

Flight Advisor Corner by Hobie Tomlinson

March 2013 ~ Flying Multi-Engine Aircraft (Pt. X) ~ AMEL PTS Intro 1

Continuing our series on flying FAR Part 23 (CFR 14, Chapter 1, Subchapter C, and Part 23) certified, small multi-engine airplanes, we are looking at the training issues involved in completing a multi-engine transition course.

This month we will begin our discussion of **FAA-S-8081-12C**, the FAA, **Commercial Pilot, Practical Test Standards (PTS) for Airplane Single- and Multi-Engine, Land and Sea** Airplanes which became effective on June 1, 2012.

Multi-Engine Training During The “Early Days”

The 4-Cylinder Twins – PA23-150 Apache @ KBTV



Two 150 HP engines – 1,231 Produced from 1954 thru 1958

Hobie Tomlinson Image

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Like the approach taken while discussing the GAMA format AFMs (currently issued for FAR Part 23 certificated airplanes) we will discuss the **Airplane Multi-Engine Land and Sea (AMELS) PTS from a cockpit point of view. While there are many good classroom texts available that discuss the theory and structure of AMEL training, there are not many texts that look at the AMEL course from the viewpoint of “what does it mean to me in the cockpit.”**

FAA-S-8081-12C opens with the **Note** that it will become effective on **June 1, 2012**. All previous editions of the Commercial Pilot-Airplane Practical Test Standards became obsolete as of this date. (This edition contains substantial changes from previous editions of the Commercial Pilot PTS.)

A Record of Changes section follows the **Note Page** and states the following:

➤ **Introduction**

- All references reviewed and updated throughout.
- Abbreviations section added.
- Use of Practical Test Standards (**PTS**) updated.
- Use of Judgment Assessment Matrix added.
- Special Emphasis Areas updated.
- Removal of “Limited to Center-Line Thrust” (**CLT**) Limitation added.
- Commercial Pilot License (**CPL**) Airplane - Practical Test Prerequisites updated.
- Use of FAA-Approved Full Flight Simulator (**FFS**) or Flight Training Device (**FTD**)
- Recommending Flight Instructor (**CFI**) Responsibility updated.
- Administrating Pilot Examiner (**DPE**) Responsibility updated.
- Satisfactory Applicant Performance updated.
- Single-Pilot Resources Management (**SRM**) task requirements updated.
- Aeronautical Decision-Making (**ADM**) task added.
- Risk Management (**RM**) task added.
- Task Management (**TM**) task added.
- Situational Awareness (**SA**) task added.
- Controlled Flight into Terrain Awareness (**CFIT**) Task added.
- Automation Management (**AM**) Task added.
- Letter of Discontinuance procedure added.
- Applicant’s use of Checklists updated.
- Stalls and Spin Awareness procedures added.

➤ **Section 1, Commercial Pilot-Airplane (SEL & SES)**

- Section 1 pertains to the Commercial Pilot-Airplane Practical Test for issuance of a Single Engine Land or Single Engine Sea class rating.
- Section 1 is identical to Section 2 (the Commercial Pilot-Airplane Practical Test for issuance of a Multi-Engine Land or Multi-Engine Sea

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class rating) except for those maneuvers and tasks which only pertain to either Single Engine Airplanes or Multi-Engine Airplanes.

- Because the topic of our article is Multi-Engine Airplanes, we will bypass Section 1 and proceed directly to Section 2.

➤ Section 2, Commercial Pilot-Airplane (MEL and MES)

