

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 continue the Multi-Engine Transition Course series by beginning our discussion of the actual items involved in the *AMEL & AMES Practical Test* portion of the **Commercial Pilot – Airplane 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 Commercial Pilot – Airplane, Multiengine Land and Multiengine Sea Practical Tests are contained in Section 2 of the Practical Test Standards (PTS). Section 1 of the Commercial Pilot Practical Test Standards contains the Practical Tests for Single-Engine Land and Single-Engine Sea Airplanes.

## Last Two Howard 500s ~ N500HP & N500LN at AirVenture / Oshkosh 2013



Twenty Two Produced / 300 Kt Cruise @ 21,000 ft. / 2260 NM Range / 35,000 lb. MTOW  
Powered by Two P&W R2800-CB17 Engines @ 2,500 HP ea. *Hobie Tomlinson Image*

# Flight Advisor Corner by Hobie Tomlinson

**Section 2** of the Commercial Pilot – Airplane Practical Test Standards contains the Practical Test Criteria for both Airplane Multiengine Land and Airplane Multiengine Sea certification tests.

**The Additional Rating Task Tables** provide for an abbreviated Practical Test for applicants that are adding an Airplane Multiengine Land (or Sea) Category and/or Class Rating to an existing Commercial Pilot Certificate. The First Additional Rating Task Table is for the addition of an Airplane Multiengine Land Category and/or Class Rating, while the Second Additional Rating Task Table covers the addition of an Airplane Multiengine Sea Category and/or Class rating.

**The Applicable Additional Rating Task Table** is used by reading down the column located under the Commercial Category and/or Class rating that is currently held by the applicant. The required Tasks for each Area of Operation are listed and determine the content of the abbreviated Practical Test. When two or more ratings at the Commercial Pilot level are held by the applicant, the most favorable rating (least restrictive) column is used to determine the required tasks for each Area of Operation.

**The Applicants Practical Test Checklist** provides the applicant with a reference for the *Acceptable Aircraft*, *Personal Equipment*, and *Personnel Records* that they need to make available for the practical Test.

**An Acceptable Aircraft** is one with a valid airworthiness certificate that is equipped with dual flight controls and that is capable of performing all of the required PTS Tasks. (**Note:** Public Use aircraft, without an airworthiness certificate, are not allowed to be used during an FAA flight test.) The airplane must also contain all required aircraft documents and the correct Pilot's Operating Handbook or FAA-Approved Airplane Flight Manual. (**Note:** For aircraft manufactured after 1978, the FAA-Approved Airplane Flight Manual (AFM) that is on-board the airplane must list the aircraft's serial number and be signed by the OEM (Original Equipment Manufacturer.) The airplane's logbooks/maintenance records – sufficient to prove the airplane's continued airworthiness and legality for the flight test – must also be presented to the Pilot Examiner.

**Personal Equipment** includes – but is not limited to – a view-limiting device, current aeronautical charts, computer and plotter, flight plan forms, flight logs, current Airman's Information Manual and Airport Facility Directory, and other Appropriate Publications. (**Note:** The PTS does not specifically require paper copies of these publications. Their electronic versions may be used.)

**Personal Records** include a Photo/Signature Identification badge or document, and your current pilot and medical certificates. (**Note:** Only a current third class medical certificate is required to take the Commercial

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Pilot Practical Test, even though a current second class medical certificate is required to exercise Commercial Pilot Privileges.) Most Designated Pilot Examiners will want the applicant to complete an electronic 8710 form (Practical Test application) via the FAA Integrated Airman Certification and Rating Application (IACRA) website, although paper 8710 forms are still allowed to be used.

When using a paper practical test application file, in lieu of the web-based IACRA electronic application file, the appropriate Computer Testing Center Written Test Report (original copy embossed with the testing center seal), Approved School Graduation Certificate (when applicable), plus any Letter of Discontinuance (or Notice of Disapproval) when the Practical Test has been previously attempted, must be presented to the pilot examiner. (**Note:** When using the FAA IACRA website, only the Approved School Graduation Certificate is required, as the other documents will be appended to the IACRA file.) Lastly, the applicant's pilot logbook containing all the required prerequisite training, aeronautical experience, and Flight Instructor Endorsements must be presented along with the Designated Pilot Examiner's (DPE) fee for administering the practical test.

