

# Ground Operations



## Preflight Inspection

### Procedures Overview

Preflight Inspection.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

High-Wing Airplane.....explores the stages of a preflight inspection for a high-wing airplane in eight ballflags (divided into submenus) and five skill enhancements

### Step-By-Step Procedures

Low-Wing Airplane.....explores the stages of a preflight inspection for a low-wing airplane in eight ballflags (divided into submenus) and five skill enhancements

### Practical Test Standards

Preflight Inspection.....lists the Private Pilot PTS requirements for the maneuver

### Discovery

Beech 1900 Walkaround.....introduces preflight procedures for a more advanced airplane

### Activity

Problems in Preflight.....Choose the appropriate remedy for the preflight problem.

### Activity

Do the Walkaround.....Select the unsafe condition found during the preflight.



## Engine Starting

### Procedures Overview

Engine Starting.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Engine Starting.....explores the stages of engine starting in four ballflags and three skill enhancements

### Practical Test Standards

Engine Starting.....lists the Private Pilot PTS requirements for the maneuver

### Human Element

Hand Propping.....warns against the dangers of hand propping an airplane

### Discovery

Gossamer Albatross.....explores the flight of a human-powered aircraft across the English Channel

### Activity

Starting Engine Checklist.....Complete the Engine Starting Checklist.



## Taxiing

### Procedures Overview

Taxiing.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Basic Taxi Techniques.....explores the stages of basic taxiing in three ballflags, two skill enhancements, and two radio calls

### Step-By-Step Procedures

Taxiing in Headwinds.....explores the stages of taxiing in headwinds in five ballflags

### Step-By-Step Procedures

Taxiing in Tailwinds.....explores the stages of taxiing in tailwinds in four ballflags

### Practical Test Standards

Taxiing.....lists the Private Pilot PTS requirements for the maneuver

### Safety Factors

Taxiing on the Slippery Stuff.....discusses proper techniques for taxiing on water, snow, and ice

### Human Element

Negative Transfer of Learning.....explains how driving experience can interfere with learning how to taxi

### Discovery

Water Taxi.....describes how seaplanes taxi

### Activity

Controlling the Controls.....Select the appropriate control position for the wind direction.

### Activity

Can You Get There From Here?.....Follow the progressive taxi instructions to the departure runway at an airport.



## Before Takeoff Check

### Procedures Overview

Before Takeoff Check.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Before Takeoff Check.....explores the stages of a before takeoff check in six ballflags and one skill enhancement

**Practical Test Standards**

Before Takeoff Check.....lists the Private Pilot PTS requirements for the maneuver

**Human Element**

Crew Checklist Procedures.....discusses crew resource management techniques and the use of checklists in the cockpit of a B-747

**Discovery**

Apollo Mission.....follows the before takeoff check for an Apollo launch

**Activity**

Instrument and Systems Check.....Select the correct instrument indications during the before takeoff check.



## Postflight Procedures

**Procedures Overview**

Postflight Procedures.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

After Landing.....explores the stages of after landing procedures in two ballflags and two radio calls

**Step-By-Step Procedures**

Parking and Securing.....explores the stages of parking and securing the airplane in three ballflags and one skill enhancement

**Practical Test Standards**

After Landing.....lists the Private Pilot PTS requirements for the maneuver

**Practical Test Standards**

Parking and Securing.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Hand Signals.....demonstrates the use of hand signals by ground personnel

**Human Element**

Workload Management.....discusses how managing workload in the cockpit is not finished until the airplane is secure

**Activity**

Postflight Checklist.....Complete the after landing and securing airplane procedures.

## Basic Maneuvers



### Straight-And-Level Flight

**Procedures Overview**

Straight-And-Level Flight.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Straight-And-Level Flight.....explores the stages of straight-and-level flight in three ballflags and one skill enhancement

**Practical Test Standards**

Straight-And-Level Flight.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

12.5 Seconds.....discusses the time it takes to see and avoid another aircraft

**Safety Factors**

Positive Exchange of Flight Controls.....explains how the student and instructor safely exchange control of the airplane

**Human Element**

Visual Scanning.....examines how the characteristics of the eye affect the ability to scan

**Discovery**

SR-71.....introduces supersonic flight and high-speed aircraft performance

**Activity**

Straight-And-Level Flight.....Pull the handle on the slot machine to answer questions about straight-and-level flight.



### Climbs

**Procedures Overview**

Climbs.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Climbs.....explores the stages of a climb in four ballflags and one skill enhancement

**Practical Test Standards**

Climbs.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Leaning the Mixture.....emphasizes the necessity of leaning the mixture at high altitudes

**Human Element**

Hypoxia.....explains the effects of hypoxia on the human body

## Discovery

Space Shuttle Launch.....explores the climb rates of the Space Shuttle during a launch

## Activity

Leveloff.....Select the proper instrument indications for leveling off from a climb.