- Additional Rating Task Table for adding an AMEL Rating updated.
- Additional Rating Task Table for adding an ASEL Rating updated.
- Judgment Assessment Matrix table added.
- Areas of Operations (AO) updated.
 - Preflight Preparation Changes (AO I)
 - Weather Information (Task C).
 - Cross Country Flight Planning (Task D).
 - National Airspeed System (Task E).
 - Aeromedical Factors (Task K).
 - Preflight Procedures Changes (AO II)
 - Taxiing (Task D).
 - Runway Incursion Avoidance (Task F).
 - Before Takeoff Check (Task G).
 - Airport and Seaplane Base Operations Changes (AO III)
 - Radio Communications and ATC Light Signals (Task A).
 - Takeoffs, Landings, Stop and Go Landings, and Go-Arounds Changes (AO IV)
 - Runway Incursion Avoidance added (Tasks A – H)
 - Navigation Changes (AO VI)
 - Pilotage and Dead Reckoning (Task A)
 - Slow Flight and Stalls Changes (AO VII)
 - Takeoff and Departure Stalls (Task C).
 - Accelerated Stalls (Task D).
 - Emergency Operations Changes (AO VIII)
 - Note added defining Minimum-Maneuvering “Altitude Safety Floor.”
 - Engine Failure After Lift-Off (Task C)
 - System and Equipment Malfunctions (Task E)
 - Multi-Engine Operations Changes (AO X)
 - Note added stating that “AMEL Limited to VFR Only” applicants need not complete Task C – Engine Inoperative (EI) under IMC nor Task D – EI Instrument Approach

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- Vmc Demonstration (Task B).
- EI Instrument Approach (Task D).

The Forward Page states the following:

“The Commercial Pilot-Airplane Practical Test Standards (PTS) book has been published by the Federal Aviation Administration (FAA) to establish the standards for commercial pilot certification practical tests for the airplane category, single-engine land and sea; and multi-engine land and sea classes. FAA Inspectors and Designated Pilot Examiners **shall** conduct practical tests **in compliance with** these standards. Flight Instructors and Applicants should find these standards helpful during training and when preparing for the practical test.”

Table of Contents lists the Following Areas of Operation:

- **Introduction**
- **Section 1: Commercial Pilot Airplane (ASEL & ASES)**
 - Section 1 is identical to Section 2 (the Commercial Pilot-Airplane Practical Test for issuance of a Multi-Engine Land or Multi-Engine Sea class rating) except for those maneuvers and tasks which only pertain to either Single Engine Airplanes or Multi-Engine Airplanes.
 - Because the topic of our article is Multi-Engine Airplanes, we will bypass Section 1 and proceed directly to Section 2.
- **Section 2: Commercial Pilot Airplane (AMEL & AMES)**
 - Additional Rating Task Table (AMEL).
 - Additional Rating Task Table (AMES).
 - Applicant’s Practical Test Checklist.
 - Examiner’s Practical Test Checklist.
 - Judgment Assessment Matrix.
 - Areas of Operation.
 - Preflight Preparation (AO I).
 - Preflight Procedures (AO II).
 - Airport and Seaplane Base Operations (AO III).
 - Takeoffs, Landings, and go-Arounds (AO IV).
 - Performance Maneuver (AO V).
 - Navigation (AO VI).
 - Slow Flight and Stalls (AO VII).
 - Emergency Operations (AO VIII).
 - High Altitude Operations (AO IX).
 - Multi-Engine Operations (AO X).
 - Postflight Procedures (AO XI).
- **Appendix 2**
 - Airplane Multi-Engine Land Task vs. Simulation Device Credit.
 - Use of the Simulation Device Credit chart.
 - Flight Simulation Device Levels.

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Introduction Section of the PTS contains the following information:

General Information states that the Practical Test is the standard that **shall be used** by FAA Inspectors, Designated Pilot Examiners, or other authorized persons when conducting the commercial pilot-airplane practical tests. Certified Flight Instructors (CFIs) **are expected to use** the Practical Test Standards (PTS) when preparing applicants for their practical tests. Commercial Pilot Applicants **should be familiar** with the PTS and continually refer to these standards during their training.

Directive Information is described by the words “**Shall**” and “**Must**” that indicate these actions are mandatory.

Guidance Information is described by the words “**Should**” and “**May**” that indicate these actions are desirable, but not mandatory.

The PTS is published by the U.S. DOT, FAA Airman Testing Standards Branch (AFS-630) and can be purchased from the U.S. Gov’t Printing Office or downloaded for free (PDF format) from www.faa.gov.

