

LESSON 1 - INTRODUCTION TO FLIGHT

LESSON OBJECTIVES

Familiarize student with the privileges, obligations and responsibilities of a private pilot. Introduce student to the airplane and preflight and postflight procedures, use of checklists and safety precautions. Familiarize student with the effect and use of flight controls, practice area and local airport.

DISCUSSION / REVIEW

- | | |
|--|-------------------------------|
| _____ Training and course requirements | _____ Ground safety |
| _____ Required aircraft documents | _____ Airplane servicing |
| _____ Fitness/health for flight (I'M SAFE) | _____ Weather briefing basics |

INTRODUCE

- | | |
|--|--|
| _____ Preflight procedures | _____ Normal takeoff and climb |
| _____ Use of checklists | _____ Climbs and climbing turns |
| _____ Airplane systems and operations | _____ Level off |
| _____ Equipment checks | _____ Straight and level flight |
| _____ Location of emergency equipment | _____ Use of trim |
| _____ Ground operations / communications | _____ Shallow / medium banked turns in both directions |
| _____ Engine starting and runup | _____ Normal approach and landing |
| _____ Taxiing | _____ Postflight procedures |
| _____ Pre-takeoff checklist | |

COMPLETION STANDARDS

The student will display a basic understanding of aircraft systems, use of checklists, and both pre- and post-flight procedures. The student will be familiar with the control systems and how they are used to maneuver the airplane on the ground and in the air.

HOMEWORK ASSIGNMENT

Prior to Lesson 2, Four Fundamentals of Flight:

- | | |
|---|--|
| _____ Pilot's Handbook of Aeronautical Knowledge | _____ AIM |
| <ul style="list-style-type: none"> ▪ Principles of Flight (Ch. 3) | <ul style="list-style-type: none"> ▪ Sections 5-5-8; 8-1-6; 8-1-8 |
| _____ Airplane Flying Handbook | _____ FAR |
| <ul style="list-style-type: none"> ▪ Ground Operations (Ch. 2) ▪ Basic Flight Maneuvers (Ch. 3) | <ul style="list-style-type: none"> ▪ Sections 61.3; 61.23; 61.51(i); 61.57 subpart E; sections 91.203; 91.9 |

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LESSON 2 – FOUR FUNDAMENTALS OF FLIGHT

LESSON OBJECTIVES

The student will develop skills and gain proficiency in performing the four basic flight maneuvers (straight-and-level, turns, climbs and descents). Introduce student to radio communication procedures and ground reference maneuvers.

DISCUSSION / REVIEW

- | | |
|-----------------------------|--|
| _____ Preflight activities | _____ Flight instruments and their purpose |
| _____ Ground operations | _____ Collision avoidance precautions |
| _____ Ground communications | _____ Training area and minimum altitudes |
| _____ Weather factors | |

INTRODUCE

- | | |
|---|--|
| _____ Cockpit management | _____ Turns to headings |
| _____ Radio communications procedures | _____ Descents and descending turns <ul style="list-style-type: none"> ▪ Cruise descent ▪ Traffic pattern descent ▪ Power-off glide |
| _____ Airport / runway markings / lighting | _____ Level off from climbs and descents |
| _____ Traffic pattern entry and departure procedures | _____ Torque effects |
| _____ Straight and level flight | _____ Normal approach and landings |
| _____ Climbs and climbing turns <ul style="list-style-type: none"> ▪ Cruise ▪ Best rate of climb (Vy) ▪ Best angle of climb (Vx) | |

COMPLETION STANDARDS

The student will have knowledge of aircraft systems and the necessity of checking their operation before flight. The student will be familiar with the control systems and how they are used to maneuver the airplane on the ground and in the air. The student will be able to perform takeoffs with instructor assistance.

HOMEWORK ASSIGNMENT

Prior to Lesson 3, Basic Instrument Maneuvers:

- _____ **Pilot's Handbook of Aeronautical Knowledge**
 - Principles of Flight (Ch. 3)
 - Aerodynamics of Flight (Ch. 4)
- _____ **Airplane Flying Handbook**
 - Integrated Flight Instruction (Ch. 3, p. 3)

LESSON 3 – BASIC & INSTRUMENT MANEUVERS

OBJECTIVES

Improve student's proficiency in the four fundamentals of flight and introduce student to basic instrument maneuvers.

DISCUSSION / REVIEW

- _____ Collision-avoidance procedures
- _____ Flight instruments and their purpose

INTRODUCE

- _____ Taxiing in a crosswind
- _____ Attitude instrument flying
- _____ Straight-and-level flight
- _____ Straight, constant airspeed climbs
- _____ Straight, constant airspeed descent
- _____ Slow flight
- _____ Turns to a heading

COMPLETION STANDARDS

The student will be able to perform takeoffs with instructor assistance. Preflight activities are accurately conducted and the student displays an increased understanding and proficiency in coordinated airplane control. The student should be familiar with the control usage necessary to maintain an altitude within 250 feet during airspeed changes. The student understands the basic instrument maneuvers.