**The Examiners Practical Test Checklist** provides the Pilot Examiner with a list of all Areas of Operation (AOAs) and their subsequent Tasks which may be required during the Practical Test. (**Note:** The exact list of the AOAs and their subsequent Tasks to be completed is determined by the Pilot Examiner after consulting the appropriate Additional Rating Task Table for any applicant who currently holds a Commercial Pilot Certificate.) All listed AOAs and their subsequent Tasks are required to be tested when an applicant is applying for their initial Commercial Pilot Certificate.

**The Pilot Examiner** is required to test all Areas of Operation and their subsequent tasks as described in the latest revision of the current Practical Test Standards. Although Pilot Examiners are expected to imbed Tasks in scenario-based problems and are free to sequence and/or combine tasks in creating an efficient testing scenario, they are not permitted to omit or modify any of the required Tasks. All Areas of Operation and their subsequent Tasks must be successfully completed in accordance with FAA published documents, policies, procedures, and PTS Area of Operation notes. (**Note:** Specific Pilot Examiner policies, procedures and other guidance are contained in FAA 8900.2, Change 1 and are beyond the scope of this article.)

**The Judgment Assessment Matrix** is provided as an aid for the Pilot Examiner in objectively assessing and recording the applicant's ability to successfully employ Single Pilot Resource Management (**SRM**) principles during the Practical Test scenarios. (**Note:** SRM was covered in detail in the July 2013 issue of *Flight Advisor Corner*.)

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The “**Purpose of Assessment**” page defines the Purpose of Assessment as follows: To measure the applicant’s resource and judgment skills during the Commercial Pilot practical test.

**Directions for Completing the Assessment** are provided for the Pilot Examiner directing him or her to 1) Judge the applicant’s successful use of SRM by the taking of either an acceptable (or unacceptable) course of action for each task being evaluated, and 2) Mark the column that best describes (acceptable or unacceptable) the applicants decision-making process during that phase of the evaluation. All decisions made by the applicant must have been acceptable in order to successfully complete the Practical Test.

**Definitions of Resource Management Areas** are provided for both the applicant and the pilot examiner as follows:

- **Aeronautical Decision-Making (ADM)** – A systematic approach to the mental process of evaluating a given set of circumstances and determining the best course of action.
- **Risk Management (RM)** – An aeronautical decision-making process designed to systematically identify hazards, assess the degree of risk, and determine the best course of action.
- **Task Management (TM)** – The process pilots use to manage the many concurrent tasks involved in safely operating an aircraft.
- **Automation Management (AM)** – The demonstrated ability to control and navigate an aircraft by correctly managing its automated systems. It includes understanding whether and when to use automated systems, including, but not limited to the GPS or the autopilot.
- **Controlled Flight Into Terrain Awareness (CFIT)** – The demonstrated awareness of relation to obstacles and terrain.
- **Situational Awareness (SA)** – The use of the resource management elements listed above to develop and maintain an accurate perception and understanding of all factors and conditions related to pilot, aircraft, environment, and external pressures (**PAVE**) that affect safety before, during and after the flight.

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## AMEL Practical Test –Areas of Operations

- I. **Preflight Preparation** – Knowledge Validation
- II. **Preflight Procedures** – Knowledge and Procedures Validation
- III. **Airport and Seaplane Base Operations** – Knowledge and Procedures Validation
- IV. **Takeoffs, Landings, and Go-Arounds** – Knowledge and Maneuvers Validation
- V. **Performance Maneuvers** – Knowledge and Maneuvers Validation
- VI. **Navigation** – Knowledge and Procedures Validation
- VII. **Slow Flight and Stalls** – Knowledge and Maneuvers Validation
- VIII. **Emergency Operations** – Knowledge, Procedures and Maneuvers Validation
- IX. **High Altitude Operations** – Knowledge (and Procedures – if applicable) Validation
- X. **Multiengine Operations** – Knowledge and Maneuvers Validation
- XI. **Postflight Procedures** – Knowledge and Procedures Validation

**Preflight Preparation** (Area of Operation I) requires that the Pilot Examiner develop a test scenario that is based on real time weather. This test scenario is to be used during the evaluation of **Task C** (Weather Information) and **Task D** (Cross-Country Flight Planning).

