacing, Alt ±100 feet, A/S ± 10 kts*			
At least one landing more than 50 nm from departure airport *Reviews airport information, NOTAMS, forecast weather and plans alternative actions*			
Power off 180° accuracy approach and landing *Considers wind, obstructions, touches down at or within 200 feet beyond specified touchdown point*			
Normal and crosswind landing *Stabilized approach, A/S ±5 kt, smooth roundout and touchdown, maint X-W correct, no drift, aligned w/rwy*			
Short field approach and landing *Stabilized approach, A/S ±5 kt, smooth roundout, touchdown -0/+100 ft specified pt, maintains X-W correction*			
Soft field approach and landing *Stabilized approach, A/S ±5 kt, smooth roundout, touches down softly, no drift, aligned with runway*			
Go-around *Makes timely decision, climb power and pitch for V_X/V_Y, +10/-5 kts, flaps & gear up as appropriate*			
Collision avoidance procedures *Conforms to regulations and procedures and employs an effective scanning for other aircraft*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

*Phase 3 *Progress Check* completion standards:*

You have completed the Phase 3 **Progress Check** when you

- Demonstrate sound single pilot resource management
- Manage both actual and simulated flight risks
- Complete all tasks evaluated as Manage/Decide or Perform

INSTRUCTOR NOTES:



Stage 2 consists of two Phases
- Flying Complex and/or TAA Airplanes
- Flying Commercial Maneuvers

Stage Objective: During this stage you will
- Expand your knowledge of aerodynamics
- Become familiar with operating a complex and/or a Technically Advanced Airplane (TAA)
- Study the objectives and techniques of the commercial pilot maneuvers
- Review the factors affecting performance and calculate takeoff, cruise and landing data
- Master the commercial pilot maneuvers
- Fly with a check instructor to check your course progress

Each phase contains **Web-based Knowledge Instruction**
- The web-based knowledge instruction for the phase should be completed prior to starting the flight scenarios to ensure fundamental knowledge before the flight.

Each phase contains multiple **Flight Scenarios** that can be
- Customized for your local training environment
- Repeated, or
- Omitted if all items in the Phase Proficiency Checklist are completed to standard.

At the end of each Phase are the **Ground Training Checklist** and **Phase Proficiency Checklist**
- All items in the checklist must be completed to the appropriate standard listed before the Phase is considered complete.

PHASE 4: Flying Complex and/or TAA Airplanes

Phase Objective: During this phase you will develop your knowledge, skills and confidence through:

- Studying aerodynamic topics of stability, rate and radius of turn, CG effect on spins and load factor
- Exploring airspeed limitations and aerodynamic hazards including high-speed flight
- Operating a complex airplane with retractable landing gear and a constant-speed propeller, or
- Operating a Technically Advanced Aircraft (TAA)
- Performing visual and instrument maneuvers in a complex or TAA airplane
- Recovering from unusual flight attitudes referring only to flight instruments
- Demonstrating performance to standards during a progress check

Web-based KNOWLEDGE

AERODYNAMICS

4.1 AERODYNAMICS

Objective: You will learn the forces that act on an airplane when it is level, climbing, descending, and turning. In addition, you will learn why those forces change when flying very close to the ground. You'll also see how flaps, turning and where you load things in your airplane affect your airplane's performance.

4.1.1 Basic Aerodynamics
- .1 Angle of Attack and Lift
- .2 Stalls
- .3 Secondary Flight Controls

4.1.2 Forces on an Aircraft
- .1 Four Forces
- .2 Drag
- .3 Angle of Attack, Lift, and Drag
- .4 Torque

4.1.3 Stability
- .1 Static and Dynamic Stability
- .2 Center of Gravity and Spins

4.1.4 Turns
- .1 Angle of Bank
- .2 Rate and Radius

4.1.5 Load Factor
- .1 Total Loading and Wing Loading
- .2 G Forces

4.1.6 Structural Limitations
- .1 Airspeed Indicator, Maneuvering Speed, and Flying within the Envelope

4.1.7 Aerodynamic Hazards
- .1 High Speed Flight
- .2 Wingtip Vortices
- .3 Ground Effect

FLIGHT SCENARIOS

COMPLEX OR TAA AIRPLANE (DUAL)
COMPLEX OR TAA AIRPLANE, STALLS AND INSTRUMENT REFERENCE (DUAL)
COMPLEX OR TAA AIRPLANE, MANEUVERS AND PROGRESS CHECK (DUAL)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Complex or TAA Airplane (Dual)

Objective:
You'll be introduced to the basic systems and flight operations of a complex or a TAA airplane.
Purpose/pressures (real or simulated):
Your flight today is to take two clients to a mountain ski resort to survey a proposed construction site and return to home field.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Landing gear fails to extend when selected
Risks (real or simulated):
Distraction due to unfamiliarity with complex or TAA airplane equipment
Failing to extend landing gear on approach to landing

Preflight Discussion

New this scenario:
Complex or TAA Airplane
Performance and Limitations
Preflight Inspection
Engine Starting and Taxiing
Before Takeoff Check
Normal and Crosswind Takeoff and Climb
Use of Retractable Landing Gear
Climbs and Descents
Power Settings and Mixture Leaning
Use of Constant Speed Propeller
Maneuvering During Slow Flight
Normal and Crosswind Landing
After Landing, Parking and Securing

Improving your skills:
Aeronautical Decision Making
Risk Management
Situational Awareness
Task Management

Postflight Discussion

SCENARIO 2: Complex or TAA Airplane, Stalls and Instrument Reference (Dual)

Objective:
You'll gain experience in complex or a TAA airplane operations while in visual and simulated instrument conditions.
Purpose/pressures (real or simulated):
Your passengers are meeting business associates at a 30-minute distant airport to sign time-sensitive documents. Estimated time on the ground is 45 minutes. A VIP TFR is scheduled to include your airport in 4 hours.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
Route and destination changes for not forecast convective activity and adverse airport conditions
Planned malfunctions:
Simulated loss of propeller control
Risks (real or simulated):
Low visibility due to forecast of intermittent light snow showers
TFR airspace violation due to missed NOTAM revisions

Preflight Discussion

New this scenario:
Complex or TAA Airplane
Power-Off Stall (approach to landing stall)
Power-On Stall (takeoff and departure stall)
Go-Around
Straight and Level Altitude Flight (IR)
Standard Rate Turns (IR)
Climbs and Climbing Turns (IR)
Descents and Descending Turns (IR)
Recovery from Unusual Flight Attitudes (IR)
Maneuvering During Slow Flight (IR)

Improving your skills:
Aeronautical Decision Making
Risk Management
Situational Awareness
Task Management
Performance and Limitations
Preflight Inspection
Engine Starting and Taxiing
Before Takeoff Check
Normal and Crosswind Takeoff and Climb
Use of Retractable Landing Gear
Climbs and Descents
Power Settings and Mixture Leaning
Use of Constant Speed Propeller
Maneuvering During Slow Flight
Normal and Crosswind Landing
After Landing, Parking and Securing

Postflight Discussion

Phase 4 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Landing gear systems and emergency extension			
Constant speed propeller mechanism and operation			
Run up and setting power with a constant speed propeller			
Loss of propeller control			
Good operational habits with retractable landing gear			

Phase 4 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/Decide
Single-pilot resource management			
Aeronautical decision making *Uses sound decision-making process, recognizes hazardous attitudes, appropriate response to changes*			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Situational awareness *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Task management *Prioritizes tasks, completes in timely manner without distractions to flying, uses checklists*			
Preflight procedures			
Performance and limitations *Aware of aircraft limitations, calculates performance, determines W&B, describes effects of different conditions*			
Preflight inspection *Performs preflight inspection using the checklist, understands the unique items for landing gear and propeller*			
Engine starting and taxiing *Correctly positions engine controls, checks landing gear switch down prior to applying electrical power*			
Before takeoff check *Positions aircraft, uses checklist, engine instruments ready for runup, follows manufacturer's procedures*			
In-flight			
Normal and crosswind takeoff and climb *ACS standards*			
Use of retractable landing gear *Understands normal and emergency operation, limitations, applies best operational procedures*			
Climbs and descents *Smoothly sets climb/descent power settings, establishes climb/descent attitudes, divides attention in and out*			
Power settings and mixture leaning *Smooth and correct engine management, appropriate power settings and mixture leaning*			
Use of constant speed propeller *Understands correct operation, response to failure, role in operational efficiency and performance*			
Maneuvering during slow flight *ACS standards*			

Phase 4 Proficiency Checklist *continued*

Power-off stall (approach to landing stall) *ACS standards*			
Power-on stall (takeoff and departure stall) *ACS standards*			
Go-Around *ACS standards*			
Straight and level altitude flight (IR) *Maintains Alt ± 100 ft, Hdg ± 10°, A/S ± 5 kts*			
Standard rate turns (IR) *Maintains Alt ± 100 ft, A/S ± 5 kts, rolls out on Hdg ± 5°*			
Climbs and climbing turns (IR) *Maintains Hdg ± 5°, A/S ± 5 kts, levels Alt ± 100 ft*			
Descents and descending turns (IR) *Maintains Hdg ± 5°, A/S ± 5 kts, levels Alt ± 100 ft*			
Recovery from unusual flight attitudes (IR) *Applies appropriate pitch, bank, and power corrections in the correct sequence, smoothly returns to level flight*			
Maneuvering during slow flight (IR) *Maintains Alt ± 100 ft, Hdg ± 10°, A/S + 5/- 0 kts, specified angle of bank ± 5°*			
Normal and crosswind landing *ACS standards*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

Phase 4 completion standards:

You have completed Phase 4 when you

- Can perform the maneuvers in a complex or a TAA airplane
- Maintain situational awareness while operating a complex or a TAA airplane
- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Review your home study results with your instructor
- Complete the Progress Check

INSTRUCTOR NOTES:

SCENARIO 3: Complex or TAA Airplane, Maneuvers and Progress Check (Dual)

Objective:
You'll use techniques to operate a complex or a TAA airplane out of soft or short runways. You'll also discover how some of the systems in a complex airplane can malfunction and what you can do when it happens. For the Progress Check you will have a chance to demonstrate previously learned maneuvers according to the completion standards for this flight. It is recommended that the Chief/Assistant Chief Flight Instructor give this flight lesson.