HOMEWORK ASSIGNMENT

Prior to Lesson 4, Slow Flight and Stalls:

_____ **Pilot's Handbook of Aeronautical Knowledge**

- Aircraft Structure (Ch. 2)
- Aerodynamics of Flight (Ch. 3)
- Stalls (Ch. 4-22, 4-32)
- Airspeed (Ch. 8-2)

_____ **Airplane Flying Handbook**

- Slow Flight, Stalls and Spins (Ch. 4)



LESSON 4 – SLOW FLIGHT AND STALLS

OBJECTIVES

The student will review airspeed control maneuvers, demonstrate increased proficiency in performing slow flight, and be introduced to stalls from various flight conditions to increase understanding of airplane control during normal and critical flight conditions.

DISCUSSION / REVIEW

- _____ Fundamentals of slow flight and stalls
- _____ Spin awareness

INTRODUCE

- _____ Flights at various airspeeds from cruise to slow flight
- _____ Maneuvering during slow flight emphasizing correct use of rudder to negate increased adverse yaw at slow airspeeds
- _____ Power-off stalls recognition and recovery
- _____ Power-on stalls recognition and recovery
- _____ Descents with and without using high and low drag configuration

COMPLETION STANDARDS

Student demonstrates correct communications and traffic pattern procedures. Proficient in preflight inspection, engine start-up, taxi, pre-takeoff check, and postflight procedures without instructor assistance. Displays understanding of slow flight, indications of approaching stall, proper recovery procedures, and conditions necessary for a spin to occur. Altitude, heading, and airspeed at or near PTS standards.

HOMEWORK ASSIGNMENT

Prior to Lesson 5, Emergency Procedures:

- _____ **Airplane Flying Handbook**
 - Emergency Procedures (Ch. 16)
- _____ **Aeronautical Information Manual**
 - Emergency Procedures (Ch. 6)
- _____ **Pilot's Operating Handbook**
 - Review emergency procedures and checklists



LESSON 5 – EMERGENCY PROCEDURES

OBJECTIVES

The student will practice the maneuvers from the previous lesson to gain additional proficiency and demonstrate the ability to recognize and recover from imminent and full stalls. The student will also gain an understanding of emergency operations and an increased understanding of slow flight and stall recognition and recovery.

DISCUSSION / REVIEW

- _____ Types of possible emergencies
- _____ Emergency procedures (checklists)
- _____ Use of all available resources in an emergency situation
- _____ Human factors and symptoms
- _____ Emergency equipment and survival gear

INTRODUCE

- _____ Emergency approach and landing
- _____ Emergency descents
- _____ Systems and equipment malfunctions
- _____ Engine failure in different segments of flight and aircraft configurations
- _____ Recovery from bouncing and ballooning during landing
- _____ Balked landings (go-arounds)

COMPLETION STANDARDS

The student displays increased proficiency with control of airplane and performs unassisted takeoffs. The student is familiar with the procedures used during emergency approach and landing situations. The student also demonstrates appropriate procedures for stall set-up and recovery and improved performance with regard to maneuvering at critically slow airspeed. The student performs landings with minimal instructor assistance.

HOMEWORK ASSIGNMENT

Prior to Lesson 6, Steep Turns / Ground Reference Maneuvers:

- _____ **Airplane Flying Handbook**
 - Ground Reference Maneuvers (Ch. 6)
 - Performance Maneuvers (Ch. 9-1)

LESSON 6 – STEEP TURNS / GROUND REFERENCE MANEUVERS

OBJECTIVES

The student will gain proficiency in ground reference maneuvers, steep turns and full stalls. Maneuvering at critically slow airspeeds is introduced by instrument reference.

DISCUSSION / REVIEW

- _____ Integrated flight
- _____ Fundamentals of ground reference maneuvers

INTRODUCE

- _____ Steep turns (IR)
- _____ Rectangular courses
- _____ S-turns across a road
- _____ Turns around a point
- _____ Maneuvering at critically slow airspeeds (IR)
- _____ Power-off stalls (full)
- _____ Power-on stalls (full)
- _____ Wake turbulence avoidance

COMPLETION STANDARDS

The student displays proper entry procedures and understands how to maintain a specific ground track during performing of ground reference maneuvers. Demonstrates increased proficiency in emergency procedures. Altitude, airspeed and heading within PTS standards during straight and level flight.

HOMEWORK ASSIGNMENT

Prior to Lesson 7, Slips/Crosswind Landings and Takeoffs:

- _____ **Airplane Flying Handbook**
 - Crosswind Takeoff (Ch. 5, p.5)
 - Crosswind Approach and Landing (Ch. 8)
- _____ Review previously assigned reading material

LESSON 7 – SLIPS / CROSSWIND LANDINGS & TAKEOFFS

OBJECTIVES

This lesson is a review of previous lessons in order for the student to gain proficiency in basic flight maneuvers and increase the student's comfort level with the airplane in various segments of flight. Additionally, crosswind takeoffs and landings are introduced so the student may begin to learn these procedures during varying wind conditions.