- **Certificates and Documents** (Task A – AMEL & AMES) is to validate that the applicant exhibits satisfactory knowledge of the elements related to certificates and documents by the following:
  - Explaining Privileges, Limitations, and Recent Flight Experience Requirements for Commercial Pilots
  - Explain the Classes and Duration of Medical Certificates
  - Explain Commercial Pilot Logbook or Flight Record Requirements
  - Locating and Explaining Airplane Airworthiness and Registration Certificates
  - Locating and Explaining Airplane Operating Limitations, Placards, Instrument Makings, and the POH or AFM

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- Locating and Explaining the Airplane Weight and Balance Data and Equipment List.
- **Airworthiness Requirements (Task B – AMEL & ASEL)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to the airplanes airworthiness by the following:
  - Explaining the required instruments and equipment for day/night VFR (See 14 CFR, Part 91, Section 205 – 91.205, b and c).
  - Explaining the procedures and limitations for determining the airworthiness of an airplane which has inoperative instruments or equipment but does not have a Minimum Equipment List (MEL). (See 14 CFR, Part 91, Section 213 – 91.213, a and d)
  - Explaining procedures and requirements for obtaining a Special Flight Permit (See 14 CFR, Part 21, Section 197 – 21.197, a and b)
  - Locating and explaining the airplane’s Airworthiness Directives (ADs) and compliance records (See Airplane’s Maintenance records)
  - Locating and explaining the airplane’s maintenance and inspection requirements as well as the appropriate maintenance record keeping.
- **Weather Information (Task C – AMEL & ASEL)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to weather information by analyzing weather reports, charts, and forecasts from various sources and is able to make a competent “go/no-go” decision based on the available weather information with an emphasis on the following:
  - Meteorological Aerodrome Report (METAR), Terminal Aerodrome Forecast (TAF), and Forecast Area (FA)
  - Surface Analysis and Radar Summary Charts
  - Winds and Temperature Aloft Chart
  - Significant Weather Prognostic Charts
  - Convective Outlook Chart
  - AWOS, ASOS, and ATIS Reports
  - SIGMETS, AIRMETS, and PIREPS
  - Windshear Reports
  - Icing and Freezing Level Information
- **Cross-Country Flight Planning (Task D – AMEL & AMES)** is to validate that the applicant is able to exhibit satisfactory knowledge of the elements related to cross-country flight planning by presenting and explaining a pre-planned VFR cross-country flight that was previously assigned by the pilot examiner and that emphasizes the following:
  - Presenting a final flight plan on the day of the practical test to the first fuel stop, based on carrying the maximum allowable passenger and baggage, or cargo load, and that is based on the use of real-time weather.
  - Uses current and appropriate aeronautical charts and properly identifies airspace, obstructions and terrain features.

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- Selects easily identifiable en route checkpoints, while using the most favorable altitudes, based upon actual weather conditions and equipment capabilities.
  - Computes headings, flight time, and fuel requirements while selecting appropriate navigation systems, facilities, and communication frequencies.
  - Applies pertinent information from the Airport Facility Directory (AFD), NOTAMs, and NOTAMS relative to airport, runway, and taxiway closures as well as other flight publications.
  - Completes a navigation log and stipulates filing a VFR flight plan.
- **National Airspace System (Task E – AMEL & AMES)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to the National Airspace System by explaining the airspace classes, their operating rules, pilot certification and airplane equipment requirements, and VFR weather minimums for Class A, B, C, D, E, and G airspace as well as being able to explain Special Use Airspace (SUA), Special Flight Rules Areas, and other Airspace Areas.
- **Performance and Limitations (Task F – AMEL & AMES)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to the airplane's performance and limitations by the following:
- Explaining the use of charts, tables, and data to determine the airplane's performance and the adverse effects of exceeding the airplane's limitations.
  - Computing the airplanes weight and balance and determining that the computed weight and center of gravity (CG) are within the airplane's operating limitations and that the airplanes weight and CG will remain within limits during all phases of the planned flight.
  - Demonstrates use of the airplane manufacturer's performance charts, tables, and data.
  - Describes the effects of atmospheric conditions of the airplane's performance.
- **Operation of Systems (Task G – AMEL & AMES)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to the operation of systems on the airplane provided for the practical test by explaining at least three of the following systems:
- Primary Flight Controls and Trim
  - Flaps, Leading Edge Devices and Spoilers
  - Water Rudders (AMES)
  - Powerplants and Propellers
  - Landing Gear
  - Fuel, Oil, and Hydraulic Systems
  - Electrical System
  - Avionics Systems