Purpose/pressures (real or simulated):
In a 36 hour window between two storms, you are flying a two-person survey team and equipment to a remote runway (no facilities) on Federal lands. They have been delayed for several weeks, and the permit for this project expires in three days. They would have to wait nine months before another attempt is possible.

Where to go:
To a nearby area free of obstructions and dense traffic and an appropriate airport for short and soft field takeoffs and landings

How to get there:
Pilotage, DR, VOR/GPS courses

Planned deviations:
As necessary to deal with simulated malfunctions

Planned malfunctions:
Simulated landing gear extension failure, loss of prop control, electrical failure, engine failure

Risks (real or simulated):
Distraction due to complex or TAA airplane workload

Preflight Discussion

New this scenario:
Complex or TAA Airplane
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Simulated System Failures
Simulated Engine Failure
Accelerated Stall

Testing your skills:
Aeronautical Decision Making
Risk Management
Situational Awareness
Task Management
Performance and Limitations
Preflight Inspection
Engine Starting and Taxiing
Before Takeoff Check
Normal and Crosswind Takeoff and Climb
Use of Retractable Landing Gear
Climbs and Descents
Power Settings and Mixture Leaning
Use of Constant Speed Propeller
Power-Off Stall (approach to landing stall)
Power-On Stall (takeoff and departure stall)
Go-Around
Maneuvering During Slow Flight
Partial Panel (IR)
Intercepting and Tracking Navigation Systems (IR)
Recovery from Unusual Flight Attitudes (IR)
Normal and Crosswind Landing
After Landing, Parking and Securing

Postflight Discussion

Stage 2, Phase 4: Flying Complex and/or TAA Airplanes

Phase 4 **Progress Check**

Desired outcome for all tasks for the Progress Check is "Perform" or "Manage/Decide"	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Aeronautical decision making *Uses sound decision-making process, recognizes hazardous attitudes, appropriate response to changes*			
Risk management *Identifies risks both preflight and in-flight, evaluates options and chooses actions to mitigate the risks*			
Situational awareness *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Task management *Prioritizes tasks, completes in timely manner without distractions to flying, uses checklists*			
Preflight procedures			
Performance and Limitations *Aware of aircraft limitations, calculates performance, determines W&B, describes effects of different conditions*			
Preflight inspection *Performs preflight inspection using the checklist, understands the unique items for landing gear and propeller*			
Engine starting and taxiing *Correctly positions engine controls, checks landing gear switch down prior to applying electrical power*			
Before takeoff check *Positions aircraft, uses checklist, engine instruments ready for runup, follows manufacturer's procedures*			
In-flight			
Normal and crosswind takeoff and climb *ACS standards*			
Use of retractable landing gear *Understands normal and emergency operation, limitations, applies best operational procedures*			
Climbs and descents *Smoothly sets climb/descent power settings, establishes climb/descent attitudes, divides attention in and out*			
Power settings and mixture leaning *Smooth and correct engine management, appropriate power settings and mixture leaning*			
Use of constant speed propeller *Smooth use of engine controls, stays within engine limitations, understands emergency procedures*			
Maneuvering during slow flight *ACS standards*			
Power-off stall (approach to landing stall) *ACS standards*			
Power-on stall (takeoff and departure stall) *ACS standards*			
Go-around *ACS standards*			
Partial panel (IR) *Maintains control Alt ± 100 ft, Hdg ± 10°, A/S ± 10 kts, tracks courses ± ¾ scale deflection*			
Intercepting and tracking navigation systems (IR) *Tracks courses ± ½ scale deflection or ± 5° on an RMI, altitude ± 50 feet*			
Recovery from unusual flight attitudes (IR) *Recovers using proper pitch, power, and bank inputs and restores positive aircraft control*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			

Phase 4 **Progress Check* continued*

Soft field approach and landing *ACS standards*			
Power off 180° approach and landing *ACS standards*			
Simulated system failures *ACS standards*			
Simulated engine failure *ACS standards*			
Accelerated stall *Selects altitude allowing recovery by 3,000 AGL, suitable airspeed, smooth entry, recognition and recovery*			
Normal and crosswind landing *ACS standards*			
Postflight procedures			
After landing, parking and securing *Runway incursion avoidance procedures, completes appropriate checklists and postflight inspection*			

*Phase 4 *Progress Check* completion standards:*

You have completed the Phase 4 **Progress Check** when you

- Demonstrate sound single pilot resource management
- Manage both actual and simulated flight risks
- Complete all tasks evaluated as Manage/Decide or Perform

INSTRUCTOR NOTES:

PHASE 5: Flying Commercial Maneuvers

Phase Objective: During this phase you will

- Gain an understanding of the maneuvers unique to the Commercial Pilot practical test: Steep Spirals, Chandelles, Lazy Eights, Eights on Pylons, Power-off 180° Accuracy Approaches
- Study the environmental impact on aircraft performance and review techniques for calculating estimated performance under different conditions
- Master the commercial pilot maneuvers
- Complete a Progress Check

Web-based KNOWLEDGE

COMMERCIAL MANEUVERS
AIRCRAFT PERFORMANCE

5.1 COMMERCIAL MANEUVERS

Objective: You will be introduced to the Commercial Pilot performance and ground reference maneuvers, Steep Turns, Steep Spirals, Chandelles, Lazy Eights, Eights on Pylons and "Spot" Landings. You will learn the objective of each maneuver, proper entry, control coordination, key reference points, and completion. You will also learn how load factor affects you in a steep-bank maneuver and the relationship between ground speed, altitude and bank angle when visually keeping an airplane part aligned with a ground reference point. And finally, you will learn the common errors for each maneuver and methods to correct them.

5.1.1 Steep Turns and Steep Spirals
- .1 The Whats and Whys of Steep Turns
- .2 Load Factor and You
- .3 How to Do Great Steep Turns
- .4 Performing Steep Spirals

5.1.2 Chandelles
- .1 Introduction to the Chandelle
- .2 How to Do Chandelles
- .3 Techniques for a Perfect Chandelle

5.1.3 Lazy Eights
- .1 Introduction to Lazy Eights
- .2 How to Do Lazy Eights
- .3 Techniques for Perfect Lazy Eights

5.1.4 Eights on Pylons
- .1 Introduction to Eights On Pylons
- .2 How to Do Eights On Pylons
- .3 Techniques for Perfect Eights On Pylons

5.1.5 Power-off Approach
- .1 How to do Power-Off 180° Accuracy Approaches and Landings

5.2 AIRCRAFT PERFORMANCE

Objective: You will learn how the temperature of the air affects the power of your engine. You'll also see how to calculate what that change does to your take-off distance, climb rate, fuel consumption and landing distance. And you'll be able to tell how much of a crosswind a crosswind really is.