## Descents

### Procedures Overview

Descents.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Approach to Landing Descent.....explores the stages of an approach to landing descent in four ballflags

### Step-By-Step Procedures

Cruise Descent.....explores the stages of a cruise descent in four ballflags and one skill enhancement

### Step-By-Step Procedures

Power-Off Glide.....explores the stages of a power-off glide in four ballflags

### Practical Test Standards

Descents.....lists the Private Pilot PTS requirements for the maneuver

### Safety Factors

Carburetor Ice.....discusses the causes and prevention of carburetor ice

### Human Element

Pressure Change.....examines how pressure changes affect your ears during a descent

### Activity

Descent Control.....Complete the statements about descents.



## Turns

### Procedures Overview

Turns.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Level Turns.....explores the stages of a level turn in three ballflags and two skill enhancements

### Step-By-Step Procedures

Climbing Turns.....explores the stages of a climbing turn in four ballflags

### Step-By-Step Procedures

Descending Turns.....explores the stages of a descending turn in three ballflags and one skill enhancement

### Practical Test Standards

Turns.....lists the Private Pilot PTS requirements for the maneuver

### Safety Factors

Blind Spots.....describes common blind spots encountered when operating high- and low-wing airplanes

### Human Element

G-Forces.....discusses the load factors encountered in turns

### Discovery

Wing Warping.....examines how the Wright Flyer performed turns

### Activity

Call the Turn.....Race against the clock to answer questions about turns.

### Activity

Blind Spot.....Identify the blind spots for high- and low-wing airplanes.

# Airport Operations



## Normal Takeoff and Climb

### Procedures Overview

Normal Takeoff and Climb.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Normal Takeoff and Climb.....explores the stages of a normal takeoff and climb in seven ballflags, two skill enhancements, and two radio calls

### Practical Test Standards

Normal Takeoff and Climb.....lists the Private Pilot PTS requirements for the maneuver

### Safety Factors

Aborted Takeoff.....discusses when and how to abort a takeoff

### Safety Factors

Engine Failure After Takeoff.....describes the proper procedures for safely managing an engine failure after takeoff

### Human Element

Use of Checklists.....follows the chain of events that led to an accident during takeoff

## Discovery

Takeoffs Without Runways.....explores airplanes that can take off without using runways

### Activity

Performing the Takeoff.....Indicate whether statements about takeoffs are true or false.

### Activity

Takeoff Procedures.....Select the correct actions to be performed during a takeoff.



## Crosswind Takeoff and Climb

### Procedures Overview

Crosswind Takeoff and Climb.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Crosswind Takeoff and Climb.....explores the stages of a crosswind takeoff and climb in seven ballflags, three skill enhancements, and two radio calls

### Practical Test Standards

Crosswind Takeoff and Climb.....lists the Private Pilot PTS requirements for the maneuver

### Safety Factors

Ground Loops.....describes how wind can contribute to loss of directional control on the runway

### Human Element

Personal Crosswind Limitations.....emphasizes the importance of establishing a personal limit for operating in crosswinds

### Activity

Control Position.....Select the correct yoke position for the wind direction.

### Activity

Crosswind Climbout.....Identify the airplanes that are using the correct crab techniques.



## Traffic Patterns

### Procedures Overview

Traffic Patterns.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Controlled Airports.....explores the stages of a traffic pattern at a controlled airport in four ballflags, three skill enhancements, and four radio calls

### Step-By-Step Procedures

Uncontrolled Airports.....explores the stages of a traffic pattern at an uncontrolled airport in eight ballflags, six skill enhancements, and five radio calls

### Practical Test Standards

Traffic Patterns.....lists the Private Pilot PTS requirements for the maneuver.

### Safety Factors

Collision Avoidance.....includes procedures that can be used to reduce the risk of a mid-air collision around an airport

### Safety Factors

Runway Incursion Avoidance.....examines the methods that can be used to prevent runway incursions

### Safety Factors

Wake Turbulence.....explains how wake turbulence is generated and how to avoid it

### Safety Factors

Wind Shear.....defines wind shear and discusses its causes

### Human Element

Communication.....emphasizes the need for pilots to broadcast their intentions at uncontrolled airports

### Human Element

Workload Management.....outlines how to plan a descent to pattern altitude when approaching an airport

### Human Element

Situational Awareness.....describes the factors that may affect a pilot's ability to maintain situational awareness in the traffic pattern

### Discovery

Space Shuttle.....follows the space shuttle orbiter during its approach and landing at Kennedy Space Center

### Activity

Traffic Pattern Legs.....Identify each leg of the traffic pattern.

### Activity

Traffic Pattern Entry.....Select the airplane in the proper traffic pattern entry position based on a tower controller's instructions.

