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
- Required aircraft documents
- Fitness/health for flight (I'M SAFE)
- Ground safety
- Airplane servicing
- Weather briefing basics

INTRODUCE

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

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**
  - Principles of Flight (Ch. 3)

- **Airplane Flying Handbook**
  - Ground Operations (Ch. 2)
  - Basic Flight Maneuvers (Ch. 3)

- **AIM**
  - Sections 5-5-8; 8-1-6; 8-1-8

- **FAR**
  - 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
- Ground operations
- Ground communications
- Weather factors
- Flight instruments and their purpose
- Collision avoidance precautions
- Training area and minimum altitudes

INTRODUCE
- Cockpit management
- Radio communications procedures
- Airport / runway markings / lighting
- Traffic pattern entry and departure procedures
- Straight and level flight
- Climbs and climbing turns
  - Cruise
  - Best rate of climb (Vy)
  - Best angle of climb (Vx)
- Turns to headings
- Descents and descending turns
  - Cruise descent
  - Traffic pattern descent
  - Power-off glide
- Level off from climbs and descents
- Torque effects
- Normal approach and landings

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

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

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

_____ Operation of systems
_____ Preflight inspection
_____ Engine starting
_____ Radio communications
_____ Normal and crosswind taxiing
_____ Pre-takeoff check
_____ Normal and crosswind takeoff
_____ Power-off stalls (full)
_____ Power-on stalls (full)
_____ Maneuvering at critically slow airspeeds
_____ Climbing and descending turns
_____ Straight-and-level flight
_____ Turns to headings

_____ Stalls and recovery
_____ Spin awareness
_____ Steep turns
_____ Ground reference maneuvers
_____ Systems and equipment malfunctions
_____ Emergency procedures
_____ Traffic patterns
_____ Forward slips to landing
_____ Go-arounds from rejected landings
_____ Normal and crosswind approach and landing
_____ PIC responsibility and authority
_____ Flight by reference to instruments
_____ 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
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

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

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

REVIEW - SOLO

- Radio communications
- Power-off stalls and recovery
- Normal and crosswind takeoff and climb
- Traffic pattern
- Normal and crosswind approach and landing
- 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
_____ Traffic pattern procedures
_____ Radio communications
_____ Taxiing
_____ Pre-takeoff check
_____ Traffic patterns
_____ Power-off stalls
_____ Power on stalls

_____ S-turns across a road
_____ Turns around a point
_____ Short-field takeoffs and landings
_____ Soft-field takeoffs and landings
_____ After landing procedures
_____ Parking and securing

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

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

Cross-County Flight

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

Instrument Flight

- VOR tracking
- ADF homing (if applicable)
- Use of radar vectoring

Safety Procedures / Emergency Operations

- System and equipment malfunction
- Emergency approach and landing
- Recognition of critical weather
- Estimating in-flight visibility
- Lost procedures
- Collision avoidance precautions
- Emergency go-arounds

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

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

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.
# LESSON 21 – PRACTICAL TEST PREPARATION

## OBJECTIVES

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

## DISCUSSION / REVIEW

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## 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

1. **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.

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