

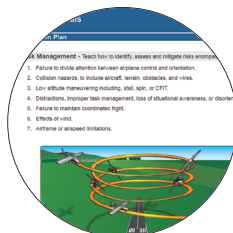
Teach Brief - Fly

"A complete system to teach flying using either a Part 141 or 61 Syllabus."

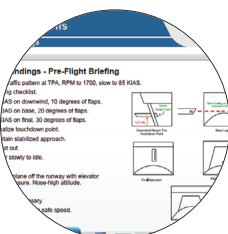
First Edition

Everything you need for a Ground or Flight Lesson in One Place.

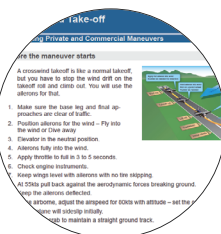
This system works in both FAR Part 61 and 141 training environment no matter what syllabus you use.



Lesson Plans



Pre-Flight Briefings



Teaching Private and Commercial Maneuvers

650-600-1021

429 Lenox Ave, Miami Beach
Florida 33139

Teach Brief – Fly

**“A complete system to
teach flying using either
a Part 141 or 61 Syllabus”**

First Edition

Mike Shiflett

CFI Bootcamp 
Flight Instructor Training

CFI Bootcamp, LLC. Miami Beach, FL. 33139

Teach Brief Fly

First Edition

By Mike Shiflett

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The purpose of this book is to provide information on flight training. The user of this information assumes all risk and liability arising from such use. Neither the publisher nor the author can assume responsibility for the operation of an airplane or the safety of its occupants.

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Visit the CFI Bootcamp's website (www.cfibootcamp.com) for updates posted for this book.

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CFI TBF 2021

ISBN 978-163795070-8

Mike Shiflett's Aviation credentials and experience are as follows:

FAA Certificates

Airline Transport Pilot Certificate – Airplane Multi-Engine Land. CE-525 Type rating

Commercial Pilot Privileges: Airplane Single Engine Land and Sea

Flight Instructor Certificate – Airplane Single and Multi-Engine Land, Instrument Airplane

Former FAA Designated Pilot Examiner – Recreational – ATP including Initial CFI, CFII, MEI

UK Certificates

Commercial Pilot – Airplane Single Engine Land

Former UK Flight Examiner for Private Pilot and IMC ratings

Mike has amassed over 16,000 hours of which most was in general aviation aircraft. He also administered around 3,000 practical tests (Checkrides) for the FAA.

Mike has authored numerous courses used by top flight schools and Universities in his previous company. At CFI Bootcamp he authored all the course content including 42 hours of video, 10 books used by students at CFI Bootcamp and has been featured in many aviation media organizations. He has also presented at EAA Airventure – Oshkosh, WI, Sun-n-Fun and Aviation conferences as a speaker. He also produced a Podcast "Flight Training the way I see it", and has a weekly webinar called "The Power Hour". The CFI Bootcamp website has links to the webinar and previous Podcasts.

He continues to innovate in the aviation industry and is particularly focused on creating courses and training materials to produce better flight instructors.

Mike currently lives in both San Jose, CA and more often in Miami Beach, FL. He flies from the Opa Locka airport just north of Miami International.

Introduction

This is my latest book. It comes from training needs I identified in pieces over the years but never was able to fully put together.

For the first time ,in the FAA style aviation training environment, there is finally a way for any Flight Instructor, or School to provide complete ground lessons, pre-flight briefings and what to say in the airplane no matter what syllabus they use. This works with any syllabus. It also works with Part 61 and 141 training.

This book gives a Flight Instructor three things:

1. A comprehensive set of lesson plans to do a thorough ground briefing on a maneuver or technical subject from either the Private, Recreational, Sport or Commercial pilot course of training.
2. A complete set of Pre-Flight briefings formatted on a whiteboard with illustrations a non-artist can draw.
3. The actual words to say and concepts to demonstrate for every maneuver.