### Activity

Wake Turbulence.....Choose the airplane that is using the proper wake turbulence avoidance procedures.

### Activity

Descent Profile.....Determine the distance from an airport at which the descent to traffic pattern altitude should begin.



## Normal Approach and Landing

### Procedures Overview

Normal Approach and Landing.....provides an overall explanation of the maneuver

### Step-By-Step Procedures

Approach and Landing.....explores the stages of a normal approach and landing in ten ballflags, five skill enhancements, and five radio calls

**Step-By-Step Procedures**

Forward Slip.....explores the stages of a forward slip in three ballflags and one skill enhancement

**Step-By-Step Procedures**

Go-Around.....explores the stages of a go-around in five ballflags, two skill enhancements, and two radio calls

**Practical Test Standards**

Approach and Landing.....lists the Private Pilot PTS requirements for the maneuver

**Practical Test Standards**

Forward Slip.....lists the Private Pilot PTS requirements for the maneuver

**Practical Test Standards**

Go-Around.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Bird Strikes.....explains how to avoid and report bird strikes

**Safety Factors**

Hydroplaning.....discusses hydroplaning and the precautions that can be taken to avoid it

**Human Element**

Landing Accident Statistics.....examines the phases of flight during which most accidents occur

**Human Element**

Landing Illusions.....describes visual illusions that can occur during approach and landing

**Discovery**

Memorable Landings.....presents several pilot accounts of memorable landings

**Activity**

The Key Position.....Select the appropriate actions to be taken when an airplane is too high or low at the key position.

**Activity**

Common Landing Errors.....Collect a winning hand of cards that specifies causes and corrective actions for common landing errors.

**Activity**

Forward Slip.....Choose the proper yoke and rudder positions for slip configurations.



## Crosswind Approach and Landing

**Procedures Overview**

Crosswind Approach and Landing.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Crosswind Approach and Landing.....explores the stages of a crosswind approach and landing in seven ballflags, two skill enhancements, and four radio calls

**Practical Test Standards**

Crosswind Approach and Landing.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Gust Factor.....introduces precautions that can be taken when landing in turbulent and gusty conditions

**Discovery**

Boeing B-52 Landing Gear.....describes a castering gear system that helps the B-52 land in crosswind conditions

**Activity**

Traffic Pattern Positions.....Match the airplane wind correction configuration to the corresponding position in the traffic pattern.

**Activity**

Control Positions.....Select the airplane control inputs that would allow a safe landing based on the wind direction.

## Emergency Landing Procedures



### Emergency Descents

**Procedures Overview**

Emergency Descents.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Emergency Descents.....explores the stages of an emergency descent in four ballflags and one skill enhancement

**Practical Test Standards**

Emergency Descents.....lists the Private Pilot PTS requirements for the maneuver

**Human Element**

Cockpit Coordination.....describes how the crew of a B-737 managed their workload during an explosive decompression

**Activity**

Emergency Actions.....Reveal the emergency situation and decide if an emergency descent should be performed.



### Emergency Approach and Landing

**Procedures Overview**

Emergency Approach and Landing.....provides an overall explanation of the maneuver

**Step-By-Step Procedures**

Emergency Approach and Landing.....explores the stages of an emergency approach and landing in seven ballflags, three skill enhancements, and one radio call

**Practical Test Standards**

Emergency Approach and Landing.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Survival After the Landing.....discusses how planning ahead can improve the outcome of an emergency situation

**Safety Factors**

The Precautionary Landing.....covers situations when a precautionary landing is appropriate

**Human Element**

Landing Decisions.....includes pilot accounts of how in-flight problems were managed

**Activity**

Do the Right Thing.....Indicate actions that should be accomplished during an emergency approach and landing.

# Flight Maneuvers



## Slow Flight

**Procedures Overview**

Slow Flight.....provides an overall explanation of the maneuver

**Procedures Overview**

Clearing Turns.....explains the correct procedure for clearing the area prior to beginning the maneuver

**Step-By-Step Procedures**

Slow Flight.....explores the stages of slow flight in four ballflags and one skill enhancement

**Practical Test Standards**

Slow Flight.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Flying Backwards.....examines the effects of the weather when performing slow flight

**Discovery**

Lift Reserve Indicator.....introduces equipment that aids pilots in determining an approaching stall

**Activity**

Slow Flight Squares.....Decide whether to agree or disagree with statements about slow flight.



## Power-Off Stalls

**Procedures Overview**

Power-Off Stalls.....provides an overall explanation of the maneuver

**Procedures Overview**

Clearing Turns.....explains the correct procedure for clearing the area prior to beginning the maneuver

**Step-By-Step Procedures**

Power-Off Stalls.....explores the stages of a power-off stall in four ballflags and one skill enhancement

**Practical Test Standards**

Power-Off Stalls.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Lower Stall Speeds.....describes airplane modifications that can lower stall speeds

**Human Element**

AOA Indicators.....includes a discussion on equipment that provides angle of attack information

**Discovery**

Canards.....discusses canard designs of the past and present

**Activity**

Stall Recovery.....Collect a winning hand of cards that describes the correct power-off stall recovery procedure.



