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with Changes 1 & 2

AIRLINE TRANSPORT PILOT AND AIRCRAFT TYPE RATING

Practical Test Standards

for
AIRPLANE

July 2008

FLIGHT STANDARDS SERVICE
Washington, DC 20591

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NOTE

Material in FAA-S-8081-5F will be effective July 1, 2008. All previous editions of the Airline Transport Pilot and Aircraft Type Rating—Airplane Practical Test Standards will be obsolete as of this date.

MAJOR CHANGES

- Corrected website addresses (URLs).
- Updated and added references.
- Added icing conditions and hazard awareness references, emphasis, and evaluation elements.
- Clarified multiengine requirements and results.
- Clarified possible results if applicant refuses to perform a task or element.
- Added traffic awareness to special emphasis area.
- Clarified when a medical certificate is required.
- Clarified requirement for inflight shutdown, feathering, if propeller driven, and restart while airborne.
- Standardized “knowledge” terminology.
- Added single pilot resource management (SRM).
- Clarified intent for checklist accomplishment in crew served airplanes.
- Added “Naval Vessel Protection” and “No Wake” zones in seaplane area.
- Added “Applicant Notes:” to clarify intent, scope, and range of the examiner's authorization to conduct the evaluation.
- Added “bank” to unusual attitudes for clarification.
- Added “displays” to tasks where appropriate to include evaluation of newer avionics and usage of panel multifunction displays.
- Clarified intent for raw data approaches to be flown as much as possible by reference to standby or backup instrumentation.
- Revised verbiage to allow “approved method” in addition to manufacturer’s method concerning checklist performance.

RECORD OF CHANGES

Change 1 (12-16-08)

Changes made to satisfy FAA Safety Recommendation 05.124.

Introduction—Special Emphasis Areas:

- Added recognition of wing contamination to icing; adverse effects of wing contamination in icing conditions during takeoff, cruise, and landing phases of flight; and icing procedures of information published by the manufacturer, within the AFM, that is specific to the type of aircraft;

I. AREA OF OPERATION: PREFLIGHT PREPARATION

B. TASK: PERFORMANCE AND LIMITATIONS

- Added: Demonstrates adequate knowledge of procedures for wing contamination recognition and adverse effects of airframe icing during pre-takeoff, takeoff, cruise, and landing phases of flight. (Pilots applying for an aircraft type rating should have adequate knowledge of icing procedures and/or available information published by the manufacturer that is specific to that type of aircraft.)

Change 2 (3/18/09)

1. Page 1-3, renumbered TASK IB Objectives
2. Section 2 Contents, revised page numbering, beginning with Area of Operation II.F.
3. Appendix 1
 - a. Appendix 1-1, changed AC 120-45 reference to reflect the replacement AC 61-136.
 - b. Appendix 1-3, VI.D., shifted "X"s to the right by one column.
 - c. Appendix 1-4, VIII.B., shifted row to the right by one column.

FOREWORD

The Airline Transport Pilot and Aircraft Type Rating—Airplane Practical Test Standards (PTS) book has been published by the Federal Aviation Administration (FAA) to establish the standards for airline transport pilot and aircraft type rating practical tests for airplanes. FAA inspectors, designated pilot examiners, and check airmen (referred to as examiners throughout the remaining practical test standard) must conduct practical tests in compliance with these standards. Flight instructors and applicants should find these standards helpful in practical test preparation.

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INTRODUCTION

General Information

The Flight Standards Service of the Federal Aviation Administration (FAA) has developed this practical test standard (PTS) to be used by examiners¹ when conducting airline transport pilot and aircraft type rating practical tests in airplanes. Instructors are expected to address all of the elements contained in this PTS when preparing applicants for practical tests. Applicants should be familiar with this PTS and refer to these standards during their training.

The FAA gratefully acknowledges the valuable assistance provided by many individuals, companies, and organizations throughout the aviation community who have contributed their time and talent in assisting with the development of this practical test standard.

This PTS may be purchased from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402-9325, or from GPO's web site at: <http://bookstore.gpo.gov>

This PTS is also available for download, in pdf format, from www.faa.gov

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Comments regarding this publication may be sent to the following e-mail address:

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¹ The word "examiner" denotes either the FAA inspector, FAA designated pilot examiner, or other authorized person who conducts the practical test.

Practical Test Standard Concept

Title 14 of the Code of Federal Regulations (14 CFR) part 61 specifies the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of an airline transport pilot certificate and/or a type rating in airplanes. The CFRs provide the flexibility to permit the FAA to publish practical test standards containing the AREAS OF OPERATION and specific TASKs in which pilot competency must be demonstrated. Title 49 of the U.S. Code (Transportation) requires the administrator to promulgate rules and set standards in the interest of public safety.

Adherence to provisions of the regulations and the PTS is mandatory for the evaluation of airline transport pilot and type rating applicants. For some aircraft types, however, provisions of FAA Flight Standardization Board (FSB) Reports may specify special details as to how 14 CFR part 61 and this PTS apply to certain maneuvers, TASKs, procedures, or knowledge areas. FSB Reports are available from the Flight Standards Service System Safety's web site at: <http://www.opspecs.com>.

NOTE: Pilots employed by an air carrier certificate holder, operating under 14 CFR part 121 or 135, or as authorized by the Administrator, whose manual prohibits a circling approach when the weather is below 1,000 feet and 3 miles' visibility, are not required to be checked on the circling approach and landing from a circling approach. Aircraft type ratings added to an airline transport pilot certificate issued without training and checking in the circling maneuver, as authorized, will be annotated "**MD-11 CIRC. APCH-VMC ONLY**," for example. This restriction may be removed when the circling approach is satisfactorily demonstrated to a designated examiner, a check airman who is a designated examiner, or an FAA inspector, in the appropriate type airplane. If, under 14 CFR part 121 or 135, or as authorized by the Administrator, the initial airline transport pilot certificate is issued coincident with a type rating, with a circling approach restriction, the airline transport pilot certificate will be annotated, "**ATP CIRC. APCH-VMC ONLY, MD-11 CIRC. APCH-VMC ONLY**," for example. This restriction to the airline transport pilot certificate level will be removed when the first unrestricted airline transport pilot certificate or airline transport pilot type rating is issued. The respective circling approach restriction will then be annotated on the certificate, as listed in the first example.

Practical Test Book Description

This practical test book contains the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards—Airplane.

The Airline Transport Pilot and Aircraft Type Rating Practical Test Standards—Airplane includes AREAS OF OPERATION and TASKs for the initial issuance of an airline transport pilot certificate and for the addition of category, class, and aircraft type ratings to an airline transport pilot certificate. These AREAS OF OPERATION and TASKs also apply for the issuance of an airplane type rating to a private or commercial pilot certificate.

The AREAS OF OPERATION are divided into two sections. The first AREA OF OPERATION in each section is conducted on the ground to determine the applicant's knowledge of the aircraft, equipment, performance, and limitations.

The eight AREAS OF OPERATION located in the second section, numbered II-IX, are considered to be the flight portion of the practical test. All eight of these AREAS OF OPERATION test the applicant's knowledge and skills.

If all TASKs of the practical test are not completed on one date, all remaining TASKs of the test must be satisfactorily completed not more than 60 calendar days after the date on which the applicant began the test.

AREAS OF OPERATION are phases of the practical test arranged in a logical sequence within each standard. They begin with Preflight Preparation and end with Postflight Procedures. The examiner may combine TASKs with similar objectives and conduct the practical test in any sequence that will result in a complete and efficient test; **however, the ground portion of the practical test must be accomplished before the flight portion.**

TASKs are titles of knowledge areas, flight procedures, or maneuvers appropriate to an AREA OF OPERATION.