5.2.1 Pressure and Density Altitude
- .1 Figuring Pressure and Density Altitude
- .2 Airspeed Corrections

5.2.2 Takeoff and Climb
- .1 Obstacle Takeoff
- .2 Maximum Climb Rate
- .3 Fuel, Time and Distance with Maximum Climb
- .4 Climbing to Cruise Altitude
- .5 Normal Climb

5.2.3 Cruise Performance
- .1 Maximum Flight Time
- .2 Fuel Consumption vs. Brake Horsepower
- .3 Endurance
- .4 Available Flight Time

5.2.4 Landing
- .1 Figuring the Wind Component
- .2 Normal Landing – Landing Distance

FLIGHT SCENARIOS

STEEP TURNS/SPIRALS, EMERGENCY DESCENT AND MANEUVERS REVIEW (DUAL)
CHANDELLES AND MANEUVERS REVIEW (DUAL)
MANEUVERS SKILL IMPROVEMENT (PIC)
LAZY EIGHTS AND MANEUVERS REVIEW (DUAL)
MANEUVERS SKILL IMPROVEMENT (PIC)
EIGHTS ON PYLONS AND MANEUVERS REVIEW (DUAL)
MANEUVERS SKILL IMPROVEMENT (PIC)
CROSS-COUNTRY (DAY PIC)
COMMERCIAL MANEUVERS REVIEW (DUAL)
PROGRESS CHECK (DUAL)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Steep Turns/Spirals, Emergency Descent and Maneuvers Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll learn the look and feel of steep banked turns, steep spirals and how to perform an emergency descent.
Purpose/pressures (real or simulated):
You are learning and refining maneuvers for the upcoming practical test.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Disorientation
Other air traffic while maneuvering

Preflight Discussion

New this scenario:
Steep Turns
Steep Spirals
Emergency Descent (including simulated cabin decompression)

Improving your skills:
Single Pilot Resource Management (SRM)
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated Stall
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Intercepting and Tracking Navigation Systems Partial Panel (IR)
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 2: Chandelles and Maneuvers Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll learn how to perform a 180 degree maximum climbing maneuver which places an emphasis on planning, coordination and orientation, the chandelle.
Purpose/pressures (real or simulated):
You are learning and refining maneuvers for the upcoming practical test.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Simulated engine failure
Simulated pressurization failure
Risks (real or simulated):
Disorientation
Other air traffic while maneuvering

Preflight Discussion

New this scenario:
Chandelles

Improving your skills:
Single Pilot Resource Management (SRM)
Steep Turns
Steep Spirals
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Emergency Descent
Power Off 180° Approach and Landing
Intercepting and Tracking Navigation Systems Partial Panel (IR)
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 3: Maneuvers Skill Improvement (PIC)

Objective:
You'll improve your proficiency in commercial maneuvers.
Purpose/pressures (real or simulated):
You are refining maneuvers for the upcoming practical test.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Chandelles
Steep Turns
Steep Spirals
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 4: Lazy Eights and Maneuvers Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll discover a maneuver where you'll want to change your altitude and direction every 90 degrees but not too quickly to keep your lazy eight really lazy.
Purpose/pressures (real or simulated):
You are learning and refining maneuvers for the upcoming practical test.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Primary instrument failure while in IMC (simulated)
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

New this scenario:
Lazy Eights

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Accelerated Stall
Intercepting and Tracking Navigation Systems (IR)
Partial Panel (IR)
Recovery from Unusual Attitudes (IR)
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 5: Maneuvers Skill Improvement (PIC)

Objective:
You'll improve your proficiency in commercial maneuvers.
Purpose/pressures (real or simulated):
You are refining your skill with maneuvers for the upcoming practical test
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated Stall
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 6: Eights on Pylons and Maneuvers Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll learn how to vary your altitude as your ground speed changes to turn on a point on the ground.
Purpose/pressures (real or simulated):
You are learning and refining your skill with maneuvers for the upcoming practical test
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Engine failure (simulated)
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

New this scenario:
Eights On Pylons

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Attitude Instrument Flying (straight and level, turns, climbs & descents) (IR)
Intercepting and Tracking Navigation Systems Partial Panel (IR)
Recovery from Unusual Attitudes (IR)
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 7: Maneuvers Skill Improvement (PIC)

Objective:
You'll improve your proficiency in commercial maneuvers.
Purpose/pressures (real or simulated):
You are refining your skill with maneuvers for the upcoming practical test
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 8: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are flying to a remote city to deliver and pick up express cargo.
Where to go:
One or more airports with one more than 50 nm from departure airport
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Marginal visibility not forecast (simulated)
Additional fuel consumption due to weather deviation (simulated)

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Pilotage
Dead Reckoning
Intercepting and Tracking VOR/GPS Courses (as aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 50 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 9: Commercial Maneuvers Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll improve your proficiency in commercial maneuvers.
Purpose/pressures (real or simulated):
Achieving proficiency and consistency with commercial maneuvers in preparation for the practical test
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
None
Risks (real or simulated):
Distractions
Other air traffic while maneuvering

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Attitude Instrument Flying (IR)
- (Straight and Level Altitude Flight)
- (Standard Rate Turns)
- (Climbs and Climbing Turns)
- (Descents and Descending Turns)

Recovery from Unusual Attitudes (IR)
Maneuvering During Slow Flight (IR)
After Landing, Parking and Securing

Postflight Discussion

Phase 5 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Steep spiral and emergency descent techniques, standards and use			
Chandelles and lazy eights techniques and standards			
Eights on pylons techniques and standards			
Impact of environmental factors on performance			
Calculating performance and managing risk with the predicted results			
Stall/spin awareness			

Phase 5 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Single-pilot resource management (SRM) *Utilizes all resources available to ensure the successful completion of the flight*			
Preflight procedures			
Cross-country flight planning *ACS standards*			
Preflight inspection *ACS standards*			
In-flight			
Checklist use *ACS standards*			
Normal and crosswind takeoff and climb *ACS standards*			
Departure *ACS standards*			
Opening/closing flight plan *ACS standards*			
Radar services *ACS standards*			
Pilotage *ACS standards*			
Dead reckoning *ACS standards*			
Intercepting and tracking VOR/ADF/GPS courses (as aircraft equipped) *ACS standards*			
Power settings and mixture control *ACS standards*			
Estimates of ground speed and ETA *ACS standards*			
Position fix by navigation facilities *ACS standards*			
Flight on Federal airways *ACS standards*			

Phase 5 Proficiency Checklist *continued*

CTAF (UNICOM) airports *ACS standards*			
At least one landing more than 50 nm from departure airport *ACS standards*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			
Soft field approach and landing *ACS standards*			
Steep turns *ACS standards*			
Steep spirals *ACS standards*			
Emergency descent *ACS standards*			
Chandelles *ACS standards*			
Lazy eights *ACS standards*			
Eights on pylons *ACS standards*			
Power off stall (approach to landing stall) *ACS standards*			
Power on stall (takeoff and departure stall) *ACS standards*			
Accelerated stall *ACS standards*			
Power off 180° approach and landing *ACS standards*			
Attitude instrument flying (straight and level, turns, climbs & descents) (IR) *ACS standards*			
Intercepting and tracking navigation systems (IR) *ACS standards*			
Partial panel (IR) *ACS standards*			
Intercepting and tracking navigation systems partial panel (IR) *ACS standards*			
Recovery from unusual attitudes (IR) *ACS standards*			
Maneuvering during slow flight (IR) *ACS standards*			
Collision avoidance procedures *ACS standards*			
Postflight procedures			
After landing, parking and securing *ACS standards*			

Phase 5 completion standards:

You have completed Phase 5 when you

- Understand and master the commercial performance and ground reference maneuvers
- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Reviewed the Phase Progress Report with your instructor
- Completed the Phase 5 Progress Stage 2 Check

INSTRUCTOR NOTES:

SCENARIO 10: Phase 5 Progress Stage 2 Check (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll have an opportunity to demonstrate you are the master of the commercial maneuvers. It is recommended that the Chief/Assistant Chief Flight Instructor give this flight lesson.
Purpose/pressures (real or simulated):
You would like to fly your airplane on business trips for your company. Your company's risk manager requires you to pass an evaluation to commercial ACS standards by the chief or assistant chief instructor at a local flight school.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Rough running engine
Pressurization failure
Risks (real or simulated):
Inadvertent IMC (simulated)

Preflight Discussion

Testing Your skills:
Single Pilot Resource Management (SRM)
Preflight Preparation
Preflight Procedures
Airport Operations
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Emergency Descent
Power Off 180° Approach and Landing
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated Stall
Straight and Level Altitude Flight (IR)
Standard Rate Turns (IR)
Climbs and Climbing Turns (IR)
Descents and Descending Turns (IR)
Recovery from Unusual Attitudes (IR)
Maneuvering During Slow Flight (IR)
Intercepting and Tracking Navigation Systems Partial Panel (IR)

Postflight Discussion

Phase 5 **Progress Stage 2 Check**

Desired outcome for all tasks for the Progress Check is "Perform" or "Manage/Decide"	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Single-pilot resource management (SRM) *Utilizes all resources available to ensure the successful completion of the flight*			
Preflight			
Preflight preparation *ACS standards*			
Preflight procedures *ACS standards*			
Airport operations *ACS standards*			
In-flight			
Chandelles *ACS standards*			
Steep turns *ACS standards*			
Steep spirals *ACS standards*			
Lazy eights *ACS standards*			
Eights on pylons *ACS standards*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			
Soft field approach and landing *ACS standards*			
Emergency descent *ACS standards*			
Power off 180° approach and landing *ACS standards*			
Power off stall (approach to landing stall) *ACS standards*			
Power on stall (takeoff and departure stall) *ACS standards*			
Accelerated stall *ACS standards*			
Straight and level altitude flight (IR) *ACS standards*			
Standard rate turns (IR) *ACS standards*			
Climbs and climbing turns (IR) *ACS standards*			
Descents and descending turns (IR) *ACS standards*			
Recovery from unusual attitudes (IR) *ACS standards*			

Phase 5 **Progress Stage 2 Check* continued*

Maneuvering during slow flight (IR) *ACS standards*			
Intercepting and tracking navigation systems partial panel (IR) *ACS standards*			