Practical Test Standards Concept grew out of the Code of Federal Regulations (CFR) Title 14, Part 61 which specifies the areas of knowledge and skill which must be demonstrated by an applicant before they can be issued a Commercial Pilot Certificate or Rating. These same CFRs provide the flexibility to permit the FAA to publish Practical Test Standards containing the Area of Operation and specific tasks in which pilot competency shall be demonstrated. The FAA revises the PTS whenever it determines that changes are needed in the interest of safety. ***Adherence to the provisions of the regulations and practical test standards is mandatory for the evaluation of commercial pilot applicants!***

Practical Test Book Description explains that the Commercial Pilot-Airplane PTS contains the Areas of Operation (AO) and Tasks required for the issuance of an initial commercial pilot certificate as well as for the addition of a category and/or class rating to that certificate. It is composed of the following two sections:

- Section 1: Airplane-Single-Engine Land and Sea.
- Section 2: Airplane Multi-Engine Land and Sea.

Practical Test Standards Descriptions describe Areas of Operation as phases of the practical test that are arranged in a logical sequence within each of the two sections listed above. These begin with Preflight Preparations (AO I) and end with Postflight Procedures (AO XI). The PTS gives the examiner administering the practical test the discretion to sequence the Areas of Operation in any way that

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will result in a complete and efficient test; however, the ground portions of the practical test **must be accomplished prior** to the flight portion.

Tasks are the knowledge areas, flight procedures, or maneuvers appropriate to and Area of Operation. Abbreviation(s) within parentheses immediately following a task refer to the category and class aircraft appropriate to that task. The Commercial Pilot – Airplane PTS covers the following four Classes within the Airplane category of Aircraft.

- **ASEL:** Airplane – Single Engine Land
- **ASES:** Airplane – Single Engine Sea
- **AMEL:** Airplane – Multi-Engine Land
- **AMES:** Airplane – Multi-Engine Sea

When Administering a test based on Section 1 or Section 2 of the PTS, the tasks appropriate to the class of airplane used for the test shall be included in the examiner’s plans of action. The absence of a class abbreviation for a task indicated that the task applies to all classes of airplane.

Notes are used throughout the PTS to emphasize any special considerations required during the completion of an Area of Operation or its imbedded tasks.

References are the FAA publications that describe the tasks required for the Commercial Pilot-Airplane Practical Test. The correct Task descriptions are contained in the current issues of the listed publications and are not included in the PTS for brevity. Publications, other than those listed, may be used to obtain task descriptions only if their content conveys substantially the same meaning as the referenced publications. A list of all required reference publications is provided in the PTS subsequent to the above information.

Objectives are the list of elements that must be satisfactorily performed to demonstrate competency in a given task. These objectives include the following:

- **Specific Items** that the applicant should be able to do.
- **Conditions** under which the task is to be performed.
- **Performance Standards** which must be met for successful completion.

Abbreviations used within the PTS are defined next.

Use of the Practical Test Standards requires that all Commercial Pilot practical tests be conducted in accordance with the appropriate commercial practical test standards and policies as set forth in the **Introduction Section of the PTS**.

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Applicants must be evaluated in **ALL** tasks included in each Area of Operation of the appropriate practical test standard, unless it is otherwise noted in the respective Area of Operation.

Applicants holding at least a Commercial Pilot Certificate, who desire to add an additional airplane category and/or class rating to their Commercial Pilot Certificate, must be evaluated in the Areas of Operation and Tasks listed in the Additional Rating Task Table. *Any (or all) of the non-required Areas of Operation and Tasks may be evaluated for current competence at the examiners' discretions.*

Applicants holding two or more category or class ratings at least at the Commercial Pilot level, and where the ratings table indicates a different set of required Tasks to obtain the desired additional Category and/or Class rating, need only complete the Areas of Operation and Tasks listed in the least restrictive column. (I.e. If one column indicates "ALL" in an Area of Operation and the other column indicates "None" for the same Area of Operation, "None" would apply.)