REFERENCES identify the publication(s) that describe(s) the TASK. Descriptions of specific TASKs are not included in the practical test standards because this information can be found in the current issue of the listed references. Publications other than those listed may be used for references if their content conveys substantially the same meaning as the referenced publications.

This practical test standard is based on the following references:

Public Law 110-135 Dated 12-12-2007

14 CFR part 1 Definitions and Abbreviations

14 CFR parts 23/25 Airworthiness Standards

14 CFR part 61 Certification: Pilots, Flight Instructors, and Ground Instructors

14 CFR part 71 Designation of Class A, B, C, D, and E Airspace Areas; Airways; Air Traffic Service; Routes; and Reporting points

14 CFR part 91 General Operating and Flight Rules

14 CFR part 121 Operating Requirements: Domestic, flag, and Supplemental Operations

14 CFR part 135 Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons on Board Such Aircraft

14 CFR part 139 Certification and Operations:

49 CFR part 830 Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft, and Preservation of Aircraft Wreckage, Mail, Cargo, and Records

FAA-H-8083-1 Aircraft Weight and Balance Handbook

FAA-H-8083-3 Airplane Flying Handbook

FAA-H-8083-15 Instrument Flying Handbook

FAA-H-8083-23 Seaplane, Skiplane, and Float/Ski Equipped Helicopter Operations Book

FAA-H-8083-25 Pilot's Handbook of Aeronautical Knowledge

FAA-H-8261-1 Instrument Procedures Handbook

AC 00-2 Advisory Circular Checklist

AC 00-6 Aviation Weather

AC 00-45 Aviation Weather Services

AC 20-29 Use of Aircraft Fuel Anti-icing Additives

AC 20-117 Hazards Following Ground Deicing and Ground Operations in Conditions Conducive to Aircraft Icing Aeronautical Decision Making

AC 60-22 Aeronautical Decision Making

AC 60-28 English Language Skill Standards Required by 14 CFR parts 61, 63, and 65

AC 61-84 Role of Preflight Preparation

AC 61-134 General Aviation Controlled flight into Terrain Awareness

AC 90-79 Recommended Practices and Procedures for the Use of Long-Range Navigation

AC 90-91 North American Route Program (NRP)

AC 90-94 Guidelines for Using Global Positioning System Equipment for Non Precision Instrument

Approaches in the U.S. National Airspace system
AC 90-100 U.S. Terminal and En Route Area Navigation (RNAV) Operations

AC 91-43 Unreliable Airspeed Indications

AC 91-51 Effect of Icing on Aircraft Control and Airplane Deice and Anti-ice Systems

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AC 91-70	Oceanic Operations
AC 91-73	Part 91 and Part 135 Single-Pilot Procedures During Taxi Operations
AC 91-74	Pilot Guide—Flight in Icing Conditions
AC 91-79	Runway Overrun Prevention
AC 120-27	Aircraft Weight and Balance Control
AC 120-28	Criteria for Approval of Category III Landing Weather Minima for Takeoff, Landing, and Rollout
AC 120-29	Criteria for Approval of Category I and Category II Weather Minima for Approach
AC 120-51	Crew Resource Management Training
AC 120-57	Surface Movement Guidance System
AC 120-60	Ground Deicing and Anti-icing Program
AC 120-62	Takeoff Safety Training Aid
AC 120-74	Parts 91, 121, 125, and 135 Flightcrew Procedures During Taxi Operations
AC 135-17	Pilot Guide—Small Aircraft Ground Deicing
AFD	Airport Facility Directory
AFM	FAA-Approved Airplane Flight Manual
AIM	Aeronautical Information Manual
CDL	Configuration Deviation List
DP	Departure Procedures
FDC NOTAM	National Flight Data Center Notices to Airmen
FSB Reports	Flight Standardization Board Reports
IAP	Instrument Approach Procedure
IFIM	International Flight Information Manual
MEL	Minimum Equipment List
NOTAM	Notices to Airmen
ODP	Obstacle Departure Procedure
Other	En Route Low and High Altitude Charts, Profile Descent Charts, Pertinent Pilot's Operating Handbooks, and Flight Manuals
SIAP	Standard Instrument Approach Procedure Charts
STAR	Standard Terminal Arrival

Note: The latest revision of these references should be used.

Objectives list the important elements that must be satisfactorily performed to demonstrate competency in a TASK. Objectives include:

1. specifically what the applicant should be able to do,
2. the conditions under which the TASK is to be performed, and
3. the acceptable standards of performance.

NOTES are used to emphasize special considerations required in the AREAS OF OPERATION or TASKs.

Abbreviations

14 CFR	Title 14 of the Code of Federal Regulations
AC	Advisory Circular
ADM	Aeronautical Decision Making
AGL	Above Ground Level
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
ATC	Air Traffic Control
CDL	Configuration Deviation List
CFIT	Controlled Flight into Terrain
CRM	Crew Resource Management
DA	Decision Altitude
DH	Decision Height
DP	Departure Procedure
FAA	Federal Aviation Administration
FAF	Final Approach Fix
FDC	Flight Data Center
FE	Flight Engineer
FMS	Flight Management System
FMSP	Flight Management System Procedures
FSB	Flight Standardization Board
FSD	Flight Simulation Device
FSDO	Flight Standards District Office
FTD	Flight Training Device
GLS	GNSS Landing System
GNSS	Global Navigation Satellite System
GPO	Government Printing Office
GPS	Global Positioning System
IAP	Instrument Approach Procedure
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INS	Inertial Navigation System
LAHSO	Land and Hold Short Operations
LDA	Localizer-type Directional Aid
LOC	ILS Localizer
MDA	Minimum Descent Altitude
MEL	Minimum Equipment List
NAVAID	Navigation Aid
NDB	Non-directional Beacon
NOTAM	Notice to Airmen
NWS	National Weather Service
POH	Pilot's Operating Handbook
PT	Procedure Turn
PTS	Practical Test Standard
RNAV	Area Navigation
SRM	Single-Pilot Resource Management
STAR	Standard Terminal Arrival
TAA	Terminal Arrival Area
V ₁	Takeoff Decision Speed

V_2	Takeoff Safety Speed
VDP	Visual Descent Point
VFR	Visual Flight Rules
V_{MC}	Minimum Control Speed with Critical Engine Inoperative
VMC	Visual Meteorological Conditions
VOR	Very High Frequency Ominidirectional Range
V_R	Rotation Speed
V_{REF}	Reference Landing Approach Speed
V_{SSE}	Safe, Intentional, One-Engine Inoperative Speed
V_X	Best Angle of Climb Speed
V_Y	Best Rate of Climb Speed

Use of the Practical Test Standards

The TASKs in this PTS are for an initial airline transport pilot certificate, or the addition of a category, class, or aircraft type rating to an airline transport pilot certificate. All appropriate TASKs required for an initial type rating are also required for pilot-in-command proficiency checks conducted in accordance with 14 CFR part 61, section 61.58.

All TASKs are required, except as noted. When a particular element **is not appropriate to the aircraft or its equipment**, that element may be omitted.

If the multiengine airplane used for the flight check does not publish a V_{MC} , then the "Limited to Centerline Thrust" restriction will be added to any certificate issued from this check, unless competence in a multiengine airplane with a published V_{MC} has already been demonstrated.

Examples of element exceptions are: integrated flight systems for aircraft not so equipped, operation of landing gear in fixed gear aircraft, multiengine TASKs in single-engine aircraft, or other situations where the aircraft operation is not compatible with the requirement of the element.