## Power-On Stalls

**Procedures Overview**

Power-On Stalls.....provides an overall explanation of the maneuver

**Procedures Overview**

Clearing Turns.....explains the correct procedure for clearing the area prior to beginning the maneuver

**Step-By-Step Procedures**

Power-On Stalls.....explores the stages of a power-on stall in four ballflags and two skill enhancements

**Practical Test Standards**

Power-On Stalls.....lists the Private Pilot PTS requirements for the maneuver

## Safety Factors

Stall Prevention on Takeoff.....*illustrates the serious consequences of failing to properly prepare an airplane for flight*

## Discovery

Coffin Corner.....*examines one of the problems that can be experienced by high-altitude, high-speed aircraft*

## Activity

Keep Flying.....*Answer questions about power-on stalls to keep an airplane flying*



## Demonstrated Stalls

### Procedures Overview

Demonstrated Stalls.....*provides an overall explanation of the maneuver*

### Procedures Overview

Clearing Turns.....*explains the correct procedure for clearing the area prior to beginning the maneuver*

### Step-By-Step Procedures

Demonstrated Stalls.....*explores the stages of demonstrated stalls in five ballflags*

### Practical Test Standards

Spin Awareness.....*lists the Private Pilot PTS requirements for the maneuver*

### Safety Factors

Stall By Design.....*covers the stall characteristics of a variety of wing planform designs*

### Discovery

Aerobatic Training.....*describes the benefits of basic aerobatic training*

### Activity

Stall/Spin Bingo.....*Answer questions about stalls and spins to win a bingo game.*



## Steep Turns

### Procedures Overview

Steep Turns.....*provides an overall explanation of the maneuver*

### Procedures Overview

Clearing Turns.....*explains the correct procedure for clearing the area prior to beginning the maneuver*

### Step-By-Step Procedures

Steep Turns.....*explores the stages of a steep turn in four ballflags and one skill enhancement*

### Practical Test Standards

Steep Turns.....*lists the Private Pilot PTS requirements for the maneuver*

### Safety Factors

Load Factor.....*discusses limit load factor and the importance of performing steep turns at or below maneuvering speed*

### Human Element

Extreme G-Forces.....*covers the effects of extreme G-forces on the human body*

### Activity

Air Race.....*Answer questions about steep turns to win an air race.*

## Ground Reference Maneuvers



## Rectangular Course

### Procedures Overview

Rectangular Course.....*provides an overall explanation of the maneuver*

### Procedures Overview

Clearing Turns.....*explains the correct procedure for clearing the area prior to beginning the maneuver*

### Step-By-Step Procedures

Rectangular Course.....*explores the stages of a rectangular course in six ballflags and three skill enhancements*

### Practical Test Standards

Rectangular Course.....*lists the Private Pilot PTS requirements for the maneuver*

### Human Element

Workload Management.....*illustrates the importance of being familiar with engine instrument indications*

### Discovery

Square Loop.....*discusses an aerobatic maneuver that requires wind correction similar to the rectangular course*

### Activity

Wind Correction.....*Indicate whether statements are true or false to complete a rectangular course.*



## S-Turns

**Procedures Overview**

S-Turns.....provides an overall explanation of the maneuver

**Procedures Overview**

Clearing Turns.....explains the correct procedure for clearing the area prior to beginning the maneuver

**Step-By-Step Procedures**

S-Turns.....explores the stages of an S-turn in five ballflags and two skill enhancements

**Practical Test Standards**

S-Turns.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Engine Failure.....emphasizes the need to practice S-turns over a good emergency landing site

**Discovery**

Aerial Photography.....explains how the skills learned in S-turns can be applied to aerial photography

**Activity**

Bank Angle.....Indicate the correct bank angle for an airplane's position in an S-turn.



**Turns Around a Point**

**Procedures Overview**

Turns Around a Point.....provides an overall explanation of the maneuver

**Procedures Overview**

Clearing Turns.....explains the correct procedure for clearing the area prior to beginning the maneuver

**Step-By-Step Procedures**

Turns Around a Point.....explores the stages of turns around a point in four ballflags and two skill enhancements

**Practical Test Standards**

Turns Around a Point.....lists the Private Pilot PTS requirements for the maneuver

**Safety Factors**

Picture This.....emphasizes the importance of dividing your attention when flying at low altitudes

**Discovery**

Sky Diving.....explores the skills needed and methods used to sky dive

**Activity**

Bank Angle.....Correctly complete statements about turns around a point.