UNIVERSITY OF OKLAHOMA COMMERCIAL MULTI ADD-ON PILOT (3581)
FLIGHT TRAINING SYLLABUS 2025-AUG-15

PREREQUISITES FOR ENROLLMENT IN THE FLIGHT PORTION OF THE COMMERCIAL PILOT COURSE: There are no prerequisites for enrollment in the ground training part of this course.

COURSE OBJECTIVE: You will obtain the knowledge, skill, and aeronautical experience necessary to meet the requirements of 14 CFR, Section 141, Appendix I for the addition of an airplane multiengine land class rating (with instrument privileges) to your commercial pilot certificate.

COURSE POLICY: At the discretion of the instructor, students who progress rapidly within a specific stage, may within reasonable variances, continue to the next lesson with less time than is specified in the specific lesson curriculum, provided all content and completion standards are satisfactorily completed. With the exception of Flight Lessons five and six, which must be a minimum of two hours duration, the time stated in the lesson is the approximate minimum time that a student would need to meet the lesson objectives and completion standards; not absolute required times. The lesson time could be slightly more or slightly less. These reduced hours must be included in other lessons to complete the total ground and/or flight time specified by category in the syllabus to satisfactorily complete the course.

At no time will a student be allowed to continue to the next stage without having successfully completed all of the lessons and the required tests or stage checks related to the completion of the previous stage. If a student is unable to attend a ground lesson the instructor and student will coordinate a time to accomplish that lesson. The makeup lesson will be conducted in any of the approved “Rooms Used for Ground Training” at a time when the room is not otherwise scheduled for a class

Flight training for this course will be done in accordance with the F.A.A approved syllabus. Deviations from the syllabus due to student training requirements, weather related factors, or other items as necessary will be allowed as long as a notation is made in the student training record as to the lesson covered and the reason for the deviation. Deviations must be approved by the chief or assistant chief flight instructor:

- The deviation is approved by the Chief/Asst Chief Flight Instructor.
- A notation will be made in the student's training record as to the lesson covered and the reason for the deviation.
- The student will complete all syllabus requirements before a graduation certificate is issued.

To satisfactorily complete the course of training, the student must meet all course objectives and completion standards.

EXPECTED ACCOMPLISHMENTS & STANDARDS: To satisfactorily complete each ground stage you must pass the end of stage exam. To satisfactorily complete the one flight stage you must pass the end of course stage check which is equivalent to the practical test defined by the Commercial Pilot Airman Certification Standards for addition of an airplane multiengine land rating (with instrument privileges) to your commercial pilot certificate. Each lesson lists specific objectives and standards of completion.

CHECKS & TESTS: The ground training portion of the syllabus contains a stage one and stage two exam. Specific content and completion standards are listed on the test lesson plan. Ground training must be completed before the completion of flight training. The final lesson of flight training will be an end of course stage check, which will be equal to in scope, depth and difficulty to the practical test defined by the Commercial Pilot Airman Certification Standards for addition of an airplane multiengine land rating (with instrument privileges) to a commercial pilot certificate with at least existing airplane single engine land and instrument airplane ratings. This test will be administered by the Chief, Assistant Chief Flight Instructor or Check Instructor approved by the FSDO.

STUDYING MANEUVERS

1. Refer to the maneuver in the Airplane Flying Handbook to learn how to do the maneuver as well as common errors when attempting to execute the maneuver.
2. Refer to the University of Oklahoma Supplementary Information for Flight Students & the POH to learn specifics of executing this maneuver in the PA44-181.

3. Refer to the Commercial Pilot Airplane ACS to determine the standards to which you must accomplish the maneuver to earn your commercial pilot certificate.

GROUND SCHOOL

GROUND TRAINING BREAKDOWN		
Lesson	**Class**	**EXAM**
MULTI GROUND		
1	**3.0**	
2	**1.5**	
3	**3.0**	
4		**1.0**
5	**1.5**	
6	**3.0**	
7	**1.5**	
8		**1.0**
Totals	**13.5**	**2.0**

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.0
									1.0

MULTI GROUND LESSON 1 LECTURE-IN-CLASS

TEXT REFERENCE: MULTI-ENGINE MANUAL "Jeppesen Sanderson" - Chapter 2 Section A "Examining Systems" PA44-180 POH – Section 7

LESSON OBJECTIVE:

During this lesson the student is introduced to and learns multi-engine aircraft systems and operations in general and the specifics of each system in the Seminole.