*Phase 5 *Progress Stage 2 Check* completion standards:*

You have completed the Phase 5 **Progress Check** when you

- Demonstrate sound single pilot resource management
- Manage both actual and simulated flight risks
- Perform to the specified standards
- Complete all tasks evaluated as Manage/Decide or Perform
- Demonstrate to the check instructor that the safety of flight is never in doubt

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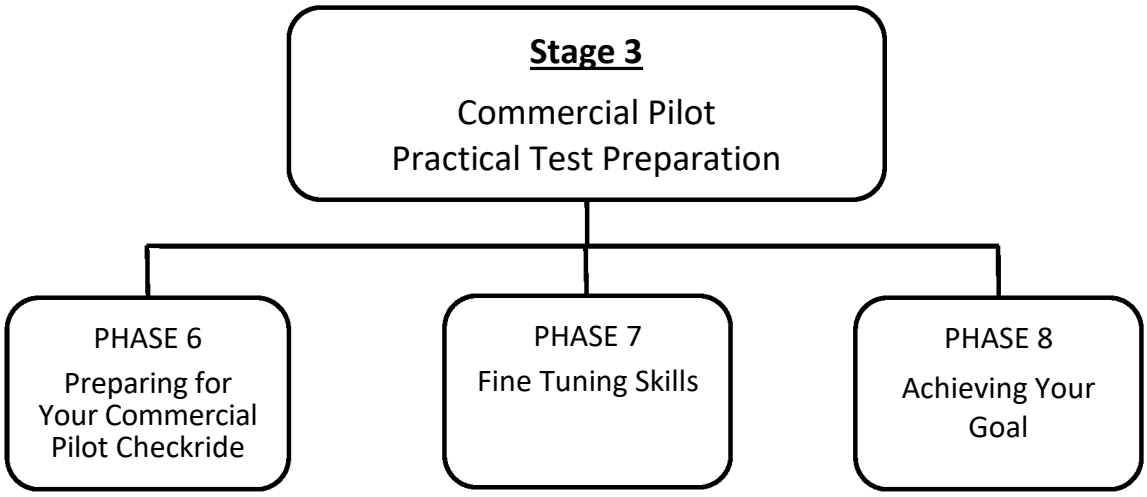
Stage 2, Phase 5: Flying Commercial Maneuvers

INSTRUCTOR NOTES:



Stage 3 consists of three Phases

- Preparing for Your Commercial Pilot Checkride
- Fine Tuning Skills
- Achieving Your Goal

Stage Objective: During this stage you will

- Complete the final ground-study lessons
- Work on improving your skills with Commercial Pilot maneuvers
- Complete the cross-country experience requirements while refining risk management skills
- Prepare to exceed all the minimum standards for both the oral and flight portions of the Commercial Pilot Practical Test
- Fly with a check instructor for the final progress check

Each phase contains **Web-based Knowledge Instruction**

- The web-based knowledge instruction for the phase should be completed prior to starting the flight scenarios to ensure fundamental knowledge before the flight.

Each phase contains multiple **Flight Scenarios** that can be

- Customized for your local training environment
- Repeated, or
- Omitted if all items in the Phase Proficiency Checklist are completed to standard.

At the end of each Phase are the **Ground Training Checklist** and **Phase Proficiency Checklist**

- All items in the checklist must be completed to the appropriate standard listed before the Phase is considered complete.

PHASE 6: Preparing for Your Commercial Pilot Checkride

Phase Objective: During this phase you will

- Study concepts involved with specialized operations, hazards, engines and propellers, aeromedical factors, and key information in the Aeronautical Information Manual
- Refine your skill with Commercial Pilot maneuvers
- Increase your proficiency and risk management skills involving cross-country operations

Web-based KNOWLEDGE

FLIGHT OPERATIONS

6.1 FLIGHT OPERATIONS

Objective: You will learn many of the techniques to keep both your engine and your passengers happy during a flight. You'll also learn that there are many outside influences and factors that affect pilot decision making, as well as how you can make good preflight and in-flight decisions.

6.1.1 Some Flying Basics
- .1 Fundamentals of Flight
- .2 Cold Weather Operations
- .3 Night Flying
- .4 LAHSO

6.1.2 Taxiing Safely
- .1 Airport Signs and Markings
- .2 Chart Supplement – Hot Spots

6.1.3 Wind, Wind Shear and Turbulence
- .1 Taxiing in the Wind
- .2 Takeoff and Landing
- .3 Landing Downwind
- .4 Wind Shear
- .5 Reporting Turbulence

6.1.4 Managing Risks
- .1 Collision Avoidance
- .2 Minimum Fuel

6.1.5 Engine Operations
- .1 Engine Stress
- .2 Oil
- .3 Ignition Systems
- .4 Mixture
- .5 Carburetor Heat

6.1.6 Propellers
- .1 Propeller Efficiency
- .2 Constant Speed Propellers

6.1.7 Notices to Air Missions
- .1 NOTAMs

6.1.8 Aeromedical Factors
- .1 Hyperventilation
- .2 Hypoxia and Carbon Monoxide
- .3 Spatial Disorientation, Alcohol, and Night Vision
- .4 Somatogravic Illusion

6.1.9 Aeronautical Decision Making
- .1 Making Decisions as a Pilot
- .2 Classic Behavioral Traps
- .3 Hazardous Attitude Habits
- .4 Neutralizing Hazardous Attitude Habits
- .5 Stress Management
- .6 Using the DECIDE Model for Making Decisions

FLIGHT SCENARIOS

COMMERCIAL MANEUVERS REVIEW (DUAL)
COMMERCIAL MANEUVERS SKILL IMPROVEMENT (PIC)
CROSS-COUNTRY, COMPLEX OR TAA, MANEUVERS REVIEW (DUAL)
CROSS-COUNTRY (DAY PIC)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Commercial Maneuvers Review (Dual)

Objective:
You'll improve your proficiency in commercial flight maneuvers.
Purpose/pressures (real or simulated):
You have successfully completed the first step interview with a banner tow company and are brushing up on commercial maneuvers for an employment check flight with the chief pilot.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Engine failure
Engine fire in flight
Primary instruments failure in IMC
Risks (real or simulated):
Other air traffic while maneuvering
Distractions

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Runway Incursion Avoidance
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated Stall
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Emergency Descent
Power Off 180° Approach and Landing
Intercepting and Tracking Navigation Systems (IR)
Partial Panel (IR)
Recovery from Unusual Attitudes (IR)

Postflight Discussion

SCENARIO 2: Commercial Maneuvers Skill Improvement (PIC)

Objective:
You'll improve your proficiency in commercial flight maneuvers.
Purpose/pressures (real or simulated):
You are practicing commercial maneuvers in preparation for an employment check flight in two days with the chief pilot of a banner tow company.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Engine failure downwind in traffic pattern
Risks (real or simulated):
Heavy training traffic at the nearest practice area
Rain showers in the vicinity of the second closest practice area

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing

Postflight Discussion

SCENARIO 3 Cross-Country, Complex or TAA, Maneuvers Review (Dual)

Objective:
You'll gain proficiency in cross-country flight operations in a complex or a TAA airplane.
Purpose/pressures (real or simulated):
You are taking a charter client to a nearby city. The timing of this trip is critical because of a narrow window for the client to meet with his key vendor and engineers from the vendor's out-of-area supplier. The engineers depart on an international flight later this evening.
Where to go:
An airport greater than 50 nm straight-line distance from departure airport
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
As necessary for simulated weather conditions
Planned malfunctions:
Engine failure
Systems failures
Risks (real or simulated):
Frontal passage forecast 1 hour 30 minutes after your expected return
IMC due to visibility and ceiling

Preflight Discussion

Improving your skills:
Complex or TAA Airplane
Single Pilot Resource Management (SRM)
Cross-Country Flight Planning
Performance and Limitations
Preflight Inspection
Checklist Use
Engine Starting and Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Normal and Crosswind Takeoff and Climb
Use of Retractable Landing Gear
Use of Constant Speed Propeller
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Climbs and Descents
Power Settings and Leaning
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Simulated System Failures
Simulated Engine Failure
Pilotage
Dead Reckoning
Intercepting and Tracking Navigation Systems (IR)
ILS Approach (IR)
NDB/VOR Approach (IR)
GPS Approach (IR) (if aircraft equipped)
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 50 nm from Departure Airport
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Go-Around
Maneuvering During Slow Flight
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Normal and Crosswind Landing
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 4: Cross-Country (Day PIC)

Objective:
You'll gain experience in cross-country flight operations and review commercial maneuvers.
Purpose/pressures (real or simulated):
You are fulfilling your employer's commitment to a charity to take a pediatric cancer patient and her family to a major fundraising event in Big City. Your key passenger is one of the featured guests. You will wait and return them home following the event.
Where to go:
An airport greater than 50 nm straight-line distance from departure airport
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
As necessary to deal with fog near your Big City destination
As necessary for ATC delays into Big City airport
Planned malfunctions:
None
Risks (real or simulated):
A marine cloud layer has covered the coastal portions of Big City with low ceilings. Visibility is greater than 6 miles. It is not forecast to reach Big City airport until several hours after your planned departure.

