



AOPA AIR SAFETY  
INSTITUTE

Safety Syllabus



# PINCH HITTER™

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AIR SAFETY INSTITUTE

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## Introduction

**This syllabus is designed to help non-pilot flying companions learn how to safely land an aircraft in the unlikely event of pilot incapacitation. It includes an introduction to the principles of flight, a basic overview of instruments and radio communications, and a scenario-based training guide.**

**Participants are encouraged to first take the free Pinch Hitter™ online course from the AOPA Air Safety Institute (ASI), and then use this training syllabus to further guide instruction. ASI recommends using a certificated flight instructor (CFI) or an experienced, proficient pilot for the ground and flight instruction portions of the syllabus.**

**While pilot incapacitation is extremely rare in general aviation (GA), completing this syllabus will help non-pilots be more knowledgeable and better prepared in the event of an actual emergency—they may even decide to pursue additional flight training.**

# Part 1: Aircraft Orientation

## Online Course

ASI's Pinch Hitter™ online course provides non-pilots an interactive introduction to GA aircraft. For anyone unfamiliar with flying, the course is an overview of the basic principles of flight, aircraft instruments, and radio communications, along with tips for dealing with emergency situations.

Participants are encouraged to write down any questions or comments while taking the course, and follow up with a flight instructor or experienced pilot to get their questions answered. After completing the online course, non-pilots should receive ground and flight instruction using this syllabus as a guideline.

ASI recommends that the ground and flight lessons in Part 1 and Part 2 be conducted separately. Each lesson should take approximately one hour to complete.

This syllabus serves as a guideline for Pinch Hitter™ training, and it should be tailored to the needs and experiences of the participants.

Pinch Hitter online course:

**[www.airsafetyinstitute.org/pinchhitter](http://www.airsafetyinstitute.org/pinchhitter)**

# Part 1: Aircraft Orientation

## Ground Lesson

The following ground and flight lessons are designed to familiarize non-pilots with the basic control and operation of a general aviation aircraft. ASI encourages using a flight training device, simulator, or simply sitting in the aircraft on the ground to review the following items to help connect participants learning experience with the knowledge they gained from taking the Pinch Hitter™ online course (some items are not covered in the online course).

### □ Airplane Overview

- Aircraft exterior overview
- Cockpit layout
- Door, seat, and seatbelt/harness operation
- Safety equipment
- Yoke, rudder pedals, and brake system
- Basic instruments
- Radio and GPS locations
- Autopilot
- Ballistic Recovery System (BRS) or Cirrus Airframe Parachute System (CAPS)

### □ Basics of Flight

- Explanation of flight controls:
  - Yoke
  - Rudder
  - Trim
- Explanation of engine and prop controls:
  - Throttle
  - Mixture
  - Prop

# Part 1: Aircraft Orientation

## Ground Lesson, *continued*

- Coordinated flight (ailerons, rudder)
  - Attitude flying using visual reference:
    - Straight-and-level
    - Climbs
    - Descents
    - Turns to heading
  - Use of trim
  - Basic flight instruments
  - Basic engine instruments
  - Using pitch and power settings to climb and descend
  - Stall/spin avoidance
- **Essential Communications**
- Radio equipment:
    - ON/OFF switch
    - Volume
    - Microphone
    - Headset
    - Push-to-talk
    - Transmitting and receiving
    - Tuning – changing and selecting frequencies
  - Speaking slowly, clearly, and distinctly
  - Declaring emergency on 121.5 or existing frequency if already in contact with ATC:
    - Who you're calling
    - Who you are
    - Declaring emergency (e.g., "I am not a pilot and I have an emergency.")
  - Transponder 7700
  - Towered vs. nontowered environments and related communications

# Part 1: Aircraft Orientation

## Ground Lesson, *continued*

### □ Approach and Landing

- Runway selection and aircraft orientation for landing (wind, traffic, etc.)
- GUMPS check (Gas, Undercarriage, Mixture, Prop, Seatbelts)
- Power and flaps settings
- Aiming point on runway
- Shallow banks and corrections
- Power setting (over the runway)
- Leveling off close to the runway
- Closing the throttle
- Stopping the aircraft
- Aircraft shutdown

