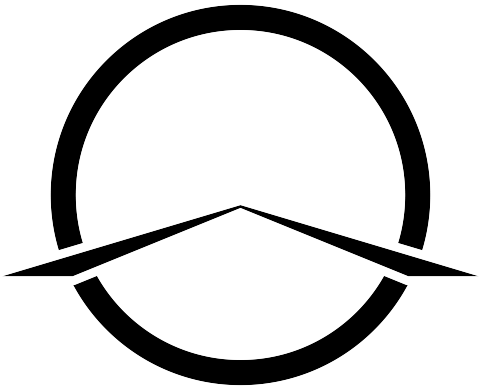

COMMERCIAL PILOT

MULTI-ENGINE AIRPLANE ADD-ON

Written by Brendan McReynolds [Lucky Aviation] & Benjamin Hursa [Hursa Corporation], 2022.

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Ground Lessons

Stage One

Overview
The applicant will learn performance, limitations, systems, maneuvers and complete LOFT to develop skills necessary for safe operation of a multi-engine airplane.

Objectives
To teach the aeronautical knowledge and skills prescribed by 14 CFR Part 61 and 141 Appendix D to the Pro Standards Course Standards for Airplane Multi-Engine Land.

Completion Standards
The stage will be complete when the student has demonstrated trough oral and flight testing and school records, the knowledge, skill and experience of the stage objectives to the standards prescribed in the course standards.

Introduction to Multi-Engine

Introduction to Multi-Engine
Stage 1 Lesson 1
Ground Lesson
Lesson Time 4.0

Introduction to Multi-Engine

Objectives
To teach the students the aeronautical knowledge and skills related to the elements of this lesson.

SBT
>> Review case studies that have lead to the development of the Professional Standards and requirements

Tasks
Introduction to Pro Standards Training Program
Course Overview
Required Course Materials
Course Policies
Leadership
Professionalism
Human Factors
Threat and Error Management
Aeronautical Decision Making
Situational Awareness
Single-Pilot Resource Management
Crew Resource Management
Crew Communication
Workload Management
Automation Management
Controlled Flight into Terrain
Fitness for Flight
Collision avoidance
Runway Incursion Avoidance
Land and Hold Short Operations
Checklist Policy and Standard Callouts
Standard Operating Procedures
Cockpit Management
Positive Transfer of Flight Controls
Weight and Balance
Performance and Limitations

Completion Standards

This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Introduction to Multi-Engine
Stage 1 Lesson 2
Ground Lesson
Lesson Time 2.0

Operation of Systems

Objectives
To teach the students the aeronautical knowledge and skills related to the elements of this lesson.

SBT
>> Use the checklist to verify operational knowledge of systems.

Tasks
Operations of Systems
Supplemental Oxygen
Pressurization Systems

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Introduction to Multi-Engine
Stage 1 Lesson 3
Maneuver Lesson
Lesson Time 2.0

Objectives
To teach the students the Standard Operating Procedures, including procedures, tasks, flows, and callouts to prepare the applicant for the upcoming flight lessons.

SBT
>> Depart IFR to KBUR RWY 8 is in use.

Tasks
Pro Standards Checklist Philosophy (SOP)
Initial Aircraft Acceptance (SOP)
Standard Callouts (SOP)
Use of Checklists
Positive Exchange of Flight Controls
Before Start (SOP)
Engine Starting (SOP)
Before Taxi (SOP)
Before Takeoff (SOP)
Instrument Takeoff (SOP)
Climb (SOP)
Cruise (SOP)
Decent (SOP)
Approach (SOP)
Deviations and Callouts (SOP)
After Landing (SOP)
Shutdown/Secure (SOP)
Flight Deck Management
Taxiing

Completion Standards
This lesson will be complete if the applicant can demonstrate no more than one item missed on two checklists or one item missed twice on the same checklist.

Introduction to Multi-Engine
Stage 1 Lesson 4
Flight Lesson
Lesson Time 2.0

Objectives
To correlate the information learned during procedures training and apply it to flight operations. Additionally, introduce multi-engine maneuvers.

SBT
>> Depart to the practice area for maneuvers.

Tasks
Preflight Inspection
Cockpit Management
Checklist Usage
Standard Callouts
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Normal and Crosswind Takeoff and Climb
Short-Field Takeoff and Maximum Performance Climb
Straight-and-Level Flight
Turns
Climbs
Descents
Maneuvering During Slow Flight
Power-Off Stalls
Power-On Stalls
Spin Awareness
Accelerated Stall
Steep Turns
Traffic Patterns
Normal and Crosswind Approach and Landing
Short-Field Approach and Landing
After Landing, Parking, and Securing

Completion Standards
This lesson will be complete when the instructor recommends the applicant for the procedures validation. The maneuvers are for introduction purposes and are training only.