DISCUSSION / REVIEW

- | | |
|--|---|
| <input type="checkbox"/> Pilot-in-command (PIC) responsibility and authority | <input type="checkbox"/> Steep turns |
| <input type="checkbox"/> Elements of basic instrument maneuvers | <input type="checkbox"/> Emergency approach and landings |
| <input type="checkbox"/> Normal and crosswind takeoffs and landings | <input type="checkbox"/> Ground reference maneuvers |
| <input type="checkbox"/> Traffic pattern operations | <input type="checkbox"/> Recovery from faulty approaches and landings |
| <input type="checkbox"/> Radio phraseology | <input type="checkbox"/> Go-arounds from a rejected landing, go-arounds from final approach and from the landing flare in various configurations, including turns |
| <input type="checkbox"/> Maneuvering during slow flight | <input type="checkbox"/> Wake turbulence avoidance |
| <input type="checkbox"/> Power-off stall | |
| <input type="checkbox"/> Power-on stall | |

INTRODUCE

- Forward slip to a landing
- Sideslip to a landing
- Crosswind takeoff and climb
- Crosswind approach and landings
- ATC light signals
- Forced landing procedures initiated at take-off, during initial climb, cruise, descents, and in the landing pattern.

COMPLETION STANDARDS

The student will initiate a timely recovery from full stalls in takeoff and landing configurations; determine wind direction and make appropriate corrections in the traffic pattern; demonstrate an understanding of how the slip is used to perform crosswind landings; and make sound judgments as to the necessity for a go-around.

HOMEWORK ASSIGNMENT

Prior to Lesson 8, Traffic Pattern Review:

- AIM**
 - Airport Operations (Section 4.3)
- Airplane Flying Handbook**
 - Airport Traffic Patterns (Ch. 7)



LESSON 8 – TRAFFIC PATTERN REVIEW

OBJECTIVES

This lesson is a review of material from previous lessons, with the goal to perfect traffic pattern operations and practice takeoffs and landings.

DISCUSSION / REVIEW

- _____ Traffic pattern operations
- _____ Radio phraseology

INTRODUCE

- _____ Traffic pattern engine-out procedures
- _____ Controlled / uncontrolled field operations

COMPLETION STANDARDS

The student performs takeoffs and landings without assistance from instructor. Enters traffic pattern properly and maintains proper ground track, adjusting for traffic and wind. Shows awareness of surrounding traffic.

HOMEWORK ASSIGNMENT

Prior to Lesson 9, Maneuvers Review:

- _____ **Airplane Flying Handbook**
 - Takeoffs and Departure Climbs (Ch. 5)
 - Approaches and Landings (Ch. 8)
- _____ Review **Pilot's Operating Handbook**

LESSON 9 – MANEUVERS REVIEW

OBJECTIVES

During the lesson the student will practice the review maneuvers to gain proficiency.

DISCUSSION / REVIEW

- _____ Weather information
- _____ Performance / limitations
- _____ Aeromedical factors
- _____ Go-arounds from a rejected landing
- _____ Forward slips to landings
- _____ Sideslips to a landing
- _____ Crosswind takeoff and climb
- _____ Crosswind approach and landings
- _____ Forced landing procedures initiated at take-off, during initial climb, cruise, descents, and in the landing pattern

COMPLETION STANDARDS

The student will be able to fly the above maneuvers to the proficiency level prescribed by the PTS with instructor critique and suggested methods to overcome deficiencies.

HOMEWORK ASSIGNMENT

Prior to Lesson 10, Instrument Flight Maneuvers:

- _____ **Instrument Flying Handbook**
 - Chapter 5
- _____ **Pilot's Handbook of Aeronautical Knowledge**
 - Chapter 6 (discussion of inclinometers)



LESSON 10 – INSTRUMENT FLIGHT MANEUVERS

OBJECTIVES

During this lesson, the student will practice instrument flight maneuvers, and takeoffs and landings in preparation for solo flight.

DISCUSSION / REVIEW

- _____ Straight-and-level flight (VR-IR)
- _____ Steep turns (VR-IR)
- _____ Straight, constant airspeed descents (VR-IR)
- _____ Climbing and descending turns
- _____ Turns to headings (IR)
- _____ Crosswind takeoff and climb
- _____ Crosswind approach and landing
- _____ Go-around from a rejected landing
- _____ Forward slips to landing
- _____ Sideslips to a landing
- _____ Emergency approach and landing
- _____ ATC light signals
- _____ Forced landing procedures initiated at takeoff, during initial climb, cruise, descents, and in the landing pattern

COMPLETION STANDARDS

The student demonstrates increased skill in instrument scan and interpretation during instrument flight. Conducts takeoffs, landings, and go-arounds without the instructor's assistance. Demonstrates readiness for solo flight in the traffic pattern. Indicates thorough understanding of local airport and airspace rules, as well as systems and equipment malfunctions. Demonstrates mature PIC decision-making ability.