I wanted these three things to be in one place. One book that would allow the instructor to pick what they wanted to do, find the lesson plan, the white board graphics or the words to say in flight.

One of my first books, Lesson Plans for Flight Instructors, was developed to help CFI applicants teach what is required for any maneuver or technical subject area for a checkride. They can also be used to teach a student. Over the years I found there was a constant disconnect between lesson plans instructors made or used for their checkrides and what they actually did once they were instructors.

The reason became clear only last year to me. Lesson plans constructed for practical tests are comprehensive ground lessons. Trying to use them within a syllabus was a problem because the lesson being taught may require 3 or more maneuvers to be done on that flight. The comprehensive ground briefings take too long to be acceptable for that. Those are given in a different setting, not just before a flight.

The student should be getting academic training from the school, a home-study course or from the flight instructor along with the flight training. This allows the flight instructor to give the student a Pre-Flight Briefing that covers how to perform a maneuver and any recaps and illustrations needed to get the point across to the student in 5 or 10 minutes per maneuver.

The other issue I constantly faced in the FAA style of training was that everyone seemed to teach things differently and inconsistently. In the UK system there is a standardized syllabus and each maneuver is taught the same way. There is even a book called "The Patter Manual" that describes in high detail what to say while demonstrating every maneuver. The problem with that book is that it is too detailed for the American style of training. No one would have the patience to use it. So I decided to write one in the FAA/American style. These are the actual words to say while demonstrating and teaching a maneuver in flight.

The content of this book comes from my 26 years of teaching flying, examining nearly 3000 applicants for checkrides, between the US and UK, and over 16,000 hours of flying, almost all of which are in General Aviation Airplanes.

No other book has been written in flight training that gives the Flight Instructor everything they need to train a student actively in the field. It's one of the best books I have ever written. I'm happy to have had the chance to introduce it to you.

Mike Shiflett - Miami Beach, FL - January 28, 2021

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LESSON PLANS

Lesson Plans

The lesson plans can fit into most any training syllabus. If you don't have a training syllabus you can use ASAs or King Schools as a starting place. Both are very good.

Each flight maneuver lesson plan has an Objective, Motivation, Presentation (Elements), time for how long it should take, Key Points, 172 Maneuvers Guide, Common Errors, Questions to ask the students, Completion Standards and Risk Management. The ground lessons have an Objective, Motivation, Presentation with how long it should take, Instructor's actions, Student's Actions and references. There is also additional content behind the lesson plan that includes things like images, graphs, etc.

Note: Where a maneuver is common to both Private and Commercial pilots such as teep Turns, the Private Pilot Knowledge Area, Risk Management and Skills (Completion Standards) are from the Private Pilot ACS. Refer to the Commercial Pilot ACS or PTS for Completion Standards for those maneuvers.

IMPORTANT: You need to teach each lesson plan out loud with a whiteboard and/or monitor. You will never know if you can teach the material in the plan until you do this. Simply reading over the lesson plans is NOT good enough. I realize this is a lot of work, but you will catch problems in your own understanding, flow issues and much more if you will take this on.

When teaching an actual student, you should teach from the lesson plan and at the end of your lesson you should ask the student to tell you how they will perform the maneuver. Demonstrating with a model airplane is very helpful. The idea is you don't want to get into the airplane until you are sure the student understands what they are going to do on that flight.

There are also lesson plans for ground instruction: All of the Technical subject areas in the Flight Instructor PTS are included. They contain the full lesson and include a lot of artwork and explanations. I hope you find this book useful. Our instructors at CFI Boot Camp teach every day from these lesson plans, so they are field tested.

If you are working on your CFI now, consider purchasing our CFI Workbook. This book is intended to cement your knowledge by providing you with scenarios, assessment and study questions.

Thanks again for purchasing the Lesson Plans. Let us know how they work out for you.