Introduction to Multi-Engine
Stage 1 Lesson 5
Procedures Validation
Lesson Time 2.0

Objectives
To validate the applicants ability to operate in accordance with the Standard Operating Procedures

SBT
>> Conduct a local IFR flight with two different approach, and a missed approach.

Tasks
Pro Standards Checklist Philosophy (SOP)
Initial Aircraft Acceptance (SOP)
Standard Callouts (SOP)
Use of Checklists
Positive Exchange of Flight Controls
Before Start (SOP)
Engine Priming (SOP)
Engine Starting (SOP)
Before Taxi (SOP)
Before Takeoff (SOP)
Instrument Takeoff (SOP)
Climb (SOP)
Cruise (SOP)
Decent (SOP)
Approach (SOP)
Deviations and Callouts (SOP)
After Landing (SOP)
Shutdown/Secure (SOP)
Flight Deck Management
Taxiing

Completion Standards
This lesson will be complete if the applicant can demonstrate no more than one item missed on two checklists or one item missed twice on the same checklist.

Emergency Procedures

Emergency Procedures
Stage 1 Lesson 6
Ground Lesson
Lesson Time 2.0

Emergency Procedures

Objectives
To teach the skills necessary to demonstrate ability to handle emergency and abnormal operations.

SBT
>>

Tasks
Principles of Flight – Engine Inoperative
Engine Failure During Takeoff Before Vmc
Engine Failure After Lift-Off
Approach and Landing with an Inoperative Engine
Inadvertent Door or Window Opening
Inoperative Trim
Engine Roughness or Overheat
Loss of Oil Pressure
Partial or Complete Power Loss
Propeller Overspeed
Landing Gear Malfunction
Flap Malfunction
Electrical System Malfunction
Vacuum System Malfunction
Pitot/Static System Malfunction
Fuel Starvation
Carburetor or Induction Icing
Structural Icing
Smoke/Fire/Engine Compartment Fire
Emergency Equipment and Survival Gear

Completion Standards
This lesson will

Emergency Procedures
Stage 1 Lesson 7
Flight Lesson
Lesson Time 2.0

Objectives
To teach the skills necessary to demonstrate ability to handle emergency and abnormal operations.

SBT
>> Depart to the practice area

Tasks
Preflight Inspection
Cockpit Management
Checklist Usage
Engine Starting
Standard Callouts
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Engine Failure During Takeoff Before Vmc
Normal and Crosswind Takeoff and Climb
Engine Failure after Lift-Off
Maneuvering with One Engine Inoperative
Drag Demonstration
Vmc Demonstration
Engine Troubleshoot
Engine Secure
Engine Restart in Flight
Engine Fire in Flight
Electrical Fire in Flight
Emergency Descent
Traffic Patterns
Landing Gear Malfunction
Approach and Landing with an Inoperative Engine
Short-Field Approach and Landing
After Landing, Parking and Securing

Completion Standards
This lesson will be completed when all the tasks have been introduced.

Emergency Procedures
Stage 1 Lesson 8
Flight Lesson
Lesson Time 2.0

Objectives
To verify the skills and knowledge necessary to meet the standards of the Maneuvers Validation

SBT
>> Fly a practice Maneuvers Validation

Tasks
Preflight Inspection
Cockpit Management
Checklist Usage
Standard Callouts
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Engine Failure During Takeoff Before Vmc
Normal and Crosswind Takeoff and Climb
Engine Failure After Lift-Off
Maneuvering with One Engine Inoperative
Vmc Demonstration
Engine Troubleshoot
Engine Secure
Engine Restart in Flight
Engine Fire in Flight
Electrical Fire in Flight
Emergency Descent
Traffic Patterns
Short-Field Approach and Landing
Approach and Landing with an Inoperative Engine
After Landing, Parking and Securing

Completion Standards
This lesson will be complete when the applicant performs the tasks to the course standards and the instructor recommends the applicant for the Maneuvers Validation.

Emergency Procedures
Stage 1 Lesson 9
Maneuvers Validation
Lesson Time 2.0

Objectives
The applicant will demonstrate skills and knowledge related to emergency procedures

SBT
>> The Check Airman will choose a scenario for the validation.