HOMEWORK ASSIGNMENT

Prior to Lesson 11, Pre-Solo Preparation:

- _____ **Federal Aviation Regulations**
 - Review 14 CFR 61.87 – Solo requirements for student pilots
- _____ Review airport/facilities directory data on airport at which solo will occur
- _____ Practice getting weather briefings and evaluating suitability of conditions



LESSON 11 – PRE-SOLO PREPARATION

OBJECTIVES

The instructor will evaluate the student's progress to determine readiness for solo flight, present the presolo quiz and correct any faulty performance areas.

DISCUSSION / REVIEW

- | | |
|---|--|
| <input type="checkbox"/> Operation of systems | <input type="checkbox"/> Stalls and recovery |
| <input type="checkbox"/> Preflight inspection | <input type="checkbox"/> Spin awareness |
| <input type="checkbox"/> Engine starting | <input type="checkbox"/> Steep turns |
| <input type="checkbox"/> Radio communications | <input type="checkbox"/> Ground reference maneuvers |
| <input type="checkbox"/> Normal and crosswind taxiing | <input type="checkbox"/> Systems and equipment malfunctions |
| <input type="checkbox"/> Pre-takeoff check | <input type="checkbox"/> Emergency procedures |
| <input type="checkbox"/> Normal and crosswind takeoff | <input type="checkbox"/> Traffic patterns |
| <input type="checkbox"/> Power-off stalls (full) | <input type="checkbox"/> Forward slips to landing |
| <input type="checkbox"/> Power-on stalls (full) | <input type="checkbox"/> Go-arounds from rejected landings |
| <input type="checkbox"/> Maneuvering at critically slow airspeeds | <input type="checkbox"/> Normal and crosswind approach and landing |
| <input type="checkbox"/> Climbing and descending turns | <input type="checkbox"/> PIC responsibility and authority |
| <input type="checkbox"/> Straight-and-level flight | <input type="checkbox"/> Flight by reference to instruments |
| <input type="checkbox"/> Turns to headings | <input type="checkbox"/> Forced landing procedures |

COMPLETION STANDARDS

The student demonstrates readiness for solo flight in the traffic pattern. Indicates good understanding of local airport and airspace rules, and systems and equipment malfunctions. Demonstrates mature PIC decision-making authority as well as competence and proficiency levels for the relevant maneuvers prescribed in the PTS.

HOMEWORK ASSIGNMENT

Prior to Lesson 12, First Solo:

- Read Federal Aviation Regulations on solo requirements for student pilots, § 61.87
- Review the airport/facilities directory data on airport where solo will occur
- Review operating limitations in the POH

Pre-Solo Aeronautical Knowledge: I certify that [First name, MI, Last name] has satisfactorily completed the pre-solo knowledge test of § 61.87(b) for the [make and model (M/M)] aircraft.

Pre-Solo Flight Training: I certify that [First name, MI, Last name] has received and logged pre-solo flight training for the maneuvers and procedures that are appropriate to the [M/M] aircraft. I have determined they have demonstrated satisfactory proficiency and safety on the maneuvers and procedures required by § 61.87 in this or similar make and model of aircraft to be flown.

90-Day: I certify that [First name, MI, Last name] has received the required training to qualify for solo flying. I have determined they meet the applicable requirements of § 61.87(n) and are proficient to make solo flights in [M/M].



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LESSON 12 – FIRST SOLO

OBJECTIVES

Prior to this flight, the instructor will have administered the presolo written exam. During the dual portion of the lesson, the instructor will review takeoff and landing procedures to check the student's readiness for solo flight; in the second portion of the lesson, the student will conduct the first solo flight in the local traffic pattern.

DISCUSSION / REVIEW

- | | |
|--|--|
| <input type="checkbox"/> Student questions | <input type="checkbox"/> Preflight preparations and procedures |
| <input type="checkbox"/> Endorse logbook and student pilot certificate | <input type="checkbox"/> Airport operations |
| <input type="checkbox"/> Engine starting | <input type="checkbox"/> Radio communications |
| <input type="checkbox"/> Radio communications | <input type="checkbox"/> Taxi |
| <input type="checkbox"/> Normal and/or crosswind taxi | <input type="checkbox"/> Pre-takeoff check |
| <input type="checkbox"/> Pre-takeoff check | <input type="checkbox"/> Normal takeoffs and climbs |
| <input type="checkbox"/> Normal takeoffs | <input type="checkbox"/> Traffic pattern operations |
| <input type="checkbox"/> Traffic pattern operations | <input type="checkbox"/> Normal approaches and landings |
| <input type="checkbox"/> Go-around from a rejected landing | <input type="checkbox"/> Emergency procedures |
| <input type="checkbox"/> Normal landings | <input type="checkbox"/> Supervised solo |
| | <input type="checkbox"/> Postflight procedures |

COMPLETION STANDARDS

The student successfully accomplishes a supervised solo as directed by the instructor. At no time was the safety of the flight in question.