If an applicant refuses to demonstrate a requested maneuver, the examiner may issue a Letter of Discontinuance to allow the examiner and applicant to discuss the applicant's concern about the requested maneuver, or a Notice of Disapproval, if the examiner determines the applicant's skill and abilities to be in serious doubt.

In preparation for each practical test, the examiner shall develop a written “plan of action” for each practical test. The “plan of action” is a tool, for the sole use of the examiner, to be used in evaluating the applicant. The plan of action need not be grammatically correct or in any formal format. The plan of action must contain all of the required AREAS OF OPERATION and TASKs and any optional TASKs selected by the examiner.

The “plan of action” shall incorporate one or more scenarios that will be used during the practical test. The examiner should try to include as many of the TASKs into the scenario portion of the test as possible, but maintain the flexibility to change due to unexpected situations as they arise and still result in an efficient and valid test. ***Any TASK selected for evaluation during a practical test shall be evaluated in its entirety.***

Note: Any equipment inoperative in accordance with a minimum equipment list (MEL) shall be placarded in accordance with the approved MEL procedures and explained by the applicant to the examiner describing the procedures accomplished, the resulting operational restrictions, and the documentation for the item(s).

Special Emphasis Areas

Examiners must place special emphasis upon areas of aircraft operations considered critical to flight safety. Among these are:

1. positive aircraft control;
2. procedures for positive exchange of flight controls;
3. stall/spin awareness;
4. special use airspace and other airspace areas;
5. collision avoidance procedures;
6. wake turbulence and low level wind shear avoidance procedures;
7. runway incursion avoidance and good cockpit discipline during taxi operations;
8. land and hold short operations (LAHSO);
9. controlled flight into terrain (CFIT);
10. aeronautical decision making (ADM)/risk management; and
11. crew resource management/single-pilot resource management (CRM/SRM) to include automation management;
12. recognition of wing contamination to icing;
13. adverse effects of wing contamination in icing conditions during takeoff, cruise, and landing phases of flight;
14. icing procedures of information published by the manufacturer, within the AFM, that is specific to the type of aircraft;
15. traffic awareness, “See and Avoid” concept.

Although these areas may not be specifically addressed under each TASK, they are essential to flight safety and will be critically evaluated during the practical test. In all instances, the applicant's actions must relate to the complete situation.

Prior to the test, the examiner must explain, and the applicant must understand, the examiner's role regarding air traffic control (ATC), crew resource management (CRM), and the duties and responsibilities of the examiner through all phases of the practical test.

Practical Test Prerequisites: Airline Transport Pilot

An applicant for the original issuance of an airline transport pilot certificate is required (prior to the practical test) by 14 CFR part 61 to:

1. have passed the appropriate airline transport pilot knowledge test within 24 months before the date of the practical test;
2. have the aeronautical experience prescribed in 14 CFR part 61, that applies to the aircraft category and class rating;
3. have a minimum of a third-class medical certificate, if a medical certificate is required (if any portion of the certification must occur in an actual airplane, then a medical certificate is required for that portion);
4. be at least 23 years of age; and
5. be able to read, speak, write, and understand the English language. If there is any doubt, consult AC 60-28, English Language Skill Standards Required by 14 CFR parts 61, 63, and 65, or contact your local Flight Standards District Office (FSDO). The examiner must determine whether the applicant meets the English language requirements before beginning the practical test.

NOTE: The 24-month limitation does not apply if the applicant:

1. is employed as a flight crewmember by a certificate holder under 14 CFR parts 121, 125, or 135 at the time of the practical test and has satisfactorily accomplished that operator's approved—
 - a. pilot in command aircraft qualification training program that is appropriate to the certificate and rating sought; and
 - b. qualification training requirements appropriate to the certificate and ratings sought; or
2. is employed as a flight crewmember in U.S. military air transport operations at the time of the practical test, and has accomplished the pilot in command aircraft qualification training program that is appropriate to the certificate and rating sought.

Practical Test Prerequisites: Aircraft Type Rating

An applicant for a type rating in an airplane is required by 14 CFR part 61 to have:

1. the applicable experience;
2. a minimum of a third-class medical certificate, if a medical certificate is required (not required for simulator);
3. the appropriate category and class rating, or accomplish the appropriate TASKs in the private/commercial pilot PTSs;
4. received and logged ground training from an authorized ground or flight instructor and flight training from an authorized flight instructor, on the AREAS OF OPERATION in this practical test standard that apply to the aircraft type rating sought; and
5. received a logbook endorsement from the instructor who conducted the training, certifying that the applicant completed all the training on the AREAS OF OPERATION in this practical test standard that apply to the aircraft type rating sought.

If the applicant is an employee of a part 121 or part 135 certificate holder, the applicant may present a training record that shows the satisfactory completion of that certificate holder's approved pilot in command training program for the aircraft type rating sought, instead of the requirements of 4 and 5 above.

An applicant who holds a private pilot or limited commercial pilot certificate is required to have passed the appropriate instrument rating knowledge test since the beginning of the 24th month before the practical test is taken if the test is for the concurrent issuance of an instrument rating and an aircraft type rating.

If an applicant is taking a practical test for the issuance of a private or commercial pilot certificate with an airplane rating, in an aircraft that requires a type rating, private pilot practical test standards or commercial pilot practical test standards, as appropriate to the certificate, must be used in conjunction with this PTS. Also, the current instrument rating practical test standard must be used in conjunction with this PTS if the applicant is concurrently taking a practical test for the issuance of an instrument rating and a type rating. The TASKs that are in the private pilot, commercial pilot, or instrument rating PTS (and not listed in this PTS) must be accomplished.

An amphibian type rating must bear the limitation "LIMITED TO LAND" or "LIMITED TO SEA," as appropriate, unless the applicant demonstrates proficiency in both land and sea operations.

Aircraft Type Ratings Limited to “VFR ONLY”

Pilot applicants who wish to add a type rating, limited to VFR, to their certificate must take a practical test that includes the following items, as listed on pages 1-i, 2-i, and 2-ii of this document.

Section 1: PREFLIGHT PREPARATION

I. AREA OF OPERATION: PREFLIGHT PREPARATION

- A. TASK: Equipment Examination
- B. TASK: Performance and Limitations

Section 2: PREFLIGHT PROCEDURES, INFLIGHT MANEUVERS, AND POSTFLIGHT PROCEDURES

II. AREA OF OPERATION: PREFLIGHT PROCEDURES

- A. TASK: Preflight Inspection
- B. TASK: Powerplant Start
- C. TASK: Taxiing
- F. TASK: Pre-takeoff Checks

III. AREA OF OPERATION: TAKEOFF AND DEPARTURE PHASE

- A. TASK: Normal and Crosswind Takeoff
- F. TASK: Powerplant Failure During Takeoff
- G. TASK: Rejected Takeoff

IV. AREA OF OPERATION: INFLIGHT MANEUVERS

- A. TASK: Steep Turns
- B. TASK: Approaches to Stalls
- C. TASK: Powerplant Failure—Multiengine Airplane
- D. TASK: Powerplant Failure—Single-engine Airplane
- E. TASK: Specific Flight Characteristics

V. AREA OF OPERATION: INSTRUMENT PROCEDURES—NOT APPLICABLE

VI. AREA OF OPERATION: LANDINGS AND APPROACHES TO LANDINGS

- A. TASK: Normal and Crosswind Approaches and Landings
- C. TASK: Approach and Landing with (Simulated) Powerplant Failure—Multiengine Airplane
- H. TASK: Rejected Landing
- I. TASK: Landing from a No Flap or a Nonstandard Flap Approach