Mike Shiflett - CFI Boot Camp Web: www.cfibootcamp.com

FLIGHT MANEUVERS LESSON PLANS FOR SPORT, RECREATIONAL, PRIVATE, COMMERCIAL PILOTS AND FLIGHT INSTRUCTORS

Lesson Plans

The following lesson plans are for teaching students pursuing the Private, Recreational, Sport and Commercial Pilot certificates.

They can be used in any order. They fit into the syllabus, in the next chapter to form a complete course of training for the Private Pilot.

The lesson plans can also be used for the Flight Instructor Practical test if the flight instructor applicant personalizes them in such a way as to be able to teach from them.

Note: The Instructors Actions and Students actions are the same for all the maneuvers lessons, so they are not included on the Lesson Plans.

Instructors actions are always: Present the lesson, demonstrate the maneuver with the model airplane, and ask the student questions to assess their knowledge.

Student actions are always: Take notes on the presentation, demonstrate the maneuver to the instructor describing the key points of how to do it, and state any completion standards for today's lesson.

Maneuvers Lesson Plans Include:

- 1 **Objective and motivation** for each maneuver. The objective describes what will be accomplished and the motivation describes why it needs to be done.
- 2 **Presentation** - The Elements that should be taught in the order presented in the lesson plan. The step by step order of the lesson. Also includes the lesson
- 3 **Key Points** - These are areas to place extra emphasis after the presentation has been delivered. Not every lesson has key points.
- 4 **Risk Management** - In most lesson plans. These can be brought out at any point in the lesson. You may want to integrate them into the Presentation at the appropriate points, or you can teach them as separate topics at the end.
- 5 **Flight Maneuvers Guide** - A procedure for performing each maneuver in a Cessna 172. The guide should not be considered the final authority on how to perform the maneuver.
- 6 **Common errors** - Included for most lesson plans. They are from the Airplane Flying Handbook and Instructor Certification Standards.
- 7 **Completion Standards** and are reproductions from the Airman Certification Standards (ACS). Note: References to complex airplane standards have been removed from these lesson plans.

Sport, Recreational & Private Flight Maneuvers - Lesson Plans

Lesson Plan

Objective

To maintain a constant altitude and constant direction while keeping the airplane coordinated.

Motivation

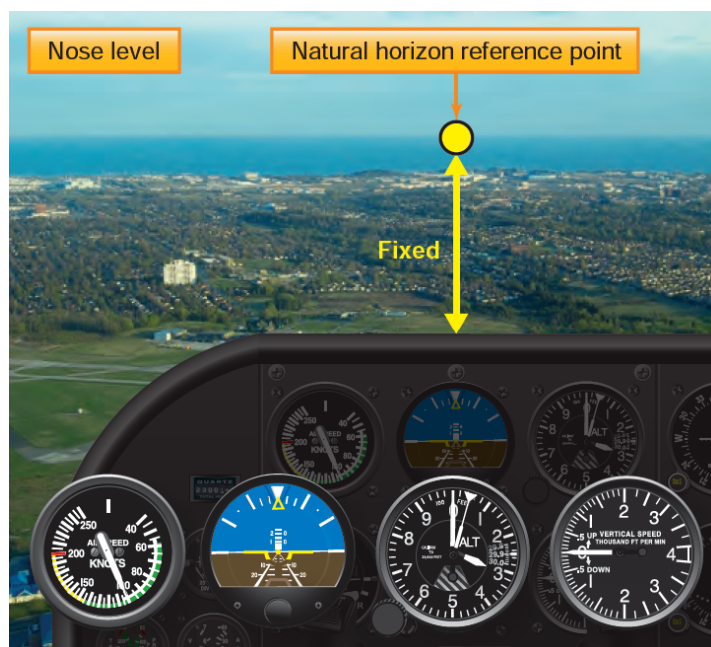
On most flights the majority of the time the airplane needs to be in straight and level flight, so it's an essential skill.