HOMEWORK ASSIGNMENT

- Review previously assigned reading material

LESSON 13 – STAGE CHECK

OBJECTIVES

The instructor evaluates the student's solo abilities to determine if the student can safely depart the traffic pattern, conduct solo flights in the practice area and exercise the privileges associated with solo operation of the aircraft, and return to the airport and land without instructor assistance.

REVIEW - DUAL

- | | |
|--|--|
| <input type="checkbox"/> Confirm students' awareness of local practice area boundaries | <input type="checkbox"/> Maneuvering during slow flight |
| <input type="checkbox"/> Random V speeds and systems operation | <input type="checkbox"/> Collision avoidance precautions |
| <input type="checkbox"/> Human factors checklist | <input type="checkbox"/> Stall / spin awareness and recovery |
| <input type="checkbox"/> Basic aerodynamics | <input type="checkbox"/> Go-arounds |
| <input type="checkbox"/> Airspace and use of charts | <input type="checkbox"/> En route emergency procedures |
| <input type="checkbox"/> Description of maneuvers | <input type="checkbox"/> Emergency approach and landing |
| <input type="checkbox"/> Student pilot limitations and privileges | <input type="checkbox"/> S-turns |
| <input type="checkbox"/> Airport procedures | <input type="checkbox"/> Forward slip to a landing |
| <input type="checkbox"/> Performance criteria | <input type="checkbox"/> Radio communications |
| <input type="checkbox"/> Runway incursion avoidance | <input type="checkbox"/> Radio and systems failure |
| <input type="checkbox"/> Wake turbulence avoidance | <input type="checkbox"/> Flight by reference to instruments |

REVIEW - SOLO

- | | |
|---|--|
| <input type="checkbox"/> Radio communications | <input type="checkbox"/> Traffic pattern |
| <input type="checkbox"/> Power-off stalls and recovery | <input type="checkbox"/> Normal and crosswind approach and landing |
| <input type="checkbox"/> Normal and crosswind takeoff and climb | <input type="checkbox"/> Postflight procedures |

COMPLETION STANDARDS

This lesson and Stage One are complete when the student can competently perform preflight duties and all other procedures necessary for the safe conduct of solo flights in the local practice area. Demonstrates the ability to depart airport, find local practice area, and return to the airport without the instructor's assistance. At the discretion of the instructor, any remedial training may be given to correct for poor techniques in executing any of the above maneuvers, navigation and communication techniques.

HOMEWORK ASSIGNMENT

Prior to Lesson 14, Performance Takeoffs and Landings:

- Airplane Flying Handbook**
 - Review Takeoff and Departure Climbs (Ch. 5) and Approaches and Landings (Ch. 8)
- Review the **Pilot's Operating Handbook** procedures for short- and soft-field operations

LESSON 14 – PERFORMANCE TAKEOFFS AND LANDINGS

OBJECTIVES

The student will learn to obtain the maximum takeoff and landing performance from the training aircraft. The student will be introduced to varying runway conditions and develop skill during takeoff and landing.

REVIEW - DUAL

- _____ Performance computation
- _____ Elements related to performance takeoffs and landings
- _____ Rectangular courses
- _____ Turns around a point
- _____ S-turns across a road
- _____ Maneuvering at critically slow airspeeds
- _____ Flight at slow airspeeds with realistic distractions
- _____ Recognition of the danger of low level stalls and the completion standards

INTRODUCE

- _____ Short-field takeoff and climb
- _____ Soft-field takeoff and climb
- _____ Short-field approach and landing
- _____ Soft-field approach and landing

COMPLETION STANDARDS

The student is able to explain what runway conditions necessitate the use of soft-field and short-field takeoff and landing techniques and demonstrates the correct procedure to be used under these conditions, although proficiency will not be at the private pilot level. At no time will successful outcome of each task be in doubt.

HOMEWORK ASSIGNMENT

Prior to Lesson 15, Solo Practice:

- _____ **Aeronautical Information Manual**
 - Research in AIM any flight operations questions that arose during solo
- _____ Review **Pilot's Operating Handbook**
- _____ Review **Pilot's Handbook of Aeronautical Knowledge**
 - Airspace (Ch. 14)



LESSON 15 – SOLO PRACTICE

OBJECTIVES

Increase student proficiency with solo takeoffs and landings.