VII. AREA OF OPERATION: NORMAL AND ABNORMAL PROCEDURES

- A. TASK: Normal and Abnormal Procedures

VIII. AREA OF OPERATION: EMERGENCY PROCEDURES

- A. TASK: Emergency Procedures

IX. AREA OF OPERATION: POSTFLIGHT PROCEDURES—ALL TASKS AS APPLICABLE

Removal of the “Limited to Center Thrust” Limitation

The removal of the “Limited to Center Thrust” limitation at the airline transport pilot certificate level requires an applicant to satisfactorily perform the following AREAS OF OPERATION and TASKs from FAA-S-8081-5,(as amended) Airline Transport Pilot and Aircraft Type Rating Practical Test Standards—Airplane and the following AREAS OF OPERATION and TASKs from FAA-S-8081-12 (as amended), Commercial Pilot Practical Test Standards—Airplane during the practical test in a multiengine airplane that has a manufacturer’s published V_{MC} speed. From FAA-S-8081-5, Airline Transport Pilot and Aircraft Type Rating Practical Test Standards—Airplane:

III. AREA OF OPERATION: TAKEOFF AND DEPARTURE PHASE

- F. TASK: Powerplant Failure During Takeoff
G. TASK: Rejected Takeoff

IV. AREA OF OPERATION: INFLIGHT MANEUVERS

- C. TASK: Powerplant Failure—Multiengine Airplane

VI. AREA OF OPERATION: LANDINGS AND APPROACHES TO LANDINGS

- C. TASK: Approach and Landing with (Simulated)
Powerplant Failure—Multiengine Airplane

From FAA-S-8081-12, Commercial Pilot Practical Test Standards—Airplane: Section II Commercial Pilot Airplane—Multiengine Land and Multiengine Sea:

I. AREA OF OPERATION: PREFLIGHT PREPARATION

- H. TASK: Principles of Flight—Engine Inoperative

X. AREA OF OPERATION: MULTIENGINE OPERATIONS

- A. TASK: Maneuvering with One Engine Inoperative
- B. TASK: V_{MC} Demonstration

NOTE: A flight simulator or flight training device representative of a multiengine airplane, with a manufacturer's published V_{MC} speed, may be used if used in accordance with a program approved for a 14 CFR part 142 certificate holder.

Aircraft and Equipment Required for the Practical Test

If the practical test is conducted in an aircraft, the applicant is required by 14 CFR part 61 to provide an appropriate and airworthy aircraft for use during the practical test. Its operating limitations must not prohibit the TASKs required on the practical test. Multiengine certification flight checks require normal engine shutdowns and restarts in the air to include propeller feathering and unfeathering. The AFM must not prohibit these procedures. (Low power settings for cooling periods prior to the actual shutdown are acceptable and encouraged as the AFM states.) The exception is for type ratings when that particular airplane was not certificated with inflight unfeathering capability. For those airplanes ONLY, simulated powerplant failures will suffice.

Flight instruments are those required for controlling the aircraft without outside references. The required radio equipment is that which is necessary for communications with ATC, and for the performance of instrument approach procedures. GPS equipment must be instrument certified and contain the current database.

If the practical test is conducted in an aircraft, the applicant is required to provide an appropriate view limiting device that is acceptable to the examiner. The device must be used during all testing that requires testing "solely by reference to instruments." This device must prevent the applicant from having visual reference outside the aircraft, but not prevent the examiner from having visual reference outside the aircraft. A procedure should be established between the applicant and the examiner as to when and how this device should be donned and removed and this procedure briefed before the flight.

The applicant is expected to demonstrate automation management skills in utilizing the autopilot, avionics and systems displays, and/or flight management system (FMS), as applicable to installed equipment, during the practical test to assist in the management of the aircraft. The examiner is expected to test the applicant's knowledge of the systems that are installed and operative during the oral and flight portions of the practical test.

If the practical test is conducted in the aircraft and the aircraft has an operable and properly installed GPS, the applicant must demonstrate GPS approach proficiency. If the applicant has contracted for training in an approved course that includes GPS training, and the airplane/simulator/FTD has a properly installed and operable GPS, the applicant must demonstrate GPS approach proficiency. When a practical test is conducted for a 14 CFR part 121/135 operator, the operator's approved training program is controlling.

NOTE: The applicant must perform the tasks, except for water operations, in actual or simulated instrument conditions unless the practical test cannot be accomplished under instrument flight rules because the aircraft's type certificate makes the aircraft incapable of operating under instrument flight rules.

Use of an FAA-Approved Flight Simulator or Flight Training Device

In the AREA OF OPERATION labeled "PREFLIGHT PREPARATION," the TASKs are knowledge only. These TASKs do not require the use of a flight training device (FTD), flight simulator, or an aircraft to accomplish, but they may be used.

Each inflight maneuver or procedure must be performed by the applicant in an FTD, flight simulator, or an aircraft. Appendix 1 of this practical test standard should be consulted to identify the maneuvers or procedures that may be accomplished in an FTD or flight simulator. The level of FTD or flight simulator required for each maneuver or procedure is also found in appendix 1.

When accomplished in an aircraft, certain TASK elements may be accomplished through "simulated" actions in the interest of safety and practicality, but when accomplished in an FTD or flight simulator, these same actions would not be "simulated." For example, when in an aircraft, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, and simulating the disconnection of associated electrics, hydraulics, pneumatics, etc.

However, when the same emergency condition is addressed in an FTD or a flight simulator, all TASK elements must be accomplished as would be expected under actual circumstances. Similarly, safety of flight precautions taken in the aircraft for the accomplishment of a specific maneuver or procedure (such as limiting the altitude in an approach to stall, or setting maximum airspeed for a rejected takeoff) need not be taken when an FTD or a flight simulator is used.

It is important to understand that whether accomplished in an FTD, a flight simulator, or the aircraft, all TASKs and TASK elements for each maneuver or procedure will have the same performance criteria applied for determination of overall satisfactory performance.

Examiner Responsibility

The examiner who conducts the practical test is responsible for determining that the applicant meets the standards outlined in the Objective of each TASK within the AREAS OF OPERATION in the practical test standard. The examiner must meet this responsibility by determining that the applicant's knowledge and skill meet the Objective in all required TASKs.

The equipment examination in Section 1 must be closely coordinated and related to the flight portion of the practical test in Section 2, but must not be given during the flight portion of the practical test. The equipment examination should be administered prior (it may be the same day) to the flight portion of the practical test. The examiner may accept written evidence of the equipment exam if the exam is approved by the Administrator and administered by an individual authorized by the Administrator. The examiner must use whatever means deemed suitable to determine that the applicant's equipment knowledge meets the standard.

The AREAS OF OPERATION in Section 2 contain TASKs, which include both "knowledge" and "skill" elements. The examiner must ask the applicant to perform the skill elements. Knowledge elements not evident in the demonstrated skills may be tested by questioning, at anytime, during the flight event. Questioning inflight should be used judiciously so that safety is not jeopardized. Questions may be deferred until after the flight portion of the test is completed.

For aircraft requiring only one pilot, the examiner may not assist the applicant in the management of the aircraft, radio communications, tuning and identifying navigational equipment, or using navigation charts. If the examiner, other than an FAA Inspector, is qualified and current in the specific make and model aircraft that is certified for two or more crewmembers, he or she may occupy a duty position.

If the examiner occupies a duty position on an aircraft that requires two or more crewmembers, the examiner must fulfill the duties of that position. Moreover, when occupying a required duty position, the examiner must perform crew resource management (CRM) functions as briefed and requested by the applicant except during the accomplishment of steep turns and approach to stalls. During these two TASKs the applicant must demonstrate their ability to control the aircraft without the intervention from the non flying pilot.