Presentation: Time 10 Minutes

1. Definition - Constant altitude, constant direction, coordinated.
2. Setting the cowling 3 to 4 inches below the horizon - Constant Altitude.
3. Level horizon - No banking, equal spacing under left/right wingtips -Constant direction.
4. Not sliding left or right in the seat - Coordinated.
5. Altimeter = Altitude, Heading Indicator = Direction, Inclinometer = Coordination.
6. Trim to eliminate aerodynamic pressure - Set attitude then trim.

Key Points:

- After setting the attitude - Cross check the altimeter so measures the results.
- The cowling won't be on the horizon in level flight - 4 inches below.



Lesson Plan

Questions for the Student:

1. How can you determine if the airplane is coordinated without using the inclinometer?
2. How can straight and level flight be verified?
3. How can straight and level flight be observed while looking outside?

Common Errors

- Failure to adequately clear the area.
- Failure to adequately anticipate the level-off.
- Failure to coordinate the flight controls.
- Failure to use visual cues and instrument indication in combination to achieve straight and level flight.
- Failure to scan for traffic.

Completion Standards

At the end of this lesson the student should understand the basic concepts of straight and level flight. The student should be able to perform this maneuver with the assistance of a flight instructor.

There are no required Airman Certification Standards (ACS) identified for straight and level flight. A proficient student pilot should be able to maintain altitude at +/- 100 feet and maintain a heading of +/- 10 degrees. Coordinated flight should be maintained. The pilot should also understand how to properly trim the airplane for straight and level flight.

Lesson Plan

Lesson Additional Images



Lesson Plan

Objective:

To establish a climb at a constant airspeed and direction while keeping the airplane coordinated.

Motivation:

Every flight involves a climb. As one of the four fundamentals of flying, mastering this skill is part of a pilot's basic skills to control the airplane.

Presentation: Time 10 Minutes

1. Constant Airspeed or Rate? - Explain V_X and V_Y .
2. Attitude - Cowlings to horizon - Target Airspeed with pitch.
3. Sequence to start a climb - Power, attitude, trim.
4. Wings level with aileron, track straight ahead with rudder. ASI, ALT, HI, Ball.
5. Anticipate and correct for left turning tendencies. - No side-to-side motion.



Questions for the Student

1. What is the sequence for establishing a climb?
2. At full throttle, how can the climb airspeed be adjusted?
3. What is the definition of V_X and V_Y ?

Lesson Plan

Common Errors

- Failure to adequately clear the area
- Failure to adequately anticipate the level-off
- Failure to coordinate the flight controls
- Failure to use visual cues and instrument indication in combination to achieve straight and level flight.
- Failure to scan for traffic.

Completion Standards

At the end of this lesson the student should understand the basic concepts of normal climbs. The student should be able to perform this maneuver with the assistance of a flight instructor.

There are no required Airman Certification Standards (ACS) identified normal climbs. A proficient student pilot should be able to maintain airspeed ± 10 knots and maintain a heading of ± 10 degrees.

Coordinated flight should be maintained. The pilot should also understand how to properly trim the airplane for a constant airspeed climb.

Lesson Plan

Objective:

To maintain a descent at a constant airspeed and constant direction to either an altitude or to a point on the ground while keeping the airplane coordinated.

Motivation:

Every flight will have a descent. As one of the four fundamentals of flying, mastering this skill is part of a pilot's basic skills for controlling an airplane.

Presentation: Time 15 Minutes

1. Constant airspeed or constant rate - Using the flight instruments ASI, VSI, ALT.
2. Reduction in power causes the airplane to keep the same trimmed airspeed, downwash is reduced, and a descent is started.
3. Relationship of the horizon to the cowling while descending.
4. Point on the ground that isn't moving (where the airplane is going) and how to change it with flaps, slipping, power.
5. Sequence to start a descent: Power, attitude, trim - Pitch for airspeed power for rate of descent. Maintain no side-to-side motion with rudder.
6. Describe descending to a point on the ground (aiming) vs descending to an altitude.