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage
Dead Reckoning
Intercepting and Tracking VOR/ADF/GPS Courses (as aircraft equipped)
Power Settings and Mixture Control
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 50 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

Phase 6 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Wake turbulence avoidance			
Land and hold short operations (LAHSO)			
Fundamentals of cabin pressurization			
Physiological hazards of high altitude flight and decompression			

Phase 6 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Single-pilot resource management (SRM) *Utilizes all resources available to ensure the successful completion of the flight*			
Preflight procedures			
Cross-country flight planning *ACS standards*			
Performance and limitations *ACS standards*			
Preflight inspection *ACS standards*			
Engine starting and taxiing *ACS standards*			
Runway incursion avoidance *ACS standards*			
Before takeoff check *ACS standards*			
In-flight			
Checklist use *ACS standards*			
Normal and crosswind takeoff and climb *ACS standards*			
Use of retractable landing gear *ACS standards*			
Use of constant speed propeller *ACS standards*			
Departure *ACS standards*			
Opening/closing flight plan *ACS standards*			
Radar services *ACS standards*			
Course interception *ACS standards*			
Pilotage *ACS standards*			
Dead reckoning *ACS standards*			

Phase 6 Proficiency Checklist *continued*

Intercepting and tracking VOR/ADF/GPS courses (as aircraft equipped) *ACS standards*			
Power settings and leaning *ACS standards*			
Estimates of ground speed and ETA *ACS standards*			
Position fix by navigation facilities *ACS standards*			
Flight on Federal airways *ACS standards*			
CTAF (UNICOM) airports *ACS standards*			
At least one landing more than 50 nm from departure airport *ACS standards*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			
Soft field approach and landing *ACS standards*			
Climbs and descents *ACS standards*			
Steep turns *ACS standards*			
Steep spirals *ACS standards*			
Emergency descent *ACS standards*			
Chandelles *ACS standards*			
Lazy eights *ACS standards*			
Eights on pylons *ACS standards*			
Maneuvering during slow flight *ACS standards*			
Power off stall (approach to landing stall) *ACS standards*			
Power on stall (takeoff and departure stall) *ACS standards*			
Accelerated stall *ACS standards*			
Intercepting and tracking navigation systems (IR) *ACS standards*			
Partial panel (IR) *ACS standards*			
Recovery from unusual attitudes (IR) *ACS standards*			
ILS approach (IR) *ACS standards*			
NDB/VOR approach (IR) *ACS standards*			
GPS approach (IR) (if aircraft equipped) *ACS standards*			
Simulated system failures *ACS standards*			

Phase 6 Proficiency Checklist *continued*

Simulated engine failure *ACS standards*			
Power off 180° approach and landing *ACS standards*			
Collision avoidance procedures *ACS standards*			
Go-around *ACS standards*			
Normal and crosswind landing *ACS standards*			
Postflight procedures			
After landing, parking and securing *ACS standards*			

Phase 6 completion standards:

You have completed Phase 6 when you

- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Reviewed the Phase Progress Report with your instructor

INSTRUCTOR NOTES:

PHASE 7: Fine Tuning Skills

Phase Objective: During this phase you will

- Become familiar with Federal Aviation Regulations associated with Commercial operations
- Hone your skill with Commercial Pilot maneuvers
- Complete the last PIC cross-country flight

Web-based KNOWLEDGE

FEDERAL AVIATION REGULATIONS

7.1 FEDERAL AVIATION REGULATIONS

Objective: During this lab you will learn aviation terms and rules so that you can keep you, your passengers, and your airplane safe and legal.

7.1.1 Documents and Certifications
- .1 Category, Class, Type Ratings, and Recency
- .2 Pilot and Medical Certificates
- .3 Aircraft Certifications and Registration

7.1.2 Responsibilities and Restrictions
- .1 Pilot Responsibilities and Authority
- .2 Commercial Pilot Restrictions

7.1.3 Checks and Experience
- .1 Checks and Experience

7.1.4 Preflight Action
- .1 PIC Preflight Responsibilities

7.1.5 Maintenance
- .1 Maintenance Responsibilities
- .2 Inspection and Repair
- .3 Airworthiness Directives
- .4 Life-Limited Parts
- .5 Preventative Maintenance

7.1.6 Collision Avoidance
- .1 Right-of-Way Rules
- .2 Position Lights
- .3 Altitude and Pattern Separation

7.1.7 Equipment Requirements
- .1 Safety Belts and Shoulder Harnesses
- .2 Oxygen Use
- .3 Emergency Locator Transmitter (ELT)
- .4 Transponder and ADS-B Requirements

7.1.8 Safe Operations
- .1 Aerobatics and Dropping Objects

7.1.9 FAA and NTSB Notification
- .1 Accident and Incident Notification
- .2 Alcohol and Drugs
- .3 Change of Address

7.1.10 Abbreviations and Symbols
- .1 V Speeds

7.1.11 Commercial Operations
- .1 Commercial Operator
- .2 Rules for Commercial Operations
- .3 Applying Operating Rules

FLIGHT SCENARIOS

COMMERCIAL MANEUVERS REVIEW (DUAL)
CROSS-COUNTRY REVIEW (DUAL)
CROSS-COUNTRY SKILL REFINEMENT (PIC)

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Commercial Maneuvers Review (Dual)

Objective:
You'll improve your proficiency in commercial flight maneuvers.
Purpose/pressures (real or simulated):
Your passenger is a geological engineer who wants to visually survey and photograph an area that has been recently recognized for potentially significant mineral deposits.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/ADF/GPS courses
Planned deviations:
None
Planned malfunctions:
Engine failure in the traffic pattern
Primary instrument failure in IMC
Risks (real or simulated):
Low and medium altitude maneuvering to satisfy the client's requirements
Other aircraft in the area of interest

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Chandelles
Steep Turns
Steep Spirals
Lazy Eights
Eights On Pylons
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Partial Panel (IR)
Recovery from Unusual Attitudes (IR)

Postflight Discussion

SCENARIO 2: Cross-Country Review (Dual)

FLIGHT SIMULATION DEVICE MAY BE USED

Objective:
You'll improve your proficiency in cross-country flight operations.
Purpose/pressures (real or simulated):
You are picking up two passengers at a city without airline service for return to your commercial airport for connecting travel.
Where to go:
An airport greater than 100 nm distance from departure
How to get there:
Pilotage, DR, VOR/ADF/GPS courses, airways
Planned deviations:
As necessary for destination airport NOTAM short-duration temporary closures
Planned malfunctions:
GPS RAIM alert
Risks (real or simulated):
Destination airport has reported and forecast ceilings below VFR minimums

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Runway Incursion Avoidance
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage/Dead Reckoning
ILS Approach (IR)
NDB/VOR Approach (IR)
GPS Approach (IR) (if aircraft equipped)
Intercepting and Tracking Navigation Systems Partial Panel (IR)
Power Settings and Leaning
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 100 nm from Departure Airport
Normal and Crosswind Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

SCENARIO 3: Cross-Country Skill Refinement (PIC)

Objective:
You'll gain additional experience in cross-country flight operations.
Purpose/pressures (real or simulated):
You are flying a three-person medical team to perform a life-saving procedure at remote city.
Where to go:
An airport greater than 50 nm distance from departure airport
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Engine failure in traffic pattern
Risks (real or simulated):
Snow on the ground at destination
The short runway is plowed, but the plow broke down before getting the 4 inches off the longer runway.
Forecast wind splits the runways.

Preflight Discussion

Improving your skills:
Single Pilot Resource Management (SRM)
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Normal and Crosswind Takeoff and Climb
Departure
Opening/Closing Flight Plan
Radar Services
Course Interception
Pilotage/Dead Reckoning
Intercepting and Tracking VOR/ADF/GPS Courses (as aircraft equipped)
Power Settings and Leaning
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
At Least One Landing More Than 50 nm from Departure Airport
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Collision Avoidance Procedures
After Landing, Parking and Securing

Postflight Discussion

Phase 7 Ground Training Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Special flight permits			
Required instruments and equipment and using an MEL			

Phase 7 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Single-pilot resource management (SRM) *Utilizes all resources available to ensure the successful completion of the flight*			
Preflight procedures			
Cross-country flight planning *ACS standards*			
Preflight inspection *ACS standards*			
Runway incursion avoidance *ACS standards*			
In-flight			
Checklist use *ACS standards*			
Normal and crosswind takeoff and climb *ACS standards*			
Departure *ACS standards*			
Opening/closing flight plan *ACS standards*			
Radar services *ACS standards*			
Course interception *ACS standards*			
Pilotage/dead reckoning *ACS standards*			
Intercepting and tracking VOR/ADF/GPS courses (as aircraft equipped) *ACS standards*			
Power settings and leaning *ACS standards*			
Estimates of ground speed and ETA *ACS standards*			
Position fix by navigation facilities *ACS standards*			
Flight on Federal airways *ACS standards*			
CTAF (UNICOM) airports *ACS standards*			
At least one landing more than 50 nm from departure airport *ACS standards*			