SAFETY OF FLIGHT must be the prime consideration at all times. The examiner, applicant, and crew must be constantly alert for other traffic.

Satisfactory Performance

The ability of an applicant to safely perform the required TASKs is based on:

1. performing the TASKs specified in the AREAS OF OPERATION for the certificate or rating sought within the approved standards;
2. demonstrating mastery of the aircraft with the successful outcome of each TASK performed never seriously in doubt (14 CFR section 61.43(a)(2));
3. demonstrating satisfactory proficiency and competency within the approved standards and single-pilot competence if the aircraft is type certificated for single-pilot operations; and
4. demonstrating sound judgment and single-pilot resource management/crew resource management.

“Knowledge” means the applicant can describe in general or specific terms a response to the examiner’s question.

“Satisfactory knowledge” means the applicant’s answer contains at least 70 percent of the reference answer to the examiner’s question (“textbook answer”) and if the applicant’s actions followed his/her response, the safety of the airplane would never be seriously in doubt.

Unsatisfactory Performance

The tolerances represent the performance expected in good flying conditions. If, in the judgment of the examiner, the applicant does not meet the standards of performance of any TASK performed, the associated AREA OF OPERATION is failed and therefore, the practical test is failed.

NOTE: The tolerances stated in this standard are intended to be used as a measurement of the applicant’s ability to operate in the instrument environment. They provide guidance for examiners to use in judging the applicant’s qualifications. The regulations governing the tolerances for operation under Instrument Flight Rules are established in 14 CFR part 91.

The examiner or applicant may discontinue the test at any time when the failure of an AREA OF OPERATION makes the applicant ineligible for the certificate or rating sought. ***The test may be continued ONLY with the consent of the applicant.*** If the test is discontinued, the applicant is entitled credit for only those AREAS OF OPERATION and their associated TASKs satisfactorily performed. However, during the retest, and at the discretion of the examiner, any TASK may be reevaluated, including those previously passed.

Typical areas of unsatisfactory performance and grounds for disqualification are:

1. Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
2. Failure to use proper and effective visual scanning techniques, when applicable, to clear the area before and while performing maneuvers.
3. Consistently exceeding tolerances stated in the Objectives.
4. Failure to take prompt corrective action when tolerances are exceeded.

When a Notice of Disapproval is issued, the examiner shall record the applicant's unsatisfactory performance in terms of the AREA OF OPERATION and specific TASK(s) not meeting the standard appropriate to the practical test conducted. The AREA(s) OF OPERATION/ TASK(s) not tested and the number of practical test failures shall also be recorded. If the applicant fails the practical test because of a special emphasis area, the Notice of Disapproval shall indicate the associated TASK. For example, AREA OF OPERATION VI, TASK D, Landing From a Circling Approach, failure to avoid runway incursion.

Letter of Discontinuance

When a practical test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, illness), The FAA Form 8710-1, Airman Certificate and/or Rating Application, and, if applicable, the Airman Knowledge Test Report, is returned to the applicant. The examiner then must prepare, sign, and issue a Letter of Discontinuance to the applicant. The Letter of Discontinuance must identify the AREAS OF OPERATION and their associated TASKs of the practical test that were successfully completed. The applicant must be advised that the Letter of Discontinuance must be presented to the examiner, to receive credit for the items successfully completed, when the practical test is resumed, and made part of the certification file.

Aeronautical Decision Making (ADM) and Risk Management

The examiner must evaluate the applicant's ability throughout the practical test to use good aeronautical decision making procedures in order to evaluate risks. The examiner must accomplish this requirement by developing scenarios that incorporate as many TASKs as possible to evaluate the applicant's risk management in making safe aeronautical decisions. For example, the examiner may develop a scenario that incorporates weather decisions and performance planning. Information may be found in AC 60-22, Aeronautical Decision Making, and many other resources as well.

Crew Resource Management (CRM and Single Pilot Resource Management (SRM))

CRM/SRM "...refers to the effective use of all available resources: human resources, hardware, and information. Other groups routinely working with the cockpit crew (or single pilot) who are involved in decisions required to operate a flight safely are also essential participants in an effective CRM process. These groups include, but are not limited to: dispatchers, flight attendants, maintenance personnel, flight operations managers, management, pilot examiners, check airmen, flight standards officers, and air traffic controllers." CRM/SRM is not a single TASK. CRM/SRM is a set of competencies, which must be evident in all TASKs in this practical test standard, as applied to the single-pilot or the multicrew operation. CRM focuses on situational awareness, communication skills, teamwork, task allocation, and decision making within a comprehensive framework of standard operating procedures (SOP). SRM is the management of all resources onboard the aircraft and available from outside resources to the single pilot.

CRM/SRM deficiencies almost always contribute to the unsatisfactory performance of a TASK. For debriefing purposes, an amplified list of CRM competencies, expressed as behavioral markers, may be found in AC 120-51, as amended, Crew Resource Management Training. These markers consider the use of various levels of automation in flight management systems.

CRM/SRM evaluations are still largely subjective. Certain CRM competencies are well-suited to objective evaluation. These are the CRM-related practices set forth in the aircraft manufacturer's or the operator's FAA-approved operating or training manuals as explicit, required procedures. The CRM procedures may be associated with one or more TASKs in these practical test standards. Examples include required briefings, radio calls, and instrument approach callouts. The evaluator simply observes that the individual complies (or fails to comply) with requirements.

How the Examiner Evaluates CRM/SRM

Examiners are required to exercise proper CRM/SRM competencies in conducting tests, as well as expecting the same from applicants.

Pass/Fail judgments based solely on CRM/SRM issues must be carefully chosen since they may be entirely subjective. Those Pass/Fail judgments, which are not subjective, apply to CRM-related procedures in FAA-approved operations manuals that must be accomplished, such as briefings to other crewmembers. In such cases, the operator (or the aircraft manufacturer) specifies what should be briefed and when the briefings should occur.

The examiner may judge objectively whether the briefings should occur. The examiner may judge objectively whether the briefing requirement was or was not met. In those cases where the operator (or aircraft manufacturer) has not specified a briefing, the examiner shall require the applicant to brief the appropriate items from the following note. The examiner may then judge objectively whether the briefing requirement was or was not met.

NOTE: The majority of aviation accidents and incidents are due to resource management failures by the pilot/crew; fewer are due to technical failures. Each applicant must give a **crew briefing** before each **takeoff/departure** and **approach/landing**. If the operator or aircraft manufacturer has not specified a briefing, the briefing must cover the appropriate items, such as: **departure runway, DP/STAR/IAP, power settings, speeds, abnormal or emergency procedures prior to or after reaching decision speed (i.e., V_1 or V_{MC}), emergency return intentions, missed approach procedures, FAF, altitude at FAF, initial rate of descent, DA/DH/MDA, time to missed approach, and what is expected of the other crewmembers during the takeoff/DP and approach/landing**. If the first takeoff/departure and approach/landing briefings are satisfactory, the examiner may allow the applicant to brief only the changes, during the remainder of the flight.

Applicant's Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist. In crew served airplanes, the applicant as PIC (acting) should coordinate all checklists with the crew to ensure all items are accomplished in a timely manner. The applicant as acting PIC should manage the flight to include crew checklist performance, requiring standard callouts, announcing intentions, and initiating checklist procedures. If the airplane is a single-pilot airplane, the applicant should demonstrate CRM principles described as single pilot resource management (SRM). Proper use is dependent on the specific TASK being evaluated. The situation may be such that the use of the checklist, while accomplishing elements of an Objective, would be either unsafe or impractical, especially in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished would be appropriate. Use of a checklist should also consider visual scanning and division of attention at all times.