CONTENT:

Lesson Introduction

- ☐ Section A – "Examining Systems"
  - ☐ Engine Systems
  - ☐ Propellor Systems
  - ☐ Electrical Systems
  - ☐ Pneumatic Systems
  - ☐ Hydraulic Systems
  - ☐ Fuel Systems
  - ☐ Landing Gear Systems
  - ☐ Ice Control Systems
  - ☐ Cabin Environmental Systems
  - ☐ Oxygen Systems
  - ☐ Cabin Pressurization Systems
  - ☐ Primary and Secondary Flight Control Systems
- ☐ Seminole Systems – "PA44-180 POH, Section 7"
  - ☐ Airframe
  - ☐ Engines and Propellers
  - ☐ Landing Gear
  - ☐ Brakes
  - ☐ Flight Controls
  - ☐ Fuel System
  - ☐ Electrical System
  - ☐ Vacuum System
  - ☐ Pitot Static System
  - ☐ Heating, Ventilating and Defrost System
  - ☐ Janitrol Heater
  - ☐ Stall Warning System
  - ☐ Emergency Locator Transmitter

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of multi-engine aircraft systems.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.5
									1.5

MULTI GROUND LESSON 2 **LECTURE-IN-CLASS**

TEXT REFERENCE: **MULTI-ENGINE MANUAL** "Jeppesen Sanderson" - Chapter 2-B "Calculating Weight and Balance" and & 2-C "Determining Performance" PA44-180 POH – Sections 2, 5 and 6

LESSON OBJECTIVE:

During this lesson, the student will learn to compute and control weight and balance conditions of multi-engine airplanes. The student also will review the factors affecting airplane performance and will learn to compute the expected performance values accurately from multi-engine airplane performance charts.

CONTENT:

Lesson Introduction

- ☐ Section B - "Calculating Weight and Balance" "PA44-180 POH, Section 6"
  - ☐ Weight Terminology to Include Zero and Maximum Fuel Weight
  - ☐ Center of Gravity
  - ☐ Determining Takeoff and Landing Weight and CG
  - ☐ Weight Shift Formula
  - ☐ Significance and effects of exceeding weight and CG limitations
- ☐ Section C - "Determining Performance," "PA44-180 POH, Sections 2 and 5"
  - ☐ Engine-Out Performance Penalty
  - ☐ Using Performance Data
  - ☐ V-Speeds
  - ☐ Calculating Performance
    - ☐ Takeoff and Climb
    - ☐ Accelerate Stop and Accelerate Go Distance
    - ☐ Cruise Flight
    - ☐ Single Engine Ceilings
    - ☐ Descent
    - ☐ Landing
    - ☐ Engine-Out Go-Around
    - ☐ Engine-Out Landing Distances
- ☐ Significance and Effects of Exceeding Performance Limitations

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of weight/balance and performance calculations.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									3.0
									3.0

MULTI GROUND LESSON 3 **LECTURE-IN-CLASS**

TEXT REFERENCE: **MULTI-ENGINE MANUAL** "Jeppesen Sanderson" - Chapter 3-A “Introducing Multi-Engine Aerodynamics”, 3-B “Mastering Engine-Out Aerodynamics”

LESSON OBJECTIVE:

During this lesson, the student will learn the principles of Multi-engine and Engine-Out Aerodynamics

CONTENT:

Lesson Introduction

- ☐ Section A – “Multi-engine Aerodynamics”
  - ☐ Boundary Layer
  - ☐ Induced Flow
  - ☐ Turning Tendencies
- ☐ Section B - "Engine-Out Aerodynamics"
  - ☐ Yaw and Roll During Engine Failure
  - ☐ Critical Engine and Factors that Determine Critical Engine
  - ☐ Vmc and Factors that Determine Vmc
  - ☐ Controllability versus Performance
  - ☐ Relationship of Vmc to Stall Speed with Increasing Altitude

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of multi-engine aerodynamics and engine-out aerodynamics.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.0
									1.0

MULTI GROUND LESSON 4 **EXAM-IN-CLASS**

LESSON OBJECTIVE:

The exam administered during the lesson evaluates the student's comprehension of the material presented in ground lessons 1, 2, 3 and 4.

CONTENT:

Lesson Exam

- ☐ PA44-180 Systems
- ☐ PA44-180 Weight and Balance Calculations
- ☐ PA44-180 Performance Calculations
- ☐ Multi-Engine Aerodynamics
- ☐ Engine-Out Aerodynamics

COMPLETION STANDARDS:

This lesson and stage are complete when the applicant has completed the exam with a minimum passing score of 80% and the instructor has reviewed each incorrect response to ensure complete understanding of the material.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.5
									1.5

MULTI GROUND LESSON 5 LECTURE-IN-CLASS

TEXT REFERENCE: MULTI-ENGINE MANUAL "Jeppesen Sanderson" - Chapter 4-A “Normal Operations”, Chapter 4-B “Maneuvers.”