Phase 7 Proficiency Checklist *continued*

At least one landing more than 100 nm from departure airport *ACS standards*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			
Soft field approach and landing *ACS standards*			
Steep turns *ACS standards*			
Steep spirals *ACS standards*			
Chandelles *ACS standards*			
Lazy eights *ACS standards*			
Eights on pylons *ACS standards*			
Partial panel (IR) *ACS standards*			
Intercepting and tracking navigation systems partial panel (IR) *ACS standards*			
Recovery from unusual attitudes (IR) *ACS standards*			
ILS approach (IR) *ACS standards*			
NDB/VOR approach (IR) *ACS standards*			
GPS approach (IR) (if aircraft equipped) *ACS standards*			
Power off 180° approach and landing *ACS standards*			
Collision avoidance procedures *ACS standards*			
Normal and crosswind landing *ACS standards*			
Postflight procedures			
After landing, parking and securing *ACS standards*			

Phase 7 completion standards:

You have completed Phase 7 when you

- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Reviewed the Phase Progress Report with your instructor

INSTRUCTOR NOTES:

PHASE 8: Achieving Your Goal

Phase Objective: During this phase you will

- Learn the preparation tips that will make the checkride go more smoothly
- Review Commercial flight maneuvers prior to the Final Progress Check
- Participate one-on-one with your instructor for a pre-check ride briefing
- Review all Commercial ACS tasks during the Final Progress Check

Web-based KNOWLEDGE INSTRUCTION

ACHIEVING YOUR GOAL

8.1 ACHIEVING YOUR GOAL

Objective: You will learn how to get it all together before you show up for your checkride. You will also learn some useful tips for flying as a professional pilot.

8.1.1 Now That you're About to Become a Commercial Pilot

.1 How to Make Your Checkride a Piece of Cake
.2 Managing the Risks When You're Being Paid to Fly
.3 The Consummate Professional

FLIGHT SCENARIOS

COMMERCIAL MANEUVERS REVIEW (Dual)
CHECKRIDE BRIEFING
FINAL PROGRESS CHECK

Flight scenarios will be repeated as necessary to reach the desired proficiency

SCENARIO 1: Commercial Maneuvers Review (Dual)

Objective:
You'll improve your proficiency in commercial flight maneuvers. You'll have an opportunity to work with your instructor to correct any weak areas of your flying in preparation for your final Progress Check.
Purpose/pressures (real or simulated):
You are completing the flight portion of an interview and are flying with the chief pilot of the company you hope to work for.
Where to go:
A point within 30 minutes flight time that is in suitable airspace free from obstructions and dense traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
None
Planned malfunctions:
Pressurization failure
Engine failure in traffic pattern
Risks (real or simulated):
Stress from being evaluated

Preflight Discussion

Testing your skills and knowledge:
Single Pilot Resource Management (SRM)
Preflight Inspection
Runway Incursion Avoidance
Checklist Use
Intercepting and Tracking VOR Courses
ILS Approach (IR)
NDB/VOR Approach (IR)
GPS Approach (IR) (if aircraft equipped)
Intercepting and Tracking ADF Courses (as aircraft equipped)
Intercepting and Tracking GPS Courses (as aircraft equipped)
Chandelles
Steep Turns
Steep Spirals
Emergency Descent
Lazy Eights
Eights On Pylons
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated stall
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Go-Around
Power Off 180° Approach and Landing
After Landing, Parking and Securing

Postflight Discussion

CHECKRIDE BRIEFING

Objective:
During this briefing you will take your final Oral Exam to make sure you are ready for the ground portion of the FAA Commercial Pilot Practical Test. This is the time to discuss any questions you have with your instructor.

Checking your knowledge:

Certificates and Documents
Preflight Inspection
Weather Information
Cross-Country Flight Planning and Navigation
IFR Procedures
Enroute Charts
Approach Charts
The Airspace System
Departure Procedures
Enroute Procedures
Arrival Procedures
Basic VFR Weather Minimums
Aircraft Performance and Limitations
Takeoff Procedures
Weight and Balance
Operation of Systems
Engine Operation
Fuel System
Electrical System
Minimum Equipment
Aeromedical Factors
Supplemental Oxygen
Emergency Operations
FARs and NTSB 830
Basic and Advanced Aerodynamics
Flight Publications
Night Operations
High-Altitude Operations
Commercial Pilot Airman Certification Standards

Phase 8 Checkride Briefing Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Explain"*	Instruction Given	Describe	Explain
Certificates and documents			
Preflight inspection and airworthiness requirements			
Weather information			
Cross-country flight planning and navigation			
Positive exchange of flight controls			
Use of checklists			
IFR procedures			
Enroute charts			
Approach charts			
The airspace system			
Departure procedures			
Enroute procedures			
Arrival procedures			
Basic VFR weather minimums			
Aircraft performance and limitations			
Stall and spin awareness			
Takeoff procedures			
Weight and balance			
Operation of systems			
Engine operation			
Fuel system			
Electrical system			
Minimum equipment			
Aeromedical factors			
Supplemental oxygen			
Emergency operations			
FARs and NTSB 830			
Basic and advanced aerodynamics			
Flight publications			
Night operations			
High-altitude operations			
Commercial Airman Certification Standards			

Phase 8 Proficiency Checklist

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage/ Decide
Single-pilot resource management			
Single-pilot resource management (SRM) *Utilizes all resources available to ensure the successful completion of the flight*			

Phase 8 Proficiency Checklist *continued*

Preflight procedures			
Preflight inspection *ACS standards*			
Runway incursion avoidance *ACS standards*			
Checklist use *ACS standards*			
In-flight			
Intercepting and tracking VOR courses *ACS standards*			
Intercepting and tracking ADF courses (as aircraft equipped) *ACS standards*			
Intercepting and tracking GPS courses (as aircraft equipped) *ACS standards*			
ILS approach (IR) *ACS standards*			
NDB/VOR approach (IR) *ACS standards*			
GPS approach (IR) (if aircraft equipped) *ACS standards*			
Steep turns *ACS standards*			
Steep spirals *ACS standards*			
Emergency descent *ACS standards*			
Chandelles *ACS standards*			
Lazy eights *ACS standards*			
Eights on pylons *ACS standards*			
Power off stall (approach to landing stall) *ACS standards*			
Power on stall (takeoff and departure stall) *ACS standards*			
Accelerated stall *ACS standards*			
Short field takeoff and climb *ACS standards*			
Soft field takeoff and climb *ACS standards*			
Short field approach and landing *ACS standards*			
Soft field approach and landing *ACS standards*			
Go-around *ACS Standards*			
Power off 180° approach and landing *ACS standards*			
Postflight procedures			
After landing, parking and securing *ACS standards*			

Phase 8 completion standards:

You have completed Phase 8 when you

- Achieve a grade of “Explain” on all Checkride Briefing Checklist tasks
- Achieve a grade of “Perform” or “Manage/Decide” on all Phase Proficiency Checklist tasks
- Review the Phase Progress Report with your instructor
- Complete the Phase 8 Final Progress Stage 3 Check with the Chief/Assistant Chief Flight Instructor

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SCENARIO 2: PHASE 8 FINAL PROGRESS STAGE 3 CHECK

Objective:
You should demonstrate Commercial Pilot proficiency in all your flying including maneuvers in a complex and/or a TAA airplane. In addition, you will exhibit sound judgment in your decision making. It is recommended that the Chief/Assistant Chief Flight Instructor give this scenario.
Purpose/pressures (real or simulated):
You're flying a turbocharged airplane for an air ambulance company and today you are taking a medical team and patient to a city two states away. After the patient is transferred to a local facility, you and the medical team will fly to a second destination to pick up a critically ill patient to return to your home base.
Where to go:
To a pre-assigned destination greater than 50 nm and then to a suitable area for maneuvers free of obstructions and traffic
How to get there:
Pilotage, DR, VOR/GPS courses
Planned deviations:
Diversion to another destination because of weather
Planned malfunctions:
Navigation equipment, electrical system, pressurization, engine failures
Risks (real or simulated):
Approaching front at your destination airport with rain showers, low ceilings, low visibilities, and winds gusting to 20 knots
Forecast wind 40° to only runway available at the destination

Preflight Discussion

Checking your skills:

Aeronautical Decision Making
Risk Management
Task Management
Situational Awareness (SA)
Controlled Flight into Terrain Awareness (CFIT)
Automation Management
Cross-Country Flight Planning
Preflight Inspection
Checklist Use
Doors, Safety Belts and Shoulder Harnesses
Engine Starting and Warm-up
Use of ATIS
Taxiing
Runway Incursion Avoidance
Before Takeoff Check and Engine Runup
Normal and Crosswind Takeoff and Climb
Tower Controlled Airports/High Density Airport Operations
Departure
Course Interception
Pilotage
Dead Reckoning
VOR Navigation (IR)
ADF Navigation (IR) (if aircraft equipped)
GPS Navigation (IR) (if aircraft equipped)
ILS/NDB or VOR Approach (IR)
Partial Panel (IR)
Recovery from Unusual Attitudes (IR)
Power Settings and Mixture Control
Diversion to an Alternate
Lost Procedures
Use of Retractable Landing Gear
Simulated System Failures
Simulated Engine Failure
Estimates of Ground Speed and ETA
Position Fix by Navigation Facilities
Flight on Federal Airways
CTAF (UNICOM) Airports
Straight and Level Altitude Flight (IR)
Standard Rate Turns (IR)
Climbs and Climbing Turns (IR)
Descents and Descending Turns (IR)
Maneuvering During Slow Flight (IR)
Power Off Stall (approach to landing stall)
Power On Stall (takeoff and departure stall)
Accelerated Stall
Short Field Takeoff and Climb
Soft Field Takeoff and Climb
Short Field Approach and Landing
Soft Field Approach and Landing
Power Off 180° Approach and Landing
Normal and Crosswind Landing
Go-Around
Collision Avoidance Procedures
Chandelles
Steep Turns
Steep Spirals
Emergency Descent
Lazy Eights
Eights On Pylons
Parking and Securing
Postflight Procedures