Use of Distractions During Practical Tests

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. To evaluate the pilot's ability and situational awareness to utilize proper control technique while dividing attention both inside and outside the cockpit, the examiner must cause a realistic distraction during the flight portion

of the practical test to evaluate the applicant's ability to divide attention while maintaining safe flight.

Positive Exchange of Flight Controls

During the flight, there must always be a clear understanding between the pilots of who has control of the aircraft. Prior to flight, a briefing should be conducted that includes the procedure for the exchange of flight controls. Some operators have established a two-step procedure for exchange of flight controls. A popular three-step process in the exchange of flight controls between the pilots is explained below. Any safe procedure agreed to by the applicant and the examiner is acceptable.

When one pilot wishes to give the other pilot control of the aircraft, he or she will say, "You have the flight controls." The other pilot acknowledges immediately by saying, "I have the flight controls." The first pilot again says, "You have the flight controls." When control is returned to the first pilot, follow the same procedure. A visual check is recommended to verify that the exchange has occurred. There should never be any doubt as to who is flying the aircraft.

SECTION 1

PREFLIGHT PREPARATION

SECTION 1—PREFLIGHT PREPARATION

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I. AREA OF OPERATION: PREFLIGHT PREPARATION

A. TASK: EQUIPMENT EXAMINATION

REFERENCES: AC 20-29, AC 20-117, AC 91-43, AC 91-51, AC 91-74, AC 120-60, AC 135-17, 14 CFR part 61; POH; AFM.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge appropriate to the airplane; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—
 - a. landing gear—extension/retraction system(s); indicators, float devices, brakes, antiskid, tires, nose-wheel steering, and shock absorbers.
 - b. powerplant—controls and indications, induction system, carburetor and fuel injection, turbocharging, cooling, fire detection/protection, mounting points, turbine wheels, compressors, deicing, anti-icing, and other related components.
 - c. propellers—type, controls, feathering/unfeathering, auto-feather, negative torque sensing, synchronizing, and synchrophasing.
 - d. fuel system—capacity; drains; pumps; controls; indicators; crossfeeding; transferring; jettison; fuel grade, color and additives; fueling and defueling procedures; and fuel substitutions, if applicable.
 - e. oil system—capacity, grade, quantities, and indicators.
 - f. hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.
 - g. electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, and external and auxiliary power sources and ratings.
 - h. environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.
 - i. avionics and communications—autopilot; flight director; Electronic Flight Instrument Systems (EFIS); Flight Management System(s) (FMS); Doppler Radar; Inertial Navigation Systems (INS); Global Positioning System/ Wide Area Augmentation System/Local Area Augmentation System (GPS/WAAS/LAAS); VOR, NDB, ILS, GLS, RNAV systems and components; traffic (MLS deleted) awareness/warning/avoidance systems, terrain awareness/warning/alert systems; other avionics or communications equipment, as appropriate; indicating devices; transponder; and emergency locator transmitter.
 - j. ice protection—anti-ice, deice, pitot-static system protection, propeller, windshield, wing and tail surfaces.

- k. crewmember and passenger equipment—oxygen system, survival gear, emergency exits, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.
 - l. flight controls—ailerons, elevator(s), rudder(s), control tabs, balance tabs, stabilizer, flaps, spoilers, leading edge flaps/slats and trim systems.
 - m. pitot-static system with associated instruments and the power source for the flight instruments.
2. Exhibits satisfactory knowledge of the contents of the POH or AFM with regard to the systems and components listed in paragraph 1 (above); the Minimum Equipment List (MEL) and/or configuration deviation list (CDL), if appropriate; and the operations specifications, if applicable.

B. TASK: PERFORMANCE AND LIMITATIONS

REFERENCES: 14 CFR parts 1, 61, 91; AFD; POH; AFM; AIM; AC 20-117, AC 91-51, AC 91-74, AC 91-79, AC 120-27; AC 120-60, AC 135-17 FAA-H-8083-1, FAA-H-8083-3, FAA-H-8083-23, FAA-H-8083-25.

Objective. To determine that the applicant:

- 1. Exhibits satisfactory knowledge of performance and limitations, including a thorough knowledge of the adverse effects of exceeding any limitation.
- 2. Demonstrates proficient use of (as appropriate to the airplane) performance charts, tables, graphs, or other data relating to items, such as—
 - a. accelerate-stop distance.
 - b. accelerate-go distance.
 - c. takeoff performance—all engines and with engine(s) inoperative.
 - d. climb performance including segmented climb performance with all engines operating—with one or more engine(s) inoperative, and with other engine malfunctions as may be appropriate.
 - e. service ceiling—all engines, with engine(s) inoperative, including drift down, if appropriate.
 - f. cruise performance.
 - g. fuel consumption, range, and endurance.
 - h. descent performance.
 - i. landing distance.
 - j. land and hold short operations (LAHSO).
 - k. go-around from rejected landings (landing climb).
 - l. other performance data (appropriate to the airplane).

3. Describes (as appropriate to the airplane) the airspeeds used during specific phases of flight.
4. Describes the effects of meteorological conditions upon performance characteristics and correctly applies these factors to a specific chart, table, graph, or other performance data.
5. Computes the center-of-gravity location for a specific load condition (as specified by the examiner), including adding, removing, or shifting weight.
6. Determines if the computed center-of-gravity is within the forward and aft center-of-gravity limits, and that lateral fuel balance is within limits for takeoff and landing.
7. Demonstrates adequate knowledge of the adverse effects of airframe icing during pre-takeoff, takeoff, cruise and landing phases of flight and corrective actions.
8. Demonstrates adequate knowledge of procedures for wing contamination recognition and adverse effects of airframe icing during pre-takeoff, takeoff, cruise, and landing phases of flight. (Pilots applying for an aircraft type rating should have adequate knowledge of icing procedures and/or available information published by the manufacturer that is specific to that type of aircraft.)
9. Demonstrates good planning and knowledge of procedures in applying operational factors affecting airplane performance.
10. Demonstrates knowledge of the stabilized approach procedures and the decision criteria for go-around or rejected landings.

**C. TASK: WATER AND SEAPLANE CHARACTERISTICS
(AMES/ASES)**

REFERENCES: 14 CFR part 61; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant exhibits knowledge of the elements related to water and seaplane characteristics by explaining:

1. The characteristics of a water surface as affected by features, such as—
 - a. size and location.
 - b. direction and strength of the water current.
 - c. presence of floating and partially submerged debris.
 - d. protected and unprotected areas.
 - e. effect of surface wind and method of determining its force.
 - f. operating near sandbars, islands, and shoals.
 - g. other pertinent characteristics deemed important by the examiner.
1. Float and hull construction and their effect on seaplane/flying boat performance.
2. Causes of porpoising and skipping, and pilot action to prevent or correct these occurrences.

**D. TASK: SEAPLANE BASES, MARITIME RULES, AND AIDS
TO MARINE NAVIGATION (AMES/ASES)**

REFERENCES: AIM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant exhibits satisfactory knowledge of the elements related to seaplane bases, maritime rules, and aids to marine navigation by explaining:

1. How to identify and locate seaplane bases on charts or in directories.
2. Operating restrictions at seaplane bases.
3. Right-of-way, steering, and sailing rules pertinent to seaplane operation.
4. Purpose and identification of marine navigation aids, such as buoys, beacons, lights, and range markers.
5. Naval Vessel Protection Zones.
6. No Wake Zones.