Questions for the Student

1. How can a pilot determine where the airplane is aimed during a descent?
2. How can the pilot adjust airspeed during a descent?
3. What is the sequence to establish a descent?

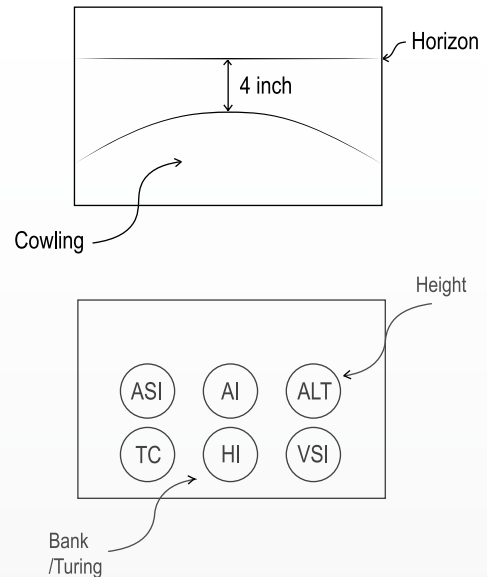
Pre-Flight Briefings

Whiteboard Guides

Pre-Flight Briefings

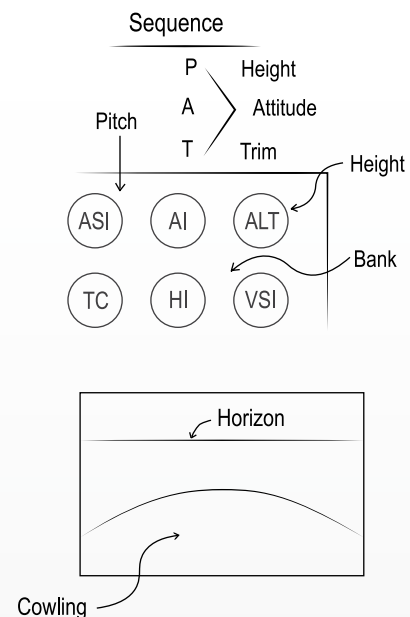
Straight-and-Level Flight

1. Lower pitch attitude until the cowling is at 3-4 inches below the horizon.
2. Verify that the altimeter is at the target altitude and not moving.
3. Observe that the wing tips are parallel to the horizon and each one is the same distance above the horizon.
4. Set the throttle for 2,100 RPM. - Approximately 90 Kts
5. Observe whether the airplane is yawing, and if so correct with appropriate rudder input.
6. Verify that the heading indicator is not moving.
7. Verify that the ball in the middle on the inclinometer.
8. Remove control pressure with trim



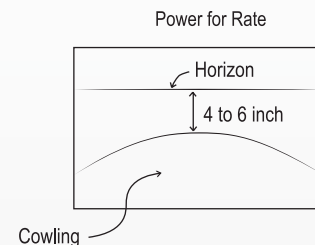
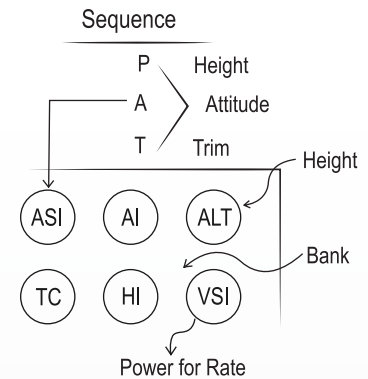
Climbs and Climbing Turns

1. Clear the area in the direction of the climb.
2. Determine desired climb.
3. Apply full throttle.
4. Apply elevator back-pressure.
 - Cowling on the horizon.
5. Level wings with aileron - horizon not tilted.
6. Stop yaw (heading change) with appropriate rudder.
7. ASI to determines airspeed, HI for direction, Inclinometer for coordination.
 - Adjust airspeed with pitch.
8. Eliminate control pressure with trim.