Aeronautical Information Manual, “Chapter 8-1-2 and 8-1-6b

PA44-180 POH Section 4

LESSON OBJECTIVE:

During this lesson, the student will learn the Normal Operations and maneuvers in a multiengine airplane

CONTENT:

Lesson Introduction

- ☐ Section A - "Normal Operations,” “PA44-180 POH, Section 4”
  - ☐ Use of Checklists
  - ☐ Preflight Inspection
  - ☐ Engine Starting
  - ☐ Taxiing – Use of Differential Thrust
  - ☐ Normal and Short-Field Takeoff and Climb
  - ☐ Propeller Synchronization
  - ☐ Cruise
    - ☐ Night Considerations “AIM 8-1-6b”
    - ☐ High-Altitude Considerations “AIM 8-1-2”
- ☐ Descent
- ☐ Normal and Short Field Approach and Landing
- ☐ Section B - "Maneuvers"
  - ☐ Steep Turns
  - ☐ Slow Flight
  - ☐ Stalls (Power-On, Power-Off, Accelerated)
  - ☐ Spin Awareness
  - ☐ Emergency Descent

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of multi-engine normal operations and maneuvers.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									3.0
									3.0

MULTI GROUND LESSON 6 LECTURE-IN-CLASS

TEXT REFERENCE: MULTI-ENGINE MANUAL "Jeppesen Sanderson" - Chapter 5-A "When an Engine Fails" Chapter 5- B "Engine-Out Maneuvers,

LESSON OBJECTIVE:

During this lesson, the student will acquire the knowledge of instrument procedures in the multi-engine airplane with both engines operating and with one engine inoperative.

CONTENT:

Lesson Introduction

- ☐ Section A - "When An Engine Fails" Actions:
  - ☐ Directional Control, Pitch Toward Vyse
  - ☐ Maximum Power (Mixture, Props, Throttles
  - ☐ Minimize Drag (Raise Gear and Flaps)
  - ☐ Identify failed Engine
  - ☐ Verify Failed Engine - Troubleshoot If Time/Altitude Permit
  - ☐ Feather (If Power Not Restored)
  - ☐ Secure Inoperative Engine
  - ☐ Monitor Operating Engine
- ☐ Section B - "Engine-Out Maneuvers"
  - ☐ Engine Failure During Takeoff and Climb
    - ☐ Pre-Takeoff Briefing
  - ☐ Engine Failure While Enroute
  - ☐ Engine Failure During Approach/Landing
  - ☐ Engine-Out Go-Around
  - ☐ Unfeathering and Air Start Procedures
  - ☐ Vmc Demonstration
  - ☐ Drag Demonstration
- ☐ Section C – "Operating On Instruments"
  - ☐ Departure
  - ☐ Enroute
  - ☐ Engine Failure During Flight By Reference To Instruments
  - ☐ Engine-Out Instrument Approach
  - ☐ Engine-Out Missed Approach

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of engine failure actions, engine out maneuvers and engine out procedures in instrument conditions.

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									3.0
									3.0

MULTI GROUND LESSON 7 **LECTURE-IN-CLASS**

TEXT REFERENCE: 14 CFR Part 91 Subpart K: Fractional Ownership Operations
14 CFR Part 119.1: Air Carriers and Operators for Compensation or Hire
14 CFR Part 135: Operating Requirements: Commuter and On Demand Operations
FAA ADVISORY CIRCULAR (AC) 91-37B: Truth in Leasing

LESSON OBJECTIVE:

During this lesson, the student will review their knowledge of applicable regulations issued by the Federal Aviation for commercial pilot privileges, limitations and flight operations.

CONTENT:

Lesson Introduction

- ☐ Fractional Ownership Operations
  - ☐ Applicability - 91.1001
  - ☐ Program Operating Manual Contents – 91.1025
  - ☐ Large Transport Category and Turbine Powered Airplanes Limitations, Destination and Alternate Airports – 91.1037
  - ☐ IFR Takeoff, Approach and Landing Minimums – 91.1039
  - ☐ Crewmember Experience – 91.1053
  - ☐ Crewmember Flight, Duty and Rest Time Requirement – 91.1057
- ☐ Other Operations for Compensation or Hire – 119.1(e)
  - ☐ Student Instruction
  - ☐
- ☐ Nonstop Commercial Air Tours
- ☐ Ferry or Training Flights
- ☐ Aerial Work Operations
  - ☐ Crop Dusting, Seeding, Spraying, Bird Chasing
  - ☐ Banner Towing
  - ☐ Aerial Photography or Survey
  - ☐ Fire Fighting
  - ☐ Powerline or Pipeline Patrol
- ☐ Intentional Parachute Operations
- ☐ Commuter and On Demand Operations
  - ☐ Applicability – 135.1
  - ☐ Manual Contents – 135.23
  - ☐ Pilot Requirements, Use of Oxygen – 135.89
  - ☐ IFR: Operating Limitations – 135.215
  - ☐ IFR: Takeoff Limitations – 135.217 - IFR: IFR Destination Airport Weather Minimums 135.219
  - ☐ IFR: Alternate Airport Requirements:
  - ☐ IFR: 135.223 Pilot In Command Qualifications
  - ☐ IFR: 135.243Second In Command Qualifications 135.245
  - ☐ Crewmember Flight Time and Duty Periods Limitations and Rest Requirements 135,
  - ☐ Subpart F