REVIEW

- | | |
|---|--|
| <input type="checkbox"/> Traffic pattern procedures | <input type="checkbox"/> S-turns across a road |
| <input type="checkbox"/> Radio communications | <input type="checkbox"/> Turns around a point |
| <input type="checkbox"/> Taxiing | <input type="checkbox"/> Short-field takeoffs and landings |
| <input type="checkbox"/> Pre-takeoff check | <input type="checkbox"/> Soft-field takeoffs and landings |
| <input type="checkbox"/> Traffic patterns | <input type="checkbox"/> After landing procedures |
| <input type="checkbox"/> Power-off stalls | <input type="checkbox"/> Parking and securing |
| <input type="checkbox"/> Power on stalls | |

REVIEW - SOLO

- Normal and/or crosswind takeoffs and climbs
- Maneuvering at critically slow airspeeds
- S-turns across a road
- Steep turns
- Turns around a point
- Rectangular course
- Normal / crosswind approach and landing

COMPLETION STANDARDS

The student demonstrates safe and competent solo flights in the traffic pattern; exercises sound judgment (executes go-around, if necessary); complete all maneuvers to PTS standards; and critiques his/her own performance while identifying any errors and the appropriate corrective actions for those errors.

HOMEWORK ASSIGNMENT

Prior to Lesson 16, Navigation:

- Pilot's Handbook of Aeronautical Knowledge**
 - Navigation (Ch. 15)



LESSON 16 – NAVIGATION

OBJECTIVES

The student is introduced to the training aircraft's navigation system and VFR navigation procedures to determine position and track a specified course.

DISCUSSION / REVIEW

- _____ Use of VOR systems to include identification and tracking VOR signals
- _____ Navigation by pilotage
- _____ Use of aeronautical charts

INTRODUCE

- _____ VOR orientation and tracking
- _____ ADF orientation and tracking (if applicable)
- _____ GPS orientation and tracking (if applicable)
- _____ Emergency descents using radio aids or radar vectors
- _____ Use of airplane navigation systems in emergency situations

COMPLETION STANDARDS

The student displays an understanding of the use of aircraft navigation systems.

HOMEWORK ASSIGNMENT

Prior to Lesson 17, Introduction to Cross-Country Flight:

- _____ **Pilot's Operating Handbook**
 - Study cruise performance and fuel consumption calculations as given in the performance charts
- _____ **Aeronautical Information Manual**
 - Review airspace in Chapter 3

LESSON 17 – INTRO TO DUAL CROSS-COUNTRY FLIGHT

OBJECTIVES

The student is introduced to the procedures and the techniques to be used during the cross-country flight, including flight planning, pilotage and dead reckoning, navigation systems, diversion to an alternate airport and lost procedures.

REVIEW / INTRODUCE

Cross-Country Flight Planning

- | | |
|--|--|
| <input type="checkbox"/> Sectional charts | <input type="checkbox"/> FAA flight plan (format, opening & closing) |
| <input type="checkbox"/> Adverse weather conditions | <input type="checkbox"/> NOTAMS (D, FDC) |
| <input type="checkbox"/> Airport Facility Directory | <input type="checkbox"/> Weight and balance computation |
| <input type="checkbox"/> Route selection | <input type="checkbox"/> Cockpit management |
| <input type="checkbox"/> Obtaining weather information | <input type="checkbox"/> Aeromedical factors |
| <input type="checkbox"/> Determining performance and limitations | <input type="checkbox"/> Estimates of groundspeed / ETA / fuel consumption |
| <input type="checkbox"/> Navigational aids | |

Cross-County Flight

- | | |
|--|--|
| <input type="checkbox"/> Departure | <input type="checkbox"/> Power settings and fuel mixture control |
| <input type="checkbox"/> Opening flight plan | <input type="checkbox"/> Diversion to an alternate airport |
| <input type="checkbox"/> Course interception | <input type="checkbox"/> Position fix by radio aids |
| <input type="checkbox"/> Pilotage, use of magnetic compass | <input type="checkbox"/> Flight on Federal airways |
| <input type="checkbox"/> Dead reckoning | <input type="checkbox"/> Use of approach and departure control |
| <input type="checkbox"/> Obtaining in-flight weather information | <input type="checkbox"/> Operations at unfamiliar airports |
| <input type="checkbox"/> VOR navigation | <input type="checkbox"/> Controlled and uncontrolled airports |
| <input type="checkbox"/> ADF navigation (if applicable) | |

Instrument Flight

- | | | |
|---------------------------------------|---|---|
| <input type="checkbox"/> VOR tracking | <input type="checkbox"/> ADF homing (if applicable) | <input type="checkbox"/> Use of radar vectoring |
|---------------------------------------|---|---|

Safety Procedures / Emergency Operations

- | | |
|---|--|
| <input type="checkbox"/> System and equipment malfunction | <input type="checkbox"/> Lost procedures |
| <input type="checkbox"/> Emergency approach and landing | <input type="checkbox"/> Collision avoidance precautions |
| <input type="checkbox"/> Recognition of critical weather | <input type="checkbox"/> Emergency go-arounds |
| <input type="checkbox"/> Estimating in-flight visibility | |

COMPLETION STANDARDS

The student demonstrates the skill to control the aircraft during a cross-country flight, is able to perform cross-country flight planning, making necessary corrections to ensure proper course, computing groundspeed, ETA and fuel consumption. Displays ability to navigate by means of pilotage and dead reckoning and by any other navigational systems. Understands how to perform lost procedures and a diversion to an alternate airport. Arrives at ETA within three minutes (recalculating groundspeed based on changed winds).