SECTION 2

PREFLIGHT PROCEDURES, INFLIGHT MANEUVERS, AND POSTFLIGHT PROCEDURES

SECTION 2—PREFLIGHT PROCEDURES, INFLIGHT MANEUVERS, AND POSTFLIGHT PROCEDURES

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II. AREA OF OPERATION: PREFLIGHT PROCEDURES

A. TASK: PREFLIGHT INSPECTION

REFERENCES: 14 CFR parts 61, 91; POH/AFM; AC 20-29, AC 20-117, AC 61-84, AC 91-43, AC-51, AC 91-74, AC 120-27, AC 120-60, AC 135-17.

NOTE: If a flight engineer (FE) is a required crewmember for a particular type airplane, the actual visual inspection may be waived. The actual visual inspection may be replaced by using an approved pictorial means that realistically portrays the location and detail of inspection items. On airplanes requiring an FE, an applicant must demonstrate satisfactory knowledge of the FE functions for the safe completion of the flight if the FE becomes ill or incapacitated during a flight.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the preflight inspection procedures, while explaining briefly—
 - a. the purpose of inspecting the items which must be checked.
 - b. how to detect possible defects.
 - c. the corrective action to take.
2. Exhibits satisfactory knowledge of the operational status of the airplane by locating and explaining the significance and importance of related documents, such as—
 - a. airworthiness and registration certificates.
 - b. operating limitations, handbooks, and manuals.
 - c. minimum equipment list (MEL), if appropriate.
 - d. weight and balance data.
 - e. maintenance requirements, tests, and appropriate records applicable to the proposed flight or operation; and maintenance that may be performed by the pilot or other designated crewmember.
3. Uses the appropriate checklist or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer or approved method to inspect the airplane externally and internally.
4. Verifies the airplane is safe for flight by emphasizing (as appropriate) the need to look at and explain the purpose of inspecting items, such as—
 - a. powerplant, including controls and indicators.
 - b. fuel quantity, grade, type, contamination safeguards, and servicing procedures.

- c. oil quantity, grade, and type.
 - d. hydraulic fluid quantity, grade, type, and servicing procedures.
 - e. oxygen quantity, pressures, servicing procedures, and associated systems and equipment for crew and passengers.
 - f. hull, landing gear, float devices, brakes, steering system, winglets, and canards.
 - g. tires for condition, inflation, and correct mounting, where applicable.
 - h. fire protection/detection systems for proper operation, servicing, pressures, and discharge indications.
 - i. pneumatic system pressures and servicing.
 - j. ground environmental systems for proper servicing and operation.
 - k. auxiliary power unit (APU) for servicing and operation.
 - l. flight control systems including trim, spoilers, and leading/trailing edge.
 - m. anti-ice, deice systems, servicing, and operation.
 - n. installed and auxiliary aircraft security equipment, as appropriate.
5. Coordinates with ground crew and ensures adequate clearance prior to moving any devices, such as door, hatches, and flight control surfaces.
 6. Complies with the provisions of the appropriate operations specifications, if applicable, as they pertain to the particular airplane and operation.
 7. Demonstrates proper operation of all applicable airplane systems.
 8. Notes any discrepancies, determines if the airplane is airworthy and safe for flight, or takes the proper corrective action, and acknowledges limitations imposed by MEL/CDL items.
 9. Checks the general area around the airplane for hazards to the safety of the airplane and personnel.
 10. Ensures that the airplane and surfaces are free of ice, snow, and has satisfactory knowledge of deicing procedures, if icing conditions were present or ice was found.

B. TASK: POWERPLANT START

REFERENCES: 14 CFR part 61; POH/AFM.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of the correct powerplant start procedures including the use of an auxiliary power unit (APU) or external power source, starting under various atmospheric conditions, normal and abnormal starting limitations, and the proper action required in the event of a malfunction.
2. Ensures the ground safety procedures are followed during the before-start, start, and after-start phases.
3. Ensures the use of appropriate ground crew personnel during the start procedures.
4. Performs all items of the start procedures by systematically following the approved checklist procedure in a timely manner and as recommended by the manufacturer for the before-start, start, and after-start phases.
5. Demonstrates sound judgment and operating practices in those instances where specific instructions or checklist items are not published.

C. TASK: TAXIING

REFERENCES: 14 CFR part 61; POH/AFM; AC 91-73, AC 120-57, AC 120-74.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of safe taxi procedures (as appropriate to the airplane including push-back or power-back, as may be applicable).
2. Demonstrates proficiency by maintaining correct and positive airplane control. In airplanes equipped with float devices, this includes water taxiing, sailing, step taxiing, approaching a buoy, and docking.
3. Maintains proper spacing on other aircraft, obstructions, and persons.
4. Accomplishes the applicable checklist items or ensures all required checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer, and performs recommended procedures.
5. Maintains desired track and speed.
6. Complies with instructions issued by ATC (or the examiner simulating ATC).
7. Observes runway hold lines, localizer and glide slope critical areas, buoys, beacons, and other surface control markings and lighting.
8. Maintains constant vigilance and airplane control during taxi operation to prevent runway/waterway incursion.

D. TASK: SAILING (AMES/ASES)

REFERENCES: POH/AFM; AIM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to sailing by explaining the techniques used in this procedure.
2. Recognizes the circumstance when sailing should be used.
3. Plans and follows the most favorable course considering wind, water current, obstructions, debris, and other vessels.
4. Uses flight controls, flaps, doors, and water rudders, as appropriate, to follow the desired course.

E. TASK: SEAPLANE BASE/WATER LANDING SITE MARKINGS AND LIGHTING (AMES, ASES)

REFERENCES: AIM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to seaplane base/water landing site markings and lighting.
2. Identifies and interprets seaplane base/water landing site markings and lighting.

F. TASK: PRE-TAKEOFF CHECKS

REFERENCES: 14 CFR part 61; POH/AFM; AC 91-74, AC 120-60, AC 120-117.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the pre-takeoff checks by stating the reason for checking the items outlined on the approved checklist and explaining how to detect possible malfunctions.
2. Divides attention properly inside and outside cockpit.
3. Ensures that all systems are within their normal operating range prior to beginning, during the performance of, and at the completion of those checks required by the approved checklist.
4. Explains, as may be requested by the examiner, any normal or abnormal system-operating characteristic or limitation; and the corrective action for a specific malfunction.
5. Determines if the airplane is safe for the proposed flight or requires maintenance.
6. Determines the airplane's takeoff performance, considering such factors as wind, density altitude, weight, temperature, pressure altitude, and runway/waterway condition and length.
7. Determines airspeeds/V-speeds and properly sets all instrument references, configures flight director and autopilot controls, and navigation and communications equipment to properly fly the aircraft in accordance with the ATC clearance.
8. Reviews procedures for emergency and abnormal situations, which may be encountered during takeoff, and states the corrective action required of the pilot in command and other concerned crewmembers.
9. Obtains and correctly interprets the takeoff and departure clearance as issued by ATC.

III. AREA OF OPERATION: TAKEOFF AND DEPARTURE PHASE

A. TASK: NORMAL AND CROSSWIND TAKEOFF

REFERENCES: 14 CFR part 61; POH/AFM; FAA-H-8083-3; AC 20-117, AC 91-54, AC 91-74.

NOTE: VMC maneuver.