Examiners must prepare a written "Plan of Action" (Similar to a "Lesson Plan," but used during the administering of FAA Practical Tests) for each Practical Test administered. This "Plan of Action" is a tool prepared by the examiner for his/her sole use in evaluating the applicant during a practical test. This Plan of Action need not be grammatically correct nor in any formal format, but must contain all the required Areas of Operation and Tasks, plus any optional Tasks selected by the examiner.

The Plan of Action must include a scenario that allows the evaluation of as many required Areas of Operation and Tasks as possible without disruption. During the Practical Test, the examiner interjects problems and emergencies which the applicant must successfully manage. The Plan of Action scenario should be structured so that most of the Areas of Operations and Tasks are accomplished within the mission. The examiner is afforded the flexibility to change the Plan of Action in order to accommodate unexpected situations as they arise.

It is expected that some tasks (such as unusual attitudes) do not occur in normal flight operations; however, these maneuvers still must be satisfactorily demonstrated. This demonstration can either occur after the flight scenario is completed or during a temporary suspension of the flight scenario if the time and efficiency of the practical test so dictates. ***Any Task selected for evaluating during the practical test must be evaluated in its entirety.***

Examiners are expected to use good judgment in the performance of simulated emergency procedures. This will include using the safest simulation method possible, as well as giving due consideration to the additional factors of local meteorological and topographical conditions existing at the time of the test, the

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applicants workload, and the condition of the aircraft used. When it is apparent that the procedure being evaluated would jeopardize safety, the examiner is expected to have the applicant simulate that portion of the maneuver.

Use of the Judgment Assessment Matrix is to provide a tool for the examiner's use in objectively ensuring that the applicant has demonstrated an appropriate level of Single-Pilot Resource Management (**SRM**) skills during the practical test. These Single-Pilot Resource Management skills are Task Management (**TM**), Risk Management (**RM**), Automation Management (**AM**), Aeronautical Decision Making (**ADM**), Controlled Flight Into Terrain (**CFIT**), and Situational Awareness (**SA**). (Most fatal accidents include a lack of these SRM skills as a casual factor.)

Examiners must use the Judgment Assessment Matrix during practical tests. It is recommended that examiners make and use photocopies of the matrix during practical tests, as examiners give multiple tests during the course of a year.

Pilots, who are already multi-engine certificated airmen, will realize the many changes that have occurred in the multi-engine training process over the years. Multi-engine ratings are one of those aviation courses that were "easy picking" for the diploma mills. This resulted in multitudes of multi-engine rated pilots who became rated using a shortened and accelerated "teach-the-test" training course and never receiving "full-syllabus" initial training.

While airman certificates define the legality of our aircraft operations, *it is actually our current pilot proficiency which defines the safety of those operations*. The industry standard for pilot proficiency is continually maintaining the ability to meet any (or all) of the performance standards specified in the appropriate PTS for the type of aircraft that we are flying. Those rated pilots reading this series should ask themselves the question – could fly to those standards today? If an honest answer is yes, congratulations are in order. If however, an honest answer is no, then serious consideration should be given to obtaining some remedial recurrent training before striking out on your own again,

This appears to be a good place to break for this month. Next month we will pick up our discussion with the **Special Emphasis Areas** imbedded in the **Introduction Section** of the PTS as we continue working our way through the Multiengine **Practical Test Standards (PTS) FAA-S-8081-12C (Commercial Pilot for Airplane Single- and Multi-Engine Land and Sea)** that became effective on June 1, 2012.

The thought for this month is: *"The illiterate of the future are not those who can't read or write, but those who cannot learn, unlearn, and relearn."* ~ Alvin Toffler, **American Writer and Futurist**

So, until next month, remember to **Think Right to FliRite!**

Note: I have started the process of creating an archive of *Flight Advisor Corner* articles which are now accessible in the “*Flt Adv. Archives*” page of my company website at <http://montairflight.com>. Enjoy.

Today’s Principle Multi-Engine Trainer

The 4-Cylinder Twins – Piper’s PA44 “Seminole”



Two 180 HP Engines – Currently in Production – 2012 Base Price \$625,000

Wikipedia Image