Postflight Discussion

Phase 8 Final Progress Stage 3 Check Flight

*All items to be graded independently by the instructor and customer, then discussed and a final grade assessed. *Desired outcome for all tasks by the end of the phase is "Perform" or "Manage/Decide"*	Practice	Perform	Manage / Decide
Single-pilot resource management			
Aeronautical decision making *Uses sound decision-making process, recognizes hazardous attitudes, appropriate response to changes*			
Risk management *Understands risk elements, uses tools i.e. PAVE, IMSAFE, 5P to assess and mitigate risks*			
Task management *Prioritizes tasks, completes in timely manner without distractions to flying, uses checklists*			
Situational Awareness (SA) *Identifies potential ground and airborne SA risks; understands and uses tools available to enhance SA*			
Controlled Flight into Terrain awareness (CFIT) *Aware of potential terrain and obstacles from departure to destination as well as possible diversion routes, uses all resources available*			
Automation management *If installed, utilizes autopilot/FMS to reduce workload as appropriate, understands modes and failures*			
Preflight procedures			
Cross-country flight planning *ACS Standards*			
Preflight inspection *ACS Standards*			
Checklist use *ACS Standards*			
Doors, safety belts, and shoulder harnesses *ACS Standards*			
Engine starting and warm-up *ACS Standards*			
Use of ATIS *ACS Standards*			
Taxiing *ACS Standards*			
Runway incursion avoidance *ACS Standards*			
Before takeoff check and engine runup *ACS Standards*			
In-flight			
Normal and crosswind takeoff and climb *ACS Standards*			
Tower controlled airports/high density airport operations *ACS Standards*			
Departure *ACS Standards*			
Course interception *ACS Standards*			
Pilotage *ACS Standards*			
Dead reckoning *ACS Standards*			
VOR navigation (IR) *ACS Standards*			
ADF navigation (IR) (if aircraft equipped) *ACS Standards*			

Phase 8 Final Progress Stage 3 Check Flight *continued*

GPS navigation (IR) (if aircraft equipped) *ACS Standards*			
ILS/NDB or VOR approach (IR) *ACS Standards*			
Partial panel (IR) *ACS Standards*			
Recovery from unusual attitudes (IR) *ACS Standards*			
Power settings and mixture control *ACS Standards*			
Diversion to an alternate *ACS Standards*			
Lost procedures *ACS Standards*			
Use of retractable landing gear (if aircraft equipped) *ACS Standards*			
Simulated system failures *ACS Standards*			
Simulated engine failure *ACS Standards*			
Estimates of ground speed and ETA *ACS Standards*			
Position fix by navigation facilities *ACS Standards*			
Flight on Federal Airways *ACS Standards*			
CTAF (UNICOM) airports *ACS Standards*			
Straight and level altitude flight (IR) *ACS Standards*			
Standard rate turns (IR) *ACS Standards*			
Climbs and climbing turns (IR) *ACS Standards*			
Descents and descending turns (IR) *ACS Standards*			
Maneuvering during slow flight (IR) *ACS Standards*			
Power off stall (approach to landing stall) *ACS Standards*			
Power on stall (takeoff and departure stall) *ACS Standards*			
Accelerated stall *ACS Standards*			
Short field takeoff and climb *ACS Standards*			
Soft field takeoff and climb *ACS Standards*			
Short field approach and landing *ACS Standards*			
Soft field approach and landing *ACS Standards*			
Power off 180° approach and landing *ACS Standards*			
Normal and crosswind landing *ACS Standards*			

Phase 8 Final Progress Stage 3 Check Flight *continued*

Go-around *ACS Standards*			
Collision avoidance procedures *ACS Standards*			
Chandelles *ACS Standards*			
Steep turns *ACS Standards*			
Steep spirals *ACS Standards*			
Emergency descent *ACS Standards*			
Lazy eights *ACS Standards*			
Eights on pylons *ACS Standards*			
Postflight procedures			
Parking and securing *ACS Standards*			
Postflight procedures *ACS Standards*			

Phase 8 completion standards:

You have completed Phase 8 when you

- Achieve a grade of “Perform” or “Manage/Decide” on all Final Progress Check Checklist tasks

INSTRUCTOR NOTES:

Cessna Commercial Pilot Course Training Requirements

Requirements for enrollment

Prior to enrolling in the flight portion of the Commercial Pilot course, the customer must

- Be at least 18 years old prior to course graduation (you can start training earlier).
- Hold at least a private pilot certificate.
    - An airplane category, single engine land class rating
- For a Part 141 course, hold an instrument rating or be concurrently enrolled in an instrument rating course.

Ground training requirements

The customer must successfully complete

- All web-based knowledge instruction
- All Ground Training Checklists
- All Progress Checks
- Practice Knowledge Test (if required by the flight school)

Flight training requirements

Prior to completing the Cessna Commercial Pilot Course

- The applicable minimum hourly requirements must be met
- As well as the successful completion of all Phase Proficiency Checklists and Progress Checks

Requirements for graduation

To obtain a graduation certificate for the Commercial Pilot course, the applicant must:

- Be able to read, speak, write and understand English
- Complete all ground training requirements
- Complete all flight training requirements
- Achieve a satisfactory grade on the FAA Commercial Pilot-Airplane Knowledge Test

Minimum flight time requirements

The course is designed to meet the minimum hour requirements of

- 14 CFR Part 141, Appendix D Commercial Pilot Certification Course
- 14 CFR Part 61 Subpart F Commercial Pilots

The minimum FAA hour requirements

- Vary depending upon your course of enrollment
- Are to be thought of as minimums only
    - The goal is to prepare you to be a competent, proficient commercial pilot

What you get at an FAA certificated flight school (under 14 CFR Part 141)

If you take a course with this syllabus under Part 141 of the Federal Aviation Regulations, you are assured that flight school has been approved by the FAA and is required to demonstrate and maintain

- Standardized flight operations, including *Safety Procedures and Practices*
- A structured training environment
- Detailed training records available for regular and unannounced FAA checks and inspection
- At least an 80% first attempt pass rate for certificate or rating applicants training under Part 141

Because of this level of structure and supervision, a Part 141 approved curriculum is authorized to graduate qualified applicants in fewer flight hours.

Appendix A

COMMERCIAL PILOT COURSE

MINIMUM COURSE HOURS AND CHRONOLOGICAL LOG

For Part 141, Appendix D Compliance

These times are for customer/instructor guidance only. They are a suggested time schedule which will ensure compliance with the minimum flight and ground training required under FAR Part 141. Preflight and postflight briefings are required under FAR Part 141 for each flight training flight. It is suggested that you allow a minimum of .5 hour per flight for these briefings. The written exams may be credited toward the 35 hours of required ground training, and the check flights may be credited toward the 55 hours of flight training.

Date	Lesson	Total Flight Trng	X-C Flight Trng	Instrmnt Flight Trng	Complx/ TAA AC Flt Trng	Night Flight Trng	PIC/ Solo	Night Solo	X-C PIC Day	X-C PIC Nite	Total Time	Grnd Trng
	STAGE 1 **PHASE 1: LEARNING PROFESSIONAL CROSS-COUNTRY AND NIGHT PROCEDURES**											
	CROSS-COUNTRY PLANNING											1.0
	SECTIONAL CHARTS											.5
	FLIGHT SCENARIO 1	3.0	3.0	.5								1.0
	FLIGHT SCENARIO 2	1.0		.2		1.0						.5
	FLIGHT SCENARIO 3								4.0			
	FLIGHT SCENARIO 4	4.0	4.0	.7		4.0						1.0
	FLIGHT SCENARIO 5						Solo 1.5	1.5				
	PHASE 2: REFINING NAVIGATION AND BASIC MANEUVER SKILLS											
	RADIO NAV AND FLIGHT INSTRUMENTS											1.5
	AIRSPACE AND WEATHER MINIMUMS											1.5
	FLIGHT SCENARIO 1								4.0			
	FLIGHT SCENARIO 2						Solo 1.5	1.5				
	FLIGHT SCENARIO 3						Solo 4.0	4.0		Solo 4.0		
	FLIGHT SCENARIO 4								4.0			
	FLIGHT SCENARIO 5 AND **PROGRESS CHECK**	3.0	3.0	.4								1.0
	PHASE 3: BUILDING CROSS-COUNTRY EXPERIENCE											
	WEATHER											3.0
	WEIGHT AND BALANCE											1.0
	FLIGHT SCENARIO 1								4.0			
	FLIGHT SCENARIO 2								4.0			
	FLIGHT SCENARIO 3								4.0			
	FLIGHT SCENARIO 4						Solo 5.0		5.0			
	FLIGHT SCENARIO 5 AND **PROGRESS CHECK**	2.0	2.0	.5								1.0
	TOTAL RECEIVED STAGE 1											
	TOTAL REQUIRED STAGE 1	**13.0**	**12.0**	**2.3**		**5.0**	**36.0 ***	**7.0**	**29.0**	**4.0**		**13.0**