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- Pitot-Static, Vacuum/Pressure, and Associated Flight Instruments
  - Environmental System
  - Deicing and Anti-Icing Systems
- **Principles of Flight – Engine Inoperative (EI) (Task H – AMEL & AMES)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to engine inoperative (EI) principles by explaining the following items:
- Meaning of the term, “critical engine.”
  - Effects of Density altitude on a **V<sub>mc</sub>** (Velocity, Minimum Control) demonstration.
  - Effects of the airplane weight and CG on controllability.
  - Effects of bank angle on V<sub>mc</sub>.
  - Relationship of V<sub>mc</sub> to stall speed (V<sub>so</sub>).
  - Reasons and indications for loss of directional control.
  - Importance of maintaining proper pitch, bank, attitude, and coordination of the flight controls.
  - Recovery procedures for loss of directional control.
  - Engine failure during takeoff, including planning, decision making, and single engine operations (EI).
- **Water and Seaplane Characteristics (Task I – AMES Only)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to water and seaplane characteristics by explaining the following items:
- Characteristics of the water surface as affected by features such as size and location, protected and unprotected areas, surface wind, direction and strength of water currents, floating and partially submerged debris, islands, sandbars and shoals, vessel traffic and wakes, and any other features peculiar to the operating area.
  - Float and hull construction and their effect on seaplane performance.
  - Causes of proposing and skipping, including the pilot action required to prevent or correct these occurrences.
- **Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (Task J – AMES only)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to seaplane bases, maritime rules, and aids to marine navigation by explaining the following items:
- How to locate and identify seaplane bases on charts or in directories.
  - Operating restrictions at various seaplane bases.
  - Right-of-way, steering, and sailing rules pertinent to seaplane operations.
  - Marine navigation aids, such as buoys, beacons, lights, and sound signals.

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- **Aeromedical Factors (Task K – AMEL & AMES)** is to validate that the applicant exhibits satisfactory knowledge of the elements related to aeromedical factors by explaining the symptoms, causes, effects, and corrective actions for at least four of the following items:
- Hypoxia
  - Hyperventilation
  - Middle Ear and Sinus Problems
  - Spatial Disorientation
  - Motion Sickness
  - Carbon Monoxide (CO) Poisoning
  - Stress and Fatigue
  - Dehydration

Aeromedical Factors also requires the ability to explain the effects of alcohol, drugs, and over-the-counter medications on pilot performance, as well as explaining the effects of flight upon a pilot (or passenger) that has been scuba diving and still has an excess of nitrogen remaining in their blood stream.

**This appears** to be a good stopping place for this month. Next month we will continue working our way through the actual Practical Test by picking up our discussion with the next Area *of Operation (Preflight Procedures)* that is contained in the **Commercial Pilot – Airplane Multiengine** Practical Test Standards that became effective on June 1, 2012.

**The Quote for this month** is as follows: *“The pessimist complains about the wind; the optimist expects it to change; the realist adjusts the sails.”* William Arthur Ward – American Writer

So until next month, be sure to ***Think Right to FliRite!***

## The Howard 500's Ancestor ~ 1945 Navy PV2 Harpoon ~ SN 151606 @ AirVenture 2013



**4,000 lb. Bomb Load, Eight - 5" HVAR Rockets & Eight, Nose-Mounted, 50 Cal. Machine Guns**

*Hobie Tomlinson Image*