# Part 1: Aircraft Orientation

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## Flight Lesson

### *Lesson Objectives*

- Aircraft overview
- Attitude flying using visual reference:
  - Straight-and-level
  - Climbs
  - Descents
  - Turns to heading
- Stall/spin avoidance
- Using basic instruments and aircraft radios
- Approaches and landings

# Part 1: Aircraft Orientation

## Flight Lesson, *continued*

### □ Preflight/Taxi/Takeoff

- Emphasize safety precautions around aircraft
- Preflight walk-around
- Prestart checks and engine starting
- Steering the aircraft on the ground with rudder pedals and braking
- Use of throttle and resulting power changes
- Location of radio transmit button and how to use
- Relate takeoff attitude to climbing

### □ Attitude Flying

- Attitude and power settings for level flight
- Relieving control pressures with small trim adjustments
- Climbs, descents, turns, and level flight and corresponding power settings

### □ Basic Instruments, Radios, and Transponder

- Heading indicator, altimeter, and airspeed indicator
- Aircraft radio and tuning/switching frequencies
- GPS operation and navigating to airport
- Transponder (simulate 7700)

### □ Approaches and Landings

- Runway selection (wind, traffic, etc.)
- Approaching at 1,000 feet AGL
- Aiming aircraft at landing area
- Descending for landing
- GUMPS check (all applicable items)
- Power settings for landing
- Touchdown, rollout, and braking



## Part 2: Scenario-Based Training

### Ground Lesson

The following ground and flight lessons should be taught after Part 1: Aircraft Orientation. Remember that this syllabus serves as a guideline for non-pilots and should be tailored to their particular needs and experience.

#### ❑ Pilot Incapacitation Scenario

- Securing the pilot
- Importance of remaining calm
- Use of checklist

#### ❑ Emergency Communications

- Declaring emergency on 121.5 or existing frequency if already in contact with ATC:
  - Who you're calling
  - Who you are
  - Declaring emergency (e.g., "I am not a pilot and I have an emergency.")

#### ❑ Autopilot Operation

- If OFF, leave it OFF—if ON, leave it ON
- ON/OFF Switch
- Changing selected altitudes and headings
- Use of power with the autopilot

#### ❑ GPS Navigation

- Direct-To button and operation
- Magenta-line navigation
- Nearest airport function and direct-to navigation

#### ❑ Transponder to 7700

- Transponder operation
- Ident feature

## Part 2: Scenario-Based Training

### Ground Lesson, *continued*

#### □ Pinch Hitter™ Flight Briefing

- Brief the scenario
- Pilot simulates ATC
- Priorities during scenario
- Review the In-Flight Guide (page 12)
- Print the Emergency Checklist to carry on board (page 14)

## Part 2: Scenario-Based Training

### Flight Lesson

#### **Lesson Objectives**

- Practice real-world emergency scenario with instructor/pilot simulating ATC
- Maintaining positive control of the aircraft while requesting assistance from ATC
- Declaring an emergency with ATC and complying with ATC instructions to navigate to the nearest airport (using GPS as an additional aid is optional)
- Communications at nontowered airports
- Adjusting airspeed and altitude for safe approach and landing
- Landing aircraft and taxiing to ramp area

#### **□ Review of Aircraft Control**

- Climbing, descending, straight and level, turns to heading
- Power settings
- Flaps, mixture, undercarriage operation

#### **□ Review of Basic Radio Communications**

- Declaring emergency on 121.5 or existing frequency if already in contact with ATC:
  - Who you're calling
  - Who you are
  - Declaring emergency (e.g., "I am not a pilot and I have an emergency.")

## Part 2: Scenario Based Training

### Flight Lesson, *continued*

#### □ Simulated Emergency Situation

- Return to practice area and rehearse simulated emergency radio call to ATC, navigation, and landing scenario, including nontowered airport communications
- Follow simulated ATC vectors to airport using GPS “Direct-To” function as optional navigation aid
- Optional use of autopilot to help control aircraft
- Approach and landing using GUMPS (Gas, Undercarriage, Mixture, Prop, Seatbelts) check and visual aiming point

#### □ Landing, Taxi, and Shutdown

- Safely land the aircraft and stop on the runway or taxiway
- Taxi aircraft to parking
- Shut down aircraft

# In-Flight Guide

The following **two-page** summary serves as a quick checklist that non-pilots can review after completing Parts 1 and 2 of this syllabus. Both pages are designed to be printed and either laminated or kept in a pilot kneeboard for quick reference in case there ever is an emergency. ASI recommends non-pilots and pilots review it together and keep it in a place that's easily accessible.