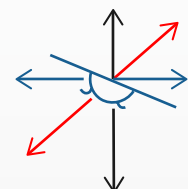
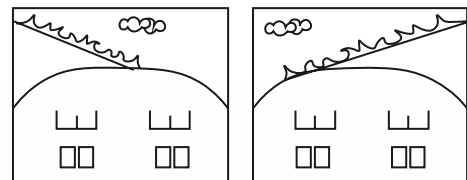
Descents and Descending Turns

1. Clear the area, in particular the area below the airplane in the blind spots.
2. Reduce throttle to 1500 RPM.
3. Apply carb heat if equipped.
4. Reduce pitch attitude to one that will achieve 90 KIAS.
5. Establish a 90 KIAS airspeed descent using pitch.
6. Note the descent rate with the VSI - increase or decrease rate with power.
7. Reduce control pressures using trim.
8. The point on the windscreen not moving (This is where the airplane is going).
9. Change descent angle by using flaps. Observe how the point on windscreen changes.
10. Retract flaps, if applied, in stages to avoid large losses of lift.
11. Begin to level off at a specified altitude. Lead the level off by 50 ft.
12. Increase throttle to 2100 RPM.
13. Apply elevator back - pressure to achieve level flight.
14. Measured by the Altimeter Eliminate control pressures with trim.



Level Turns

1. Clear the area.
2. 2100 RPM; 90 KIAS.
3. Begin turn with coordinated aileron and rudder inputs.
4. Use aileron to establish desired bank angle.
5. Use elevator to maintain altitude.
6. Use rudder: to stop adverse yaw and in turn to stop left turning.
7. tendencies Apply throttle to maintain airspeed.
8. Lead the roll - out by 1/2 of the bank angle used.
9. Roll - out of the turn using coordinated aileron and rudder.
10. Use elevator to maintain altitude.
11. Adjust throttle to maintain airspeed.



Teaching Private and Commercial Maneuvers

Teaching Private and Commercial Maneuvers

This is the first book of its kind for US flight training. It tells you specifically what to say when you are demonstrating flight maneuvers to students. CFI applicants always say that they get good at presenting the pre-flight lesson plan briefings on the ground, but struggle with what to say, what to show in what order etc. while in flight. So, I set out to solve this problem.

Most of the world has accepted either the US FAA or the United Kingdom CAA model of aviation training. The results are the same but the style and manner of delivery of the training is quite different at times.

One of the main differences between training under an FAA system and a UK system is standardization. The UK syllabus is based upon a RAF model of air exercises that start at Exercise 1 and go to around 19. Within these air exercises the instructor is given what to brief on a whiteboard etc. on the ground, and then the sequence of what to do for that exercise in flight. An air exercise is what the FAA system calls a maneuver. Within the FAA system you can find available lesson plans on every flight maneuver from commercial suppliers like CFIBOOTCAMP. Many CFI applicants also create their own. In the end, these are intended to enable the CFI Applicant to give an effective lesson on a maneuver on the ground.

The UK system has a very complete system of what should be demonstrated in flight and there are publications that even detail the sequence and the words to use when describing a maneuver. Consistent vocabulary and precise choices of words are used to avoid any confusion and to build the students response in training to these words or phrases. For example, “Wings level with Aileron and Check the Yaw with Rudder”, is used instead of the typical “Right Rudder” barked out by US flight instructors. The statement tells the student exactly what to do and which control to use. The words to use are called “Patter”. There is a book called the “Patter Manual”, that details every Air Exercise.

The problem in just using the UK system and the “Patter Manual”, is that the systems are different enough to where some of the word choices or presentation may not be able to use exactly as they have presented it. For example, there are no ground reference maneuvers taught in that system and there is no separate slow flight lesson. In addition, terms can be strange and confusing. Like the “overhead join and recovery into the circuit”. Which basically means flying over the airport and entering the traffic pattern.