HOMEWORK ASSIGNMENT

Prior to Lesson 18, Introduction to Night Flight:

- Federal Aviation Regulations**
 - Review 14 CFR 61.109 (night flying requirements for private pilots)
- Airplane Flying Handbook**
 - Night Operations (Ch. 10)



LESSON 18 – INTRODUCTION TO NIGHT FLIGHT

OBJECTIVES

The student is introduced to the operational aspects of night flight. Special emphasis is placed on the student learning the additional planning and flight considerations necessary when operating in the night environment.

DISCUSSION / REVIEW

- | | |
|---|--|
| _____ Preparation techniques for night flying | _____ Cockpit management |
| _____ Flight planning considerations | _____ Taxiing |
| _____ Route selection | _____ Pre-takeoff checks |
| _____ Night scanning techniques and collision avoidance | _____ Normal takeoffs and landings |
| _____ Night flying regulations | _____ Traffic pattern |
| _____ Night VFR fuel requirements | _____ Go-arounds |
| _____ Visual illusions | _____ Recovery from unusual flight attitudes |
| _____ Night vision | _____ System and equipment malfunction |
| _____ Disorientation | _____ Maneuvering during slow flight |
| _____ Aircraft, airport and obstruction lighting | _____ Recovery from power off and on stalls |
| _____ Personal equipment and preparation | _____ VFR navigation |
| _____ Flight by reference to instruments | _____ Normal takeoffs and climbs |
| _____ Emergency procedures at night | _____ Normal approaches and landings |

COMPLETION STANDARDS

The student displays an understanding of the importance of attitude control. Demonstrates ability to return to airport using all available resources.

HOMEWORK ASSIGNMENT

Prior to Lesson 19, Night Cross-Country:

- _____ **Pilot's Handbook of Aeronautical Knowledge**
 - Review Chapters 9-17
- _____ Review **previously assigned reading material**

LESSON 19 – NIGHT CROSS-COUNTRY

OBJECTIVES

The student is introduced to night cross-country procedures and the proper techniques to be used during flights out of the local training area and prepares the student for solo cross-country flight.

DISCUSSION / REVIEW

- | | |
|---|--------------------------------------|
| _____ Preflight and taxiing techniques | _____ Navigation log |
| _____ Sectional charts | _____ Weight and balance computation |
| _____ Use of flight publications | _____ Cockpit management |
| _____ Route selection and basic navigation procedures | _____ Night VFR fuel requirements |
| _____ Airspace rules | _____ Aeromedical factors |
| _____ Obtaining weather information | _____ Emergency operations |
| _____ Determine performance and limitations | _____ Lost procedures |

COMPLETION STANDARDS

The student demonstrates the skill to perform cross-country flights at night. This includes accurate and complete preflight planning, weather analysis, use of FAA publications and charts, adherence to the preplanned flight and the use of pilotage, dead reckoning, and radio navigation.

HOMEWORK ASSIGNMENT

Prior to Lesson 20, Solo Cross-Country:

- _____ **Pilot's Handbook of Aeronautical Knowledge**
 - Airport Operations (Ch. 13)
- _____ Practice obtaining weather briefings and making go/no-go decisions based on the information provided



LESSON 20 – SOLO CROSS-COUNTRY

OBJECTIVES

Use of previously gained knowledge and skills to complete a solo cross-country flight.

DISCUSSION / REVIEW

- | | |
|---|--|
| <input type="checkbox"/> Student conducts solo cross-country briefing with instructor | <input type="checkbox"/> Aeronautical decision making |
| <input type="checkbox"/> Required documents and endorsements | <input type="checkbox"/> Cockpit management |
| <input type="checkbox"/> Determining performance and weight and balance | <input type="checkbox"/> Computing groundspeed, ETA and fuel requirements |
| <input type="checkbox"/> Basic VFR weather minimums | <input type="checkbox"/> VOR interception and tracking |
| <input type="checkbox"/> Airspace rules | <input type="checkbox"/> Use of navigation log |
| <input type="checkbox"/> En route communications | <input type="checkbox"/> Filing, opening and closing FAA flight plan |
| <input type="checkbox"/> ATC services | <input type="checkbox"/> VOR and ADF navigation |
| <input type="checkbox"/> En route weather information | <input type="checkbox"/> Pilotage |
| <input type="checkbox"/> Lost procedures | <input type="checkbox"/> Dead reckoning |
| <input type="checkbox"/> Emergency operations | <input type="checkbox"/> Use of controlled and uncontrolled airports |
| <input type="checkbox"/> Diversions (e.g., unfamiliar airports) | <input type="checkbox"/> At least one landing more than 50 n.m. from departure airport |
| <input type="checkbox"/> ATC light signals | |

COMPLETION STANDARDS

Demonstrates cross-country proficiency by completing the flight as planned and without incident in accordance with FAR 61.109(a)(5)(ii). Additionally, during the postflight evaluation, the student will show an understanding of the procedures to be followed at unfamiliar airports. The instructor should review the completed navigation log during the postflight evaluation to determine whether it was completed and used correctly.