Date	Lesson	Total Flight Trng	X-C Flight Trng	Instrmnt Flight Trng	Complx/ TAA AC Flt Trng	Night Flight Trng	PIC/ Solo	Night Solo	X-C PIC Day	X-C PIC Nite	Total Time	Grnd Trng
	STAGE 2 **PHASE 4: FLYING COMPLEX AIRPLANES**											
	AERODYNAMICS											2.0
	FLIGHT SCENARIO 1	2.0			2.0							1.0
	FLIGHT SCENARIO 2	2.0		.5	2.0							.5
	FLIGHT SCENARIO 3 AND **PROGRESS CHECK**	2.0		.5	2.0							.5
	PHASE 5: FLYING COMMERCIAL MANEUVERS											
	STEEP TURNS											1.0
	CHANDELLES											1.0
	LAZY EIGHTS											1.0
	EIGHTS ON PYLONS											1.0
	POWER-OFF APPROACH											2.0
	AIRCRAFT PERFORMANCE											2.0
	FLIGHT SCENARIO 1	2.0		.3								.5
	FLIGHT SCENARIO 2	2.0		.3								.5
	FLIGHT SCENARIO 3						3.0					
	FLIGHT SCENARIO 4	3.0		.5								.5
	FLIGHT SCENARIO 5						3.0					
	FLIGHT SCENARIO 6	3.0		.6								.5
	FLIGHT SCENARIO 7						3.0					
	FLIGHT SCENARIO 8								5.0			
	FLIGHT SCENARIO 9	2.0		.5								.5
	FLIGHT SCENARIO 10 AND **PROGRESS CHECK**	2.0		.5								1.0
	TOTAL RECEIVED STAGE 2											
	TOTAL REQUIRED STAGE 2	**20.0**		**3.7**	**6.0**		**9.0 ***		**5.0**			**15.5**

Appendix A

Date	Lesson	Total Flight Trng	X-C Flight Trng	Instrmnt Flight Trng	Complx/ TAA AC Flt Trng	Night Flight Trng	PIC/ Solo	Night Solo	X-C PIC Day	X-C PIC Nite	Total Time	Grnd Trng
	STAGE 3 **PHASE 6: PREPARING FOR YOUR COMMERCIAL PILOT CHECKRIDE**											
	FLIGHT OPERATIONS											1.8
	FLIGHT SCENARIO 1	4.0		.8								.5
	FLIGHT SCENARIO 2						4.0					
	FLIGHT SCENARIO 3	3.0	3.0	.7	3.0							.5
	FLIGHT SCENARIO 4						6.0		6.0			
	PHASE 7: FINE TUNING SKILLS											
	FEDERAL AVIATION REGULATIONS											1.7
	FLIGHT SCENARIO 1	3.0		.3								.5
	FLIGHT SCENARIO 2	5.0	5.0	1.0								.5
	FLIGHT SCENARIO 3						5.0		5.0			
	PHASE 8: ACHIEVING YOUR GOAL											
	ACHIEVING YOUR GOAL											.5
	FLIGHT SCENARIO 1	4.0		.5								.5
	CHECK RIDE BRIEFING											1.0
	FLIGHT SCENARIO 2 AND **FINAL PROGRESS CHECK**	3.0		.7	1.0							1.0
	TOTAL RECEIVED STAGE **3**											
	TOTAL REQUIRED STAGE 3	**22.0**	**8.0**	**4.0**	**4.0**		**15.0**		**11.0**			**8.5**
	TOTAL RECEIVED IN COURSE											
	MINIMUM REQUIRED FOR THIS PART 141 COURSE	**55.0**	**20.0**	**10.0**	**10.0**	**5.0**	**65.0 ***	**7.0 ****	**35.0**	**4.0**	**120**	**35.0**

*** 10.0 minimum total solo**

**** Minimum 10 takeoffs and 10 landings (each landing involving a flight with a traffic pattern at an airport with an operating control tower**

	MINIMUM REQUIRED FOR PART 61	**20.0**	**4.0 (a)**	**10.0**	**10.0**	**2.0**	**10.0 (b)**	**5.0**	**50.0 (c)**		**250**	**37.0**

(a) 2 hours day VFR & 2 hours night VFR

(b) Solo

(c) May be day or night

GROUND TRAINING SUMMARY

Phase	Online Knowledge Lessons*	Pre-flight & Post-flight Briefings**	Ground Training Checklist	Total
1	1.0	2.5	1.9	5.4
2	2.2	1.0	1.6	4.8
3	4.0	1.0	1.1	6.1
Stage 1 Totals	7.2	4.5	4.6	16.3
4	2.8	2.0	1.5	6.3
5	3.9	3.5	1.6	9.0
Stage 2 Totals	6.7	5.5	3.1	15.3
6	4.0	1.0	1.2	6.2
7	3.7	1.0	0.8	5.5
8	0.5	2.5	2.5	5.5
Stage 3 Totals	8.2	4.5	4.5	17.2
Totals	**22.1**	**14.5**	**12.2**	**48.8**

* Based on a 45 second average per each lesson page and question.
** Based on 0.5 hour average total pre-flight and post-briefing per flight.

This syllabus accommodates the required 35-hour minimum aeronautical knowledge training when used as a Part 141, Appendix D curriculum as shown in the table above.

The aeronautical knowledge training occurs through multiple paths including online tested self study, viewing the online flight-preparatory video segments, and instructor/customer interaction in the pre- and post-flight briefings. Instruction will also be given during the instructor/customer Ground Training Checklist reviews.

A customer receives credit for the online course study when they complete every lesson within the course. To complete a lesson, the customer must satisfactorily complete every question within that lesson.

Customer aeronautical knowledge competence is assured through instructor/customer Ground Training Checklist reviews that must be demonstrated to the Explain level and the flight school knowledge test.

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PAVE Checklist

PAVE your way to a safe instrument flight. Before you fly, examine your risk factors.

Remember the cumulative effect. Change your plan whenever more than one risk factor is marginal.

Pilot
Aircraft
en**V**ironment
External Pressures

PILOT

Make a frank assessment of your own skills.

- ❑ Am I proficient (not just current) for flying in today's weather?
- ❑ Do I have recent experience in actual instrument conditions?
- ❑ Am I proficient with the avionics and the navigation systems for this flight?
- ❑ Am I rested and have I checked the IMSAFE elements?

AIRCRAFT

Evaluate the capability of the aircraft.

- ❑ Does this airplane have enough redundancy of communication radios, navigation equipment, and flight instruments or display?
- ❑ Is the lighting working and good enough for night instrument flying?
- ❑ Does this airplane have sufficient performance reserve for this flight?
- ❑ Is there enough range reserve to reach a legal and safe alternate?

ENVIRONMENT

Evaluate the environmental factors at the airport and on the runway.

- ❑ Are conditions at my destination forecast for marginal IFR?
- ❑ Are there areas for a good weather alternate within my fuel range?
- ❑ What is the crosswind component on the active runway?
- ❑ Is the runway slick from water, snow, or slush?
- ❑ Are braking action reports available?

External Pressures

Evaluate pressures that influence you to make or complete the flight.

- ❑ Do someone else's plans depend on you completing this flight?
- ❑ Are peers encouraging you to take off or land despite the conditions?
- ❑ What are your strategies for managing the external pressures specific to this flight?

CARE Checklist

Use the CARE attention scan to recognize and manage the changing risk factors in flight and for landing.

Manage your workload so that you have time to use the CARE checklist to deal with changes.

Consequences
Alternatives
Reality
External Pressures

Consequences

- ❑ Am I thinking: What is changing at my destination and alternate?
- ❑ Am I evaluating the consequences of changes I am seeing?
- ❑ Am I prepared for a later arrival, lower ceilings and visibility, gusts, or crosswind component more than I anticipated?
- ❑ Is moisture on the runway, and will temperature be a factor?

Alternatives

- ❑ Do I have more than one alternate course of action?
- ❑ Are conditions changing at my destination?
- ❑ Should I land now to expand my circle of alternatives and remove pressure to land in adverse conditions?

Reality

- ❑ Have I accepted the fact that the weather at my destination airport has changed?
- ❑ Has the goal to land at my destination put me in denial?
- ❑ Am I dealing with things as they really are enroute and at my destination, or just as I planned them?

External Pressures

- ❑ Am I ignoring risk factors in order to land at my destination?
- ❑ Am I managing my own goal-oriented behavior?
- ❑ Are pressures influencing me to continue under unsuitable conditions?