So, because I hold both FAA and UK pilot certificates, instructor certificates and examined in the UK system as a flight examiner and in the US as a Designated Pilot Examiner, I come from the unique perspective of being able to adapt the UK content for the FAA system. This, for the first time, provides a structured way to teach each maneuver in a way that I think US instructors will want to use.

Teaching Private and Commercial Maneuvers

The way to use this book is to practice it by chair flying or getting into a simulator. You need to be able to bring out the key points while the maneuver is being demonstrated and the timing of the things to say should then be said at the right times as the maneuver goes on. Some people find it very useful to take printed copies of this book or an iPad version in the airplane to review as a reminder and then after the demonstration as a checklist to see that all of the points were said.

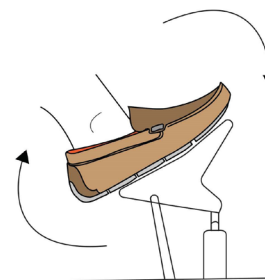
It is my hope that this book will become the standard for teaching the flight maneuvers by inflight demonstration.

Mike Shiflett - Aug 2, 2020 - Miami Beach, FL.

Teaching Private and Commercial Maneuvers

Before the maneuver starts

Adjust the seat vertically so that the student is at a height that they can see over the cowling. Adjust the seat forward enough that the student can reach the rudder pedals and fully depress the toe brakes without excessive reach. Be sure the student can comfortably reach the throttle as well.



1. Be aware of your position relative to other objects and planes. Use shadows when available to judge your wingtip position to other objects.
2. Take into consideration any slope, wind, or surface roughness.
3. Look well ahead of the airplane and clear left and right before moving.
4. Release the brakes and use enough power for the airplane to move.
5. Adjust the power to maintain a taxi speed that allows you to suddenly stop without skidding the tires.
6. To stop, close the throttle and press both toe brakes equally.
7. To turn press on the bottom of the rudder pedal.
8. To make a tighter turn press on the toe brake on the side you want to turn.
9. To make the tightest turn fully depress the rudder pedal, use the toe brake and add power.
10. Be aware of the wind and use aileron and elevator deflection to keep the wind from getting under the control surfaces.
11. If the wind is from the front of the plane to the wingtips fully deflect the aileron into the wind and hold the elevator neutral.
12. If the wind is from behind the airplane to the wingtips "Dive Away". Fully deflect the aileron away from the wind and place the elevator full down.

After the demonstration

Adjust the seat vertically so that the student is at a height that they can see over the cowling. Adjust the seat forward enough that the student can reach the rudder pedals and fully depress the toe brakes without excessive reach. Be sure the student can comfortably reach the throttle as well.

Demonstrate and Say

1. Check to see the wingtips will be clear on the path we will take.
2. Release the brakes, look ahead and use enough throttle to just get the airplane moving.
3. As the airplane begins moving, reduce the throttle to maintain a safe taxi speed.
4. Speed is easier to perceive by looking to the left and right or using peripheral vision.
5. To stop, close the throttle and apply both toe brakes equally.
6. To press on the bottom of the rudder pedal in the direction of the turn.
7. To make a tighter turn, use full pedal and the toe brake in the direction of the turn.
8. To make the tightest turn, fully press the rudder pedal, use the toe brake and add power.

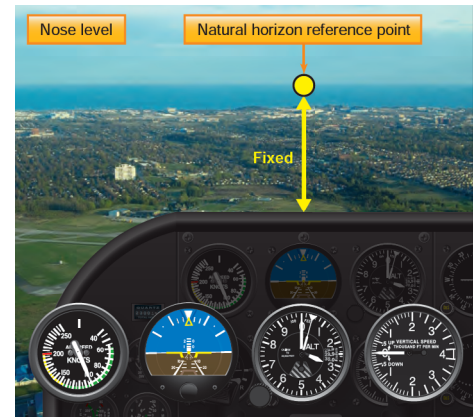
Teaching Private and Commercial Maneuvers

Before the maneuver starts

The goal is to maintain a constant altitude, constant direction and remain coordinated. All attitude changes will be made by visual reference to the horizon then verified by the Altimeter for altitude, heading indicator for direction and inclinometer for coordination.