HOMEWORK ASSIGNMENT

Prior to Lesson 21, Practical Test Preparation:

- Review **Practical Test Standards**
 - Be sure that maneuvers will be practiced to tolerances equal to or exceeding the requirements, and to become familiar with the flight-testing process.

Solo Cross Country Training: I certify that [First name, MI, Last name] has received the required solo cross-country training. I find they have met the applicable requirements of § 61.93 and are proficient to make solo cross-country flights in a [M/M] aircraft, [aircraft category].

Solo Cross Country (route): I have reviewed the cross-country planning of [First name, MI, Last name]. I find the planning and preparation to be correct to make the solo flight from [origination airport] to [destination airport] via [route of flight] with landings at [names of the airports] in a [M/M] aircraft on [date]. [List any applicable conditions or limitations.]

Repeat Solo Cross County: I certify that [First name, MI, Last name] has received the required training in both directions between and at both [airport names]. I have determined that they are proficient of § 61.93(b)(2) to conduct repeated solo cross-country flights over that route, subject to the following conditions: [List any applicable conditions or limitations.]



LESSON 21 – PRACTICAL TEST PREPARATION

OBJECTIVES

The instructor will evaluate and determine the student's proficiency level.

DISCUSSION / REVIEW

- | | |
|---|--|
| <input type="checkbox"/> Applicable performance criteria | <input type="checkbox"/> Steep turns |
| <input type="checkbox"/> Applicable rules | <input type="checkbox"/> Maneuvering during slow flight |
| <input type="checkbox"/> Minimum equipment list | <input type="checkbox"/> Stalls and recovery |
| <input type="checkbox"/> Cross-country flight planning | <input type="checkbox"/> Emergency procedures |
| <input type="checkbox"/> Airplane logbook entries | <input type="checkbox"/> Flight by reference to instruments |
| <input type="checkbox"/> Preflight inspection | <input type="checkbox"/> Pilot in command authority and responsibility |
| <input type="checkbox"/> Cockpit resource management | <input type="checkbox"/> Collision avoidance precautions |
| <input type="checkbox"/> Aeronautical decision making | <input type="checkbox"/> Traffic pattern operations |
| <input type="checkbox"/> Engine starting | <input type="checkbox"/> Short-field approach and landing |
| <input type="checkbox"/> Radio communications | <input type="checkbox"/> Soft-field approach and landing |
| <input type="checkbox"/> Airport and runway markings and lighting | <input type="checkbox"/> Forward slip to landing |
| <input type="checkbox"/> Normal and crosswind taxiing | <input type="checkbox"/> Go-around |
| <input type="checkbox"/> Pre-takeoff check | <input type="checkbox"/> Wake turbulence avoidance |
| <input type="checkbox"/> Short-field takeoff and climb | <input type="checkbox"/> Ground reference maneuvers |
| <input type="checkbox"/> Soft-field takeoff and climb | <input type="checkbox"/> Emergency procedures |
| <input type="checkbox"/> Navigation procedures | <input type="checkbox"/> Flight by reference to instruments |
| <input type="checkbox"/> Diversion procedures | <input type="checkbox"/> After-landing procedures |
| | <input type="checkbox"/> Post-flight procedures |

COMPLETION STANDARDS

Demonstrates mastery of designated maneuvers and knowledge items. Altitude, heading, and airspeed meet or exceed PTS standards. Any maneuvers that do not meet PTS standards should be reviewed with the student and assigned for solo practice

HOMEWORK ASSIGNMENT

Federal Aviation Regulations

- Verify that aeronautical experience requirements in the federal aviation regulations have been, or will be, met for the desired pilot certificate at the end of the training program.

Pilot's Operating Handbook

- Review operating speeds for your aircraft, systems information and emergency procedures in the Pilot's Operating handbook.

I certify that [First name, MI, Last name] has received and logged training time within 2 calendar months preceding the month of application in preparation for the practical test and they are prepared for the required practical test for the issuance of [applicable] certificate.

I certify that [First name, MI, Last name] has demonstrated satisfactory knowledge of the subject areas in which they were deficient on the [applicable] airman knowledge test.

I certify that [First name, MI, Last name] has received the required training in accordance with §§ 61.107 and 61.109. I have determined they are prepared for the [name of] practical test.