Tasks
Preflight Inspection
Cockpit Management
Checklist Usage
Standard Callouts
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Engine Failure During Takeoff Before Vmc
Normal and Crosswind Takeoff and Climb
Engine Failure After Lift-Off
Maneuvering with One Engine Inoperative
Vmc Demonstration
Engine Troubleshoot
Engine Secure
Engine Restart in Flight
Engine Fire in Flight
Electrical Fire in Flight
Emergency Descent
Traffic Patterns
Short-Field Approach and Landing
Approach and Landing with an Inoperative Engine
After Landing, Parking and Securing

Completion Standards
This lesson will be complete when all the tasks performed to course standards and not more than two items repeated or one item repeated twice.

Instrument Review

Instrument Review
Stage 1 Lesson 10
Ground Lesson
Lesson Time 2.0

Instrument Review

Objectives
To teach the student the aeronautical knowledge and skills relating to the elements of basic instrument maneuvers, holding procedures, non precision approaches, precision approaches, circling approach, missed approach, engine failure during flight (by reference to instruments), and instrument approach – one engine inoperative.

SBT
>> Three local approaches

Tasks
Basic Instrument Maneuvers
Holding Procedures
Non-Precision Approach
Precision Approach
Circling Approach
Missed Approach
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Landing from a Straight-In or Circling Approach

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Instrument Review
Stage 1 Lesson 11
Flight Lesson
Lesson Time 2.0

Objectives
To teach the student the aeronautical knowledge and skills relating to the elements of basic instrument maneuvers, holding procedures, non precision approaches, precision approaches, circling approach, missed approach, engine failure during flight (by reference to instruments), and instrument approach – one engine inoperative.

SBT
>> Three local approaches

Tasks
Instrument Cockpit Check
Runway Incursion Avoidance
Air Traffic Control Clearances
Compliance with Departure, En Route, and Arrival Procedures and Clearances
Instrument Takeoff
Holding Procedures
Non Precision Approach
Precision Approach
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Missed Approach
Circling Approach
Landing from a Straight-In or Circling Approach

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Instrument Review
Stage 1 Lesson 12
Flight Lesson
Lesson Time 2.0

Objectives
To teach the student the aeronautical knowledge and skills relating to the elements of basic instrument maneuvers, holding procedures, non precision approaches, precision approaches, circling approach, missed approach, engine failure during flight (by reference to instruments), and instrument approach – one engine inoperative.

SBT
>> Three local approaches

Tasks
Instrument Cockpit Check
Runway Incursion Avoidance
Air Traffic Control Clearances
Compliance with Departure, En Route, and Arrival Procedures and Clearances
Instrument Takeoff
Holding Procedures
Non Precision Approach
Precision Approach
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Missed Approach
Circling Approach
Landing from a Straight-In or Circling Approach

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Instrument Review
Stage 1 Lesson 13
Flight Lesson
Lesson Time 2.0

Objectives
To teach the student the aeronautical knowledge and skills relating to the elements of basic instrument maneuvers, holding procedures, non precision approaches, precision approaches, circling approach, missed approach, engine failure during flight (by reference to instruments), and instrument approach – one engine inoperative.

SBT
>> Three local approaches

Tasks
Instrument Cockpit Check
Runway Incursion Avoidance
Air Traffic Control Clearances
Compliance with Departure, En Route, and Arrival Procedures and Clearances
Instrument Takeoff
Holding Procedures
Non Precision Approach
Precision Approach
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Missed Approach
Circling Approach
Landing from a Straight-In or Circling Approach

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

LOFT

LOFT
Stage 1 Lesson 14
Ground Lesson
Lesson Time 2.0

Cross-Country & Night Operations

Objectives
To teach the student the aeronautical knowledge and skills related to the elements of cross-country flight planning, pilotage and dead reckoning, diversions, lost procedures, and night preparation and night operations.

SBT
>>

Tasks
Cross-Country Flight Planning
Mulit-Engine Considerations
Night Preparation

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

LOFT
Stage 1 Lesson 15
Flight Lesson
Lesson Time 4.0

Objectives
To teach the student the aeronautical knowledge and skills related to the elements of cross-country flight planning, pilotage and dead reckoning, diversions, lost procedures, and night preparation and night operations.

SBT
>> Practice Commercial operations by simulating a line flight to SDJ.

Tasks
Preflight Inspection
Cockpit Management
Checklist Usage
Standard Callouts
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Short-Field Takeoff and Maximum Performance Climb
Pilotage and Dead Reckoning
Navigation Systems and Radar Services
Short-Field Approach and Landing
After Landing, Parking, and Securing

Note
This flight will meet the requirements of 14 CFR 141 Appendix D 4(b)(2)(iii) and 4(b)(2)(iv). The flight will contain a minimum of 2.0 hours of day flight time, and 2.0 hours of night flight time. The destination must be at least 100 nautical miles from the departure.