## ❑ Fly the Airplane First!

- If the autopilot is ON, leave it ON. If it is OFF, leave it OFF!
- Keep the aircraft straight and level on the horizon.
- Make sure the airspeed is in the green arc. Trim the aircraft if necessary.
- Get the pilot out of the way of instruments and controls by sliding the seat back if necessary.

## ❑ Communicate

- Put on a headset; place the microphone near your lips (use the handheld microphone if there is no headset).
- Press the push-to-talk switch and clearly tell ATC that you have an emergency. Remember to speak slowly and clearly into the mic. Try the frequency you're on first.
- If no response, tune 121.5 into all radios and push the radio switch button to switch 121.5 to the active frequency. Clearly state what is happening. Time permitting, put 7700 into the transponder.

## ❑ Navigate

- Follow ATC instructions and headings using the heading indicator—ATC will lead you to an airport for landing. Ask questions and make sure you have the information you need.
- If unable to contact ATC, use the GPS (if available) to find the "NRST" airport and go "Direct-To" that airport.
- If needed, use a sectional chart to find landmarks around you and locate a nearby airport.

# In-Flight Guide

*continued*

## □ Approach

- Slowly descend to 1,000 feet above the airport elevation as you arrive in the airport area.
- Follow ATC instructions to get lined up with the runway. If not in contact with ATC, line up with a runway of intended landing.
- Once lined up, aim the aircraft at a landing point, usually the white bars or stripes of the runway.
- Reduce power and slowly start descending toward the runway, keeping the aiming point in the same point on the windshield. Keep your airspeed in the green range.
- Do a GUMPS check and verify Gas is on the fullest tank, the Undercarriage (landing gear) handle is down and brake pressure feels normal, the Mixture (red-knob) is pushed forward, the Propeller knob (blue) is pushed forward, and Seatbelts are secure.
- Use the flaps if necessary to aid in slowing the aircraft.

## □ Landing

- Continue toward the runway, making slight changes with the throttle as necessary to keep the aiming point in the same position. If too low, add a small amount of power; if too high, reduce a slight amount of power. In either case maintain the same pitch attitude by adjusting pressure on the control yoke.
- Maintain a gradual descent toward the runway.
- As the aircraft crosses the end of the runway, pull the throttle (black knob) back toward you all the way, and let the aircraft settle onto the runway.
- Use brakes to bring the aircraft to a full stop.
- Pull the mixture control (red-knob) all the way out to stop the engine.
- Unless there's a fire or other emergency, stay with the aircraft until help arrives.

# Emergency Checklist

CALL SIGN: \_\_\_\_\_

AIRCRAFT TYPE: \_\_\_\_\_ DEST: \_\_\_\_\_



## PINCH HITTER EMERGENCY CHECKLIST

### FLY THE AIRPLANE

- STAY CALM AND FASTEN SEAT BELTS
- FLY STRAIGHT AND LEVEL ON HORIZON
- AUTOPILOT – LEAVE ON IF ON, LEAVE OFF IF OFF

### CALL ATC - DECLARE EMERGENCY

- CALL ATC ON EXISTING FREQUENCY OR 121.5
- TELL THEM YOU'RE NOT A PILOT
- DECLARE AN EMERGENCY

### NAVIGATE TO AIRPORT

- MAINTAIN CONTROL OF AIRCRAFT
- FOLLOW ATC INSTRUCTIONS
- USE GPS TO AID NAVIGATION (OPTIONAL)

### APPROACH AND LAND

- ADJUST POWER, PITCH and FLAPS for DESCENT
- MAINTAIN SAFE AIRSPEED IN THE GREEN
- GEAR DOWN AND LOCKED (IF APPLICABLE)

### SHUTDOWN

- THROTTLE - IDLE
- MIXTURE - OFF
- IGNITION - OFF