All control inputs will be:

1. Change
2. Check
3. Hold
4. Adjust
5. Trim.



From a climb: (APT) - Attitude, Power, Trim

1. Set the cowling 4" below the horizon.
2. Allow the speed to build to 90kts.
3. Hold pressure on the elevator to maintain the attitude.
4. At 90kts, reduce throttle to 2100 RPM.
5. Stop any yaw with rudder.
6. Keep the wings level with aileron – Horizon should be level.
7. Verify constant altitude with altimeter.
8. Verify constant direction with heading indicator.
9. Trim.

From a descent: (PAT) - Attitude, Power, Trim

1. Set the throttle to 2100 RPM.
2. Set the cowling 4" below the horizon with elevator.
3. Check airspeed 90kts.
4. Keep the wings level with aileron – Horizon should be level.
5. Stop any yaw with rudder.
6. Verify constant altitude with altimeter – Adjust with pitch.
7. Verify constant direction with heading Indicator.
8. Trim.

Demonstrate and Say

1. Power 2100 RPM.
2. Airspeed 90kts.
3. Cowling 4" below the horizon – verify with altimeter.
4. Wings level with aileron. Not sliding left or right in your seat – verify with heading indicator and ball.
5. Trim.

Teaching Private and Commercial Maneuvers

Before the maneuver starts

Make sure the area above is clear before you climb. The sequence will be Power, Attitude, Trim (PAT). All control inputs will be:

- | | |
|-----------|-----------|
| 1. Change | 4. Adjust |
| 2. Check | 5. Trim. |
| 3. Hold | |



1. Add full power.
2. Raise the nose to the horizon.
3. Wings level with aileron.
4. Stop yaw with rudder.
5. Adjust the pitch for 80 knots - Adjust
6. Reduce the pitch if you are slow.
7. Increase the pitch if you are fast.
8. Trim. Holding forward trim forward. Holding back trim back.

Leveling off from a Climb

50 feet away from the altitude:

1. Lower the pitch to straight and level.
2. Allow the airspeed to build to 90kts.
3. Reduce throttle to 2100 RPM.
4. Trim.

Demonstrate and Say

The sequence is: Power, Attitude, Trim.

1. Full power.
2. Wings level with aileron – Stop yaw with rudder.
3. Nose to the horizon.
4. Climb at 80kts.
5. Trim.

Teaching Private and Commercial Maneuvers

Before the maneuver starts

Make sure the area below is clear before you descend. The sequence will be Power, Attitude, Trim (PAT). All control inputs will be:

- | | |
|-----------|-----------|
| 1. Change | 4. Adjust |
| 2. Check | 5. Trim. |
| 3. Hold | |



Descending to an Altitude

1. Reduce throttle to 1700 RPM.
2. Allow the nose to change downward,
3. Adjust attitude for 90kts.
4. Trim.

Descending to a Point on the Ground

Begin the descent when the point is $\frac{1}{2}$ way from the horizon to the cowling.

1. Reduce throttle to 1500 RPM.
2. Keep the point $\frac{1}{2}$ way down the windscreen from the horizon.
3. Maintain the airspeed with power.
4. Change the point with attitude.
5. Use flaps to make the point move closer to the cowling.
6. The steepest angle you can make to the ground is with full flaps, power idle and a forward slip.

Leveling off from a Descent (PAT) – Power, Attitude Trim

Sequence is: Power, Attitude Trim

1. Increase power to 2100 RPM.
2. Nose yaws left – stop the yaw with rudder.
3. Maintain airspeed with pitch.
4. Trim.

Demonstrate and Say

Sequence to level off is: Power, Attitude, Trim

1. Throttle to 2100 RPM.
2. Nose yaws left – stop the yaw with rudder.
3. Raise nose to straight and level attitude.
4. Trim.

ISBN 978-163795070-8