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Stage Review

Stage Review
Stage 1 Lesson 16
Flight Lesson
Lesson Time 2.0

Objectives
To review the aeronautical knowledge and skills related to the tasks of this stage in preparation for the stage check.

SBT
>> Practice Course Evaluation

Tasks
Preflight Inspection
Cockpit Management
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Engine Failure During Takeoff Before Vmc
Engine Failure After Lift-Off
Normal and Crosswind Takeoff and Climb
Short-Field Takeoff and Maximum Performance Climb
Steep Turns
Maneuvering During Slow Flight
Power-Off Stalls
Power-On Stalls
Spin Awareness
Accelerated Stall
Emergency Descent
Systems and Equipment Malfunctions
Vmc Demonstration
Maneuvering with One Engine Inoperative
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Approach and Landing with an Inoperative Engine
Normal and Crosswind Approach and Landing
Short-Field Approach and Landing
Go-Round/Rejected Landing
After Landing, Parking, and Securing

Note
This unit includes 0.6 hours of instrument training to be credited towards the requirements of 14 CFR Part 141 Appendix D Section 4 (b) (2) (i): five hours of instrument training in a multi-engine airplane.

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Stage Review
Stage 1 Lesson 17
Ground Lesson
Lesson Time 2.0

Knowledge Review

Objectives
To determine, through a stage check consisting of both oral and flight tests, that the student has the necessary aeronautical knowledge and skill to safely conduct flight operations as an FAA certificated Commercial Pilot.

SBT
>> Practice Knowledge Validation

Tasks
Certificates and Documents
Airworthiness Requirements
Performance and Limitations
Operation of Systems
Principles of Flight – Engine Inoperative
Supplemental Oxygen
Pressurization

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Stage Review
Stage 1 Lesson 18
Flight Lesson
Lesson Time 2.0

Objectives
To review previous unsatisfactory and marginal performance, and other tasks as deemed necessary by the flight instructor.

SBT
>> Review Deficient items

Tasks
Review Unsatisfactory and Marginal tasks from Stage Checks and other tasks as determined by the flight instructor.

Completion Standards
This lesson will

Stage Review
Stage 1 Lesson 19
Ground Lesson
Lesson Time 2.0

Stage Deficiencies Review

Objectives
To review previous unsatisfactory and marginal performance, and other tasks as deemed necessary by the flight instructor.

SBT
>> Review Deficient items

Tasks
1. Review Unsatisfactory and Marginal tasks from Stage Checks and other tasks as determined by the flight instructor.

Note
Lesson 7 may be omitted if the student has completed the Stage 1 and Stage 2 checks by demonstrating at least a “Good” grade on each task.

Completion Standards
This lesson will

Course Validation

Course Validation
Stage 1 Lesson 20
Knowledge Validation
Planned Completion Time 1.5

Knowledge Validation

Objectives
To determine, through a stage check consisting of both oral and flight tests, that the student has the necessary aeronautical knowledge and skill to safely conduct flight operations as an FAA certificated Commercial Pilot.

SBT
>> The Check Airman will conduct the scenario

Tasks
Certificates and Documents
Airworthiness Requirements
Performance and Limitations
Operation of Systems
Principles of Flight – Engine Inoperative
Supplemental Oxygen
Pressurization

Completion Standards
This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.

Course Validation
Stage 1 Lesson 21
Course Validation
Planned Completion Time 1.5

Objectives
To determine, through a stage check consisting of both oral and flight tests, that the student has the necessary aeronautical knowledge and skill to safely conduct flight operations as an FAA certificated Commercial Pilot.

SBT
>> The Check Airman will conduct the scenario

Tasks
Preflight Inspection
Cockpit Management
Engine Starting
Taxiing
Runway Incursion Avoidance
Before Takeoff Check
Engine Failure During Takeoff Before Vmc
Engine Failure After Lift-Off
Normal and Crosswind Takeoff and Climb
Short-Field Takeoff and Maximum Performance Climb
Steep Turns
Maneuvering During Slow Flight
Power-Off Stalls
Power-On Stalls
Spin Awareness
Accelerated Stall
Emergency Descent
Systems and Equipment Malfunctions
Vmc Demonstration
Maneuvering with One Engine Inoperative
Engine Failure During Flight (by Reference to Instruments)
Instrument Approach – One Engine Inoperative (by Reference to Instruments)
Approach and Landing with an Inoperative Engine
Normal and Crosswind Approach and Landing
Short-Field Approach and Landing
Go-Round/Rejected Landing
After Landing, Parking, and Securing

Completion Standards

This lesson will be complete when the student has demonstrated the required aeronautical knowledge and skill for each required task to the standards prescribed in the Pro Standards Commercial Pilot Course Standards.