Objective. To determine that the applicant:

1. Exhibits knowledge of normal and crosswind takeoffs and climbs including (as appropriate to the airplane) airspeeds, configurations, and emergency/abnormal procedures.
2. Notes any surface conditions, obstructions, aircraft cleared for LAHSO, or other hazards that might hinder a safe takeoff.
3. Verifies and correctly applies correction for the existing wind component to the takeoff performance.
4. Coordinates with crew (if crew served airplane) to ensure completion or completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs or ensures all required pre-takeoff checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer.
5. Aligns the airplane on the runway centerline or clear of obstacles and vessels on waterways as appropriate.
6. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
7. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.
8. Monitors powerplant controls, settings, and instruments during takeoff to ensure all predetermined parameters are maintained.
9. Adjusts the controls to attain the desired pitch attitude at the predetermined airspeed/V-speed to attain the desired performance for the particular takeoff segment.
10. Performs the required pitch changes and, as appropriate, performs or calls for and verifies the accomplishment of, gear and flap retractions, power adjustments, and other required pilot-related activities at the required airspeed/V-speeds within the tolerances established in the POH or AFM.
11. Uses the applicable noise abatement and wake turbulence avoidance procedures, as required.
12. Accomplishes, or calls for and verifies the accomplishment of, the appropriate checklist items in a timely manner and as recommended by the manufacturer.
13. Maintains the appropriate climb segment airspeed/V-speeds.
14. Maintains the desired heading, $\pm 5^\circ$, and the desired airspeed (V-speed), ± 5 knots (of the appropriate V-speed range).

B. TASK: GLASSY WATER TAKEOFF AND CLIMB (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: If a glassy water condition does not exist, the applicant's satisfactory knowledge of glassy water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the TASK.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a glassy water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, notes any surface hazards and/or vessels prior to selecting a takeoff path.
4. Retracts the water rudders, if applicable.
5. Advances the throttles to takeoff power.
6. Avoids excessive water spray on the propellers.
7. Establishes and maintains an appropriate planing attitude, directional control, and corrects for porpoising, skipping, and increases in water drag.
8. Utilizes appropriate techniques to lift seaplane from the water surface.
9. Establishes proper attitude/airspeed, lifts off and accelerates to best single-engine climb speed or V_y , whichever is greater, ± 5 knots during the climb.
10. Reduces the flaps after a positive rate of climb is established and at a safe altitude.
11. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
12. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
13. Uses noise abatement procedures, as required.
14. Completes appropriate checklists or ensures all required checks as required by the appropriate checklist items are accomplished in a timely manner and as recommended by the manufacturer.

C. TASK: ROUGH WATER TAKEOFF AND CLIMB (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: If a rough water condition does not exist, the applicant's satisfactory knowledge of rough water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the TASK.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to rough water takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, selects the proper takeoff path, considering wind, swells, surface hazards and/or vessels.
4. Retracts the water rudders, if applicable.
5. Advances the throttles to takeoff power.
6. Avoids excessive water spray on the propellers.
7. Establishes and maintains an appropriate planing/lift-off attitude, directional control, and corrects for porpoising, skipping, or excessive bouncing.
8. Establishes and maintains proper attitude to lift-off at minimum airspeed and accelerates to best single-engine climb speed or V_Y , whichever is greater, ± 5 knots before leaving ground effect.
9. Retracts the flaps after a positive rate of climb is established and at a safe altitude.
10. Maintains takeoff power to a safe maneuvering altitude, then sets climb power.
11. Maintains directional control and proper wind-drift correction throughout takeoff and climb.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

D. TASK: CONFINED-AREA TAKEOFF AND CLIMB (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: This TASK simulates a takeoff from a small pond, which would require a takeoff and spiral climb; or a straight-ahead takeoff and climb from a narrow waterway with obstructions at either end. The examiner must evaluate both takeoff situations for this TASK. In multiengine seaplanes with V_X values within 5 knots of V_{MC} , the use of V_Y or the manufacturer's recommendation may be more appropriate for this demonstration.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a confined-area takeoff and climb.
2. Positions the flight controls and flaps for the existing conditions.
3. Clears the area, notes any surface hazards, vessels, and/or obstructions prior to selecting a takeoff path.
4. Selects a takeoff path that will allow maximum safe utilization of wind, water, and low terrain.
5. Advances the throttles to takeoff power.
6. Ensures that the water rudders are retracted when no longer needed.
7. Maintains the most efficient alignment and planing angle, without skidding, porpoising, and skipping.
8. Lifts off at recommended airspeed and accelerates to manufacturer's recommended climb airspeed.
9. Climbs at manufacturer's recommended configuration and airspeed, or in their absence at V_X , +5/-0 knots until the obstacle is cleared.
10. After clearing all obstacles, accelerates to and maintains V_Y , ± 5 knots, retracts flaps and maintains safe bank angles while turning and/or providing best terrain clearance.
11. Maintains takeoff power to a safe altitude, and then sets climb power.
12. Uses noise abatement procedures, as required.
13. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

E. TASK: INSTRUMENT TAKEOFF

REFERENCES: 14 CFR part 61; POH/AFM; AIM; FAA-H-8083-15, FAA-H-8261-1; AC 20-117, AC 91-74, AC 135-17.

Objective. To determine that the applicant:

1. Exhibits knowledge of an instrument takeoff with instrument meteorological conditions (IMC) simulated at or before reaching an altitude of 100 feet AGL. If accomplished in a flight simulator, visibility should be no greater than one-quarter (1/4) mile, or as specified by operator specifications, whichever is lower.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, wake turbulence, icing conditions, obstructions, and other related factors that could adversely affect safety.
3. Coordinates with crew, if a crew served airplane, or completes the appropriate checklist items in a timely manner and as recommended by the manufacturer in a single pilot airplane, to ensure that the airplane systems applicable to the instrument takeoff are operating properly.
4. Sets the applicable avionics and flight instruments to the desired setting prior to initiating the takeoff.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
6. Transitions smoothly and accurately from visual meteorological conditions (VMC) to actual or simulated instrument meteorological conditions (IMC).
7. Maintains the appropriate climb attitude.
8. Complies with the appropriate airspeeds/V-speeds and climb segment airspeeds.
9. Maintains desired heading within $\pm 5^\circ$ and desired airspeeds within ± 5 knots.
10. Complies with ATC clearances and instructions issued by ATC (or the examiner simulating ATC).
11. Acknowledges and makes appropriate callouts to coordinate with the crew, if in a crew served airplane.

F. TASK: POWERPLANT FAILURE DURING TAKEOFF

NOTE: In a multiengine airplane certificated under 14 CFR part 25, with published V_1 , V_R , and/or V_2 speeds, the failure of the most critical powerplant should be simulated at a point:

1. after V_1 and prior to V_2 , if in the opinion of the examiner, it is appropriate under the prevailing conditions; or
2. as close as possible after V_1 when V_1 and V_2 or V_1 and V_R are identical.

In a multiengine airplane certificated under 14 CFR part 23, (for which no V_1 , V_R , or V_2 speeds are published) the failure of the most critical powerplant should be simulated at a point after reaching a minimum of V_{SSE} and, if accomplished in the aircraft, at an altitude not lower than 400 feet AGL, giving consideration to local atmospheric conditions, terrain, and aircraft performance available.

In a simulator, there are no limitations on powerplant failures in either airplane by certification basis.

APPLICANT NOTE: Expect this task to be combined with normal Task A, and/or Task E at examiner's discretion.

REFERENCES: 14 CFR part 61; POH/AFM; FAA-H-8083-3, FSB Report.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the procedures used during powerplant failure on takeoff, the appropriate reference airspeeds, and the specific pilot actions required.
2. Takes into account, prior to beginning the takeoff, operational factors which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, wake turbulence, visibility, precipitation, obstructions, and other related factors that could adversely affect safety.
3. Completes required checks prior to starting takeoff to verify the expected powerplant performance. Performs all required pre-takeoff checks as required by the appropriate checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
4. Aligns the airplane on the runway/waterway.
5. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the takeoff.
6. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.

7. Single-engine airplanes—establishes a power-off descent approximately straight-ahead, if the powerplant failure occurs after