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of engine failure actions, engine out maneuvers and engine out procedures in instrument conditions.

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.5
									1.5

MULTI GROUND LESSON 8 **LECTURE-IN-CLASS**

TEXT REFERENCE: Legal Dry Lease Versus Illegal Wet Lease Operations – AC 91.37B

LESSON OBJECTIVE:

During this lesson, the student will acquire the knowledge of instrument procedures in the multi-engine airplane with both engines operating and with one engine inoperative.

CONTENT:

Lesson Introduction

- ☐ Section A - "When An Engine Fails" Actions:
  - ☐ Directional Control, Pitch Toward Vyse
  - ☐ Maximum Power (Mixture, Props, Throttles
  - ☐ Minimize Drag (Raise Gear and Flaps)
  - ☐ Identify failed Engine
  - ☐ Verify Failed Engine - Troubleshoot If Time/Altitude Permit
  - ☐ Feather (If Power Not Restored)
  - ☐ Secure Inoperative Engine
  - ☐ Monitor Operating Engine
- ☐ Section B - "Engine-Out Maneuvers"
  - ☐ Engine Failure During Takeoff and Climb
    - ☐ Pre-Takeoff Briefing
  - ☐ Engine Failure While Enroute
  - ☐ Engine Failure During Approach/Landing
  - ☐ Engine-Out Go-Around
  - ☐ Unfeathering and Air Start Procedures
  - ☐ Vmc Demonstration
  - ☐ Drag Demonstration
- ☐ Section C – "Operating On Instruments"
  - ☐ Departure
  - ☐ Enroute
  - ☐ Engine Failure During Flight By Reference To Instruments
  - ☐ Engine-Out Instrument Approach
  - ☐ Engine-Out Missed Approach

COMPLETION STANDARDS:

Through oral quizzing and/or discussion the student will demonstrate understanding of commercial pilot privileges, limitations and flight operations as defined in 14 CFR, Parts 91 (Subpart K), 119.1 and 135. The student will also have an understanding of the difference between legal dry lease operations and illegal wet lease operations. ns, engine out maneuvers and engine out procedures in instrument conditions.

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
									1.5
									1.5

MULTI GROUND LESSON 9 **FINAL-EXAM-IN-CLASS**

LESSON OBJECTIVE:

The exam administered during the lesson evaluates the student's comprehension of the material presented in ground lessons 5, 6 and 7.

CONTENT:

Lesson Introduction

- ☐ PA44-180 Normal Operations
- ☐ PA44-180 Engine Failures
- ☐ Multi-Engine Maneuvers
- ☐ Instrument Procedures
- ☐ Commercial Pilot Privileges and Limitations

COMPLETION STANDARDS:

The student will complete the multi-engine pilot final examination with a passing score of 80% and the instructor will review each incorrect response to ensure complete understanding of the material.

NOTES:

UNIVERSITY OF OKLAHOMA

COMM MULTI ADD-ON

STAGE OBJECTIVE

The objective of this stage is for the student to complete the course requirements and attain the proficiency level required of an instrument/commercial pilot.

STAGE COMPLETION STANDARD

At the completion of this stage, the student must be able to demonstrate all flight maneuvers and procedures at the proficiency level of a commercial multi engine pilot. The student also will successfully complete the final stage check.

FLIGHT LESSON TIME ALLOCATION TABLE						
Lesson	**Dual**	**Dual Night**	**Dual XC**	**Dual INST.**	**Pre/Post**	**GI**
MULTI ADD-ON						
1	**1.0**				**0.5**	
2	**1.0**				**0.5**	
3	**2.0**			**0.5**	**0.5**	
4	**2.0**			**1.6**	**0.5**	
5	**2.0**		**2.0**	**1.0**	**0.5**	
6	**2.0**	**2.0**	**2.0**	**1.0**	**0.5**	
7	**2.0**			**0.7**	**0.5**	
8 (STGCHK)	**1.5**			**0.2**	**0.5**	**1.5**
Totals	**13.5**	**2.0**	**4.0**	**5.0**	**5.5**	**1.5**

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
0.7								0.5	
1.0								0.5	

MULTI FLIGHT LESSON 1 DUAL

LESSON OBJECTIVE:

During this lesson, the student will become acquainted with the training airplane. The student will learn the attitude, power settings, and configurations required for the performance of the listed maneuvers and procedures. The student will learn to apply asymmetric power during taxi operations to aid in turns and maintain directional control during cross winds. The student will also learn additional factors for multiengine aircraft to be considered in the takeoff briefing above and beyond that of a single engine airplane. The student will learn to operate the aircraft systems with emphasis on the constant speed propeller, retractable landing gear, cowl flaps, multiengine controls/instrumentation, and environmental control systems.

CONTENT:

Lesson Introduction

- ☐ Preflight Preparation
- ☐ Determining Performance & Limitations Emphasis on –
  - ☐ Accelerate/Stop Distance
  - ☐ Single Engine Service Ceiling
  - ☐ Single Engine Absolute Ceiling
- ☐ Operation of Systems
  - ☐ Constant speed propeller
  - ☐ Retractable Landing Gear
  - ☐ Cowl Flaps
  - ☐ Multiengine Controls/Instrumentation
  - ☐ Environmental Control – Janitrol Heater
- ☐ Preflight Procedures
  - ☐ Preflight Assessment
  - ☐ Flight Deck Management
  - ☐ Engine Starting
  - ☐ Taxiing (Asymmetric Thrust To Aid Turns and Taxiing in Crosswinds)
  - ☐ Pre-Takeoff Check
  - ☐ Takeoff Briefing
- ☐ Airport Base Operations
  - ☐ Communications and ATC Light Signals
  - ☐ Runway Lighting Systems
  - ☐ Traffic Patterns
- ☐ Normal Takeoffs and Climbs
- ☐ Navigation to/from Practice Area using Pilotage
- ☐ Visual Scanning and Collision Avoidance – Aircraft Blind Spots
- ☐ Straight-and-Level Flight and Level Turns Climbs
- ☐ Straight and Turning Descents
- ☐ Straight and Turning Maneuvering During Slow Flight
- ☐ Stalls
  - ☐ Power-On
  - ☐ Power-Off
  - ☐ Accelerated
- ☐ Steep Turns
- ☐ Normal Landings
- ☐ After Landing Procedures
- ☐ Post Flight Procedures

COMPLETION STANDARDS:

Preflight Preparation/Procedures, Navigation, After Landing/Post Flight Procedures: To the standards of the Commercial Pilot – Airplane Airman Certification Standards. Normal Takeoffs and Landings: To the standards of the Commercial Pilot Airman Certification Standards. Flight Maneuvers: The student will execute the steps of each maneuver in the proper order. Airspeed will be maintained +/- 15 knots, heading +/-15 degrees and altitude +/-150 feet.

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
0.7									0.5
1.0									0.5

MULTI FLIGHT LESSON 2 DUAL

LESSON OBJECTIVE:

During this lesson, the student will be introduced to engine-out procedures and will learn to identify the inoperative engine, initiate appropriate corrective procedures, maneuver the airplane with one engine inoperative and demonstrate engine inoperative loss of directional control and recovery techniques, shut down and restart procedures and the effects on aircraft performance of various airspeeds and configurations during single engine operations. Engine failures will occur during all phases of flight: takeoff roll, climb out, cruise, approach and landing.

CONTENT:

Lesson Review

- ☐ Preflight Preparation
- ☐ Operation of Systems
- ☐ Preflight Procedures
- ☐ Airport Base Operations
- ☐ Normal Takeoffs and Landings

Lesson Introduction

- ☐ Emergency Operations Engine Failure – Initial Response (Control Correct application of rudder, ailerons and elevator ; Mixture, Props, Throttle Full; Configuration – Clean; Identify and Verify Failed Engine; Pitch to Maintain Level Flight at Vyse or Higher; Determination of Whether to Troubleshoot or Feather)
  - ☐ During Takeoff Roll
  - ☐ Climb
  - ☐ Cruise
  - ☐ Approach and Landing
- ☐ Engine Failure Trouble-Shooting Procedures
- ☐ Full Feather and Engine Securing Procedures
- ☐ Engine Restart Procedures
- ☐ Maneuvering With One Engine Inoperative
  - ☐ Straight and Level Flight
  - ☐ Turns in Both Directions
  - ☐ Climbs and Descents to Assigned Altitudes
- ☐ Vmc Demonstration
- ☐ Effects of Various Airspeeds and Configurations During Single Engine Flight (Drag Demo)

COMPLETION STANDARDS:

Preflight Preparation/Procedures and Normal Takeoffs and Landings: To the standards of the Commercial Pilot – Airplane Airman Certification Standards. Engine Failure Initial Response, Trouble Shooting, Full Feather and Engine Securing Procedures: The student will be able to apply the appropriate checklists while maintaining headings +/-15 degrees, airspeeds +/-15 knots and altitudes +/-150 feet. Vmc Demo: The student will be able to perform the maneuver steps in the proper order to the standards of the Commercial Pilot – Airplane Airman Certification Standards except heading will be maintained within +/-15 degrees Drag Demo: The student will gain an appreciation that single engine aircraft performance is optimum when the aircraft is operated at Vyse, in a clean configuration and with the inoperative engine propeller feathered.

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
1.7					0.3				0.5
2.0					0.5				0.5

MULTI FLIGHT LESSON 3 DUAL

LESSON OBJECTIVE:

During this lesson, the student will be introduced to and perform maximum performance take-off and climbs, short field approach and landings, and single engine go-arounds for rejected (balked) landings. The students will also perform engine-out procedures introduced in Flight Lesson 2. The student will be introduced to emergency descent procedures as well as multiengine basic attitude instrument flying with both engines and with one engine inoperative.

CONTENT:

Lesson Review

- ☐ Preflight Preparation
- ☐ Preflight Procedures
- ☐ Operation of Systems
- ☐ Stalls
  - ☐ Power-On
  - ☐ Power-Off
  - ☐ Accelerated
- ☐ Engine Failure
  - ☐ During Takeoff Roll
  - ☐ After Liftoff and Climb
  - ☐ During Cruise
  - ☐ On Approach and Landing
- ☐ Vmc Demonstration

Lesson Introduction

- ☐ Emergency Descent
- ☐ Short Field Take-off and Maximum Performance Climb
- ☐ Short Field Landing
- ☐ Single Engine Go Around
- ☐ Flight By Reference to Instruments Both Engines Operating (IR)
  - ☐ Straight and Level, Climbs, Descents and Turns
  - ☐ Unusual Attitude Recognition and Recovery
  - ☐ Partial Panel Failure of Attitude Indicator and HSI
  - ☐ Flight By Reference to Instruments One Engine Inoperative (IR)
    - ☐ Recognition of Engine Failure and Simulated Feather by Reference to Instruments
    - ☐ Straight and Level, Climbs, Descents and Turns

COMPLETION STANDARDS:

At the completion of this lesson the student will be able to perform the procedures and maneuvers to the following standards: Stalls, Engine Failure, Vmc Demo, Emergency Descent, Short Field Takeoffs and Single Engine Go Arounds: To the standards of the Commercial Pilot – Airplane Airman Certification Standards. Flight By Reference to Instruments Both Engines Operating: To the standards of the Instrument Rating – Airplane Airman Certification Standards. Flight By Reference to Instruments One Engine Inoperative: Headings +/-15 degrees, altitudes +/-150 feet, airspeed +/-15 knots

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
1.7					1.4				0.5
2.0					1.6				0.5

MULTI FLIGHT LESSON 4 DUAL

LESSON OBJECTIVE:

During this lesson, the student will be introduced to and learn multi-engine maneuvers and procedures for precision and non-precision approaches. The student will also learn the procedures for conducting single-engine precision and non-precision approaches.

CONTENT:

Lesson Review

- ☐ Preflight Preparation
- ☐ Preflight Procedures
- ☐ Operation of Systems

Lesson Introduction

- ☐ Normal Operations
  - ☐ Precision Approaches (IR)
  - ☐ Non-Precision Approaches (IR)
  - ☐ Missed Approaches Procedures (IR)
- ☐ Emergency Operations (Single Engine)
  - ☐ Identification of Inoperative Engine (IR)
  - ☐ Procedures for Troubleshooting, Feathering and Securing (IR)
  - ☐ Engine Failure During Precision Approaches (IR)
  - ☐ Engine Failure During Non-Precision Approaches (IR)
  - ☐ Single Engine Missed Approach Procedures (IR)

COMPLETION STANDARDS:

Normal Operations: The student will be able to perform the listed procedures to the standards of the Instrument Rating – Airplane Airman Certification Standards. Emergency Operations (Single Engine) – The student will be able to perform the listed procedures to the standards of the Commercial Pilot – Airplane Airman Certification Standards with the exception that headings will be maintained +/-15 degrees, altitudes +/- 150 feet, DA/MDA -0/+150 feet, airspeed +/-15 knots.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
2.0			2.0		1.0				0.5
2.0			2.0		1.0				0.5

MULTI FLIGHT LESSON 5 **DUAL – AIRPLANE DAY XC**

LESSON OBJECTIVE:

During this lesson the student will become familiar with the cross-country procedures involved in flying multi-engine aircraft during the day. The student will also be exposed to system and equipment malfunctions beyond engine failures. This lesson will consist of a cross-country flight of at least two-hours two hours in duration, a total straight-line distance of more than 100 nautical miles from the original point of departure and occurring in the day. The flight will be conducted under Instrument Flight Rules.

CONTENT:

Lesson Introduction

- ☐ Cross-Country Flight Planning. Emphasis on:
  - ☐ Determination of Power Settings and airspeeds at high altitudes
  - ☐ Determination and Consideration of Single Engine Service and Absolute Ceilings
- ☐ Departure Procedures
- ☐ Navigation
  - ☐ Dead Reckoning
  - ☐ Navigation Systems and Radar Services (IR)
  - ☐ Diversion
  - ☐ Lost Procedures
  - ☐ Cruise Procedures - Power Settings and Mixture Leaning
- ☐ Arrival Procedures
- ☐ Instrument Approach Procedure (Precision or Non-Precision as Selected by the Instructor) (IR)
- ☐ High Altitude Operations – Requirements for Supplemental Oxygen
- ☐ Equipment and System Malfunctions
  - ☐ Electrical System
  - ☐ Alternator Failure
  - ☐ Popped Circuit Breaker
  - ☐ Electrical Fire
  - ☐ Radio Failure
- ☐ Vacuum Pump Failure
- ☐ Landing Gear Failure
- ☐ Propeller Governor Failure
- ☐ Engine Fire

COMPLETION STANDARDS:

This lesson is complete when the specific requirements for this cross-country flight have been met. Performance of the listed procedures will be to standards of the Instrument Rating – Airplane and Commercial Pilot – Airplane Airman Certification Standards.

NOTES:

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
2.0		2.0	2.0		1.0	2			0.5
2.0		2.0	2.0		1.0	2			0.5

MULTI FLIGHT LESSON 6 **DUAL – AIRPLANE DAY XC**

LESSON OBJECTIVE:

During this lesson the student will become familiar with the cross-country procedures involved in flying a multi-engine aircraft at night. The student will also be exposed to system and equipment malfunctions beyond engine failures. This lesson will consist of a crosscountry flight of at least a two-hour duration, a total straight-line distance of more than 100 nautical miles from the original point of departure and occurring at night. The flight will be conducted under Instrument Flight Rules.

CONTENT:

Lesson Review

- ☐ Cross-Country Flight Planning. Emphasis on:
  - ☐ Determination of Power Settings and airspeeds at high altitudes
  - ☐ Determination and Consideration of Single Engine Service and Absolute Ceilings
- ☐ Departure Procedures
- ☐ Navigation
  - ☐ Dead Reckoning
  - ☐ Navigation Systems and Radar Services (IR)
  - ☐ Diversion
  - ☐ Lost Procedures
- ☐ Cruise Procedures - Power Settings and Mixture Leaning
- ☐ Arrival Procedures
- ☐ Instrument Approach Procedure (Precision or Non-Precision as Selected by the Instructor) (IR)
- ☐ High Altitude Operations – Requirements for Supplemental Oxygen
- ☐ Equipment and System Malfunctions
  - ☐ Electrical System
  - ☐ Alternator Failure
  - ☐ Popped Circuit Breaker
  - ☐ Electrical Fire
  - ☐ Radio Failure
- ☐ Vacuum Pump Failure
- ☐ Landing Gear Failure
- ☐ Propeller Governor Failure
- ☐ Engine Fire

Lesson Introduction

- ☐ Night Flying Considerations
  - ☐ Preflight Procedures
  - ☐ Lighting and Equipment for Night Flying

COMPLETION STANDARDS:

This lesson is complete when the specific requirements for this cross-country flight have been met. Performance of the listed procedures will be to standards of the Instrument Rating – Airplane and Commercial Pilot – Airplane Airman Certification Standards.

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Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
2.0					0.7				0.5
2.0					0.7				0.5

MULTI FLIGHT LESSON 7 DUAL

LESSON OBJECTIVE:

During this lesson the student will become familiar with the cross-country procedures involved in flying a multi-engine aircraft at night. The student will also be exposed to system and equipment malfunctions beyond engine failures. This lesson will consist of a crosscountry flight of at least a two-hour duration, a total straight-line distance of more than 100 nautical miles from the original point of departure and occurring at night. The flight will be conducted under Instrument Flight Rules.

CONTENT:

Lesson Review

- ☐ Preflight Preparation
- ☐ Determining Performance & Limitations
- ☐ Emphasis on
  - ☐ Accelerate/Stop Distance
  - ☐ Single Engine Service Ceiling
  - ☐ Single Engine Absolute Ceiling
- ☐ Operation of Systems
  - ☐ Constant speed propeller
  - ☐ Retractable Landing Gear
  - ☐ Cowl Flaps
  - ☐ Multiengine Controls/Instrumentation
  - ☐ Environmental Control - Janitrol Heater
- ☐ Preflight Procedures
  - ☐ Preflight Assessment
  - ☐ Flight Deck Management
  - ☐ Engine Starting
  - ☐ Taxiing
  - ☐ Pre-Takeoff Check
  - ☐ Takeoff Briefing
- ☐ Takeoffs
  - ☐ Normal
  - ☐ Short Field Maximum Performance
- ☐ Maneuvering During Slow Flight
- ☐ Stalls
  - ☐ Power On
  - ☐ Power Off
  - ☐ Accelerated
- ☐ Steep Turns
- ☐ Vmc Demonstration
- ☐ Engine Failure
  - ☐ On Takeoff Roll
  - ☐ Climb Out
  - ☐ Cruise
  - ☐ Approach and Landing with One Engine Inoperative
  - ☐ Engine Troubleshooting Procedures
  - ☐ Feather and Engine Secure Procedures
  - ☐ Engine Restart Procedures
- ☐ Emergency Descent Precision Approach (IR) - Single Engine
- ☐ Non-Precision Approach (IR) - Single Engine
- ☐ Landings
  - ☐ Normal
  - ☐ Short Field
  - ☐

COMPLETION STANDARDS:

This lesson is complete when the specific requirements for this cross-country flight have been met. Performance of the listed procedures will be to standards of the Instrument Rating – Airplane and Commercial Pilot – Airplane Airman Certification Standards.

Dual	Solo	Dual Night	Dual XC	Solo XC	Dual Inst.	Night LD.	AATD	Pre Post	GI
1.5					0.2				0.5

MULTI FLIGHT LESSON 8 **DUAL - FINAL STAGE CHECK**

LESSON OBJECTIVE:

The student will demonstrate satisfactory knowledge, risk management and skills in the tasks specified below from the Commercial Pilot – Airplane Airman Certification Standards. This lesson is the final stage check conducted by the Chief or Assistant Chief Flight Instructor or Check Instructor approved by the FSDO. It will be conducted using a plan of action IAW the current version of the Commercial Pilot – Airplane Airman Certification Standards. The following minimum tasks will be evaluated. Prior to the test the evaluator will check for updates to the Commercial Pilot Airman Certification Standards and incorporate any changes into his/her plan of action.

CONTENT:

- ☐ Performance and Limitations (AOI, Task F)
- ☐ Operation of Systems (AOI, Task G)
- ☐ Preflight Assessment (AOII, Task A)
- ☐ Flight Deck Management (AOII, Task B)
- ☐ Engine Starting (AOII, Task C)
- ☐ Taxiing (AOII, Task D)
- ☐ Before Takeoff Check (AOII, Task F)
- ☐ Normal Takeoff and Climb (AOIV, Task A)
- ☐ Normal Approach and Landing (AOIV, Task B)
- ☐ Short-Field Takeoff and Maximum Performance Climb (AOIV, Task E)
- ☐ Short-Field Approach and Landing (AOIV, Task F)
- ☐ Steep Turns (AOV, Task A)
- ☐ Maneuvering During Slow Flight (AOVII, Task A)
- ☐ Power-Off Stalls (AOVII, Task B)
- ☐ Power-On Stalls (AOVII, Task C)
- ☐ Accelerated Stalls (AOVII, Task D)
- ☐ Spin Awareness (AOVII, Task E)
- ☐ Engine Failure During Takeoff Before Vmc (simulated) (AOIX, Task E)
- ☐ Engine Failure After Lift-Off (Simulated) (AOIX, Task F)
- ☐ Approach and Landing with Inoperative Engine (Simulated) (AOIX, Task G)
- ☐ Maneuvering with One Engine Inoperative (AOX, Task A)
- ☐ Vmc Demonstration (AOX, Task B)
- ☐ Engine Failure During Flight (By Reference to Instruments) (AOX, Task C)
- ☐ Instrument Approach – One Engine Inoperative (By Reference to Instruments) (AOX, Task D)

COMPLETION STANDARDS:

The student will demonstrate satisfactory knowledge, risk management and skills of the tasks indicated as defined by the Commercial Pilot – Airplane Airman Certification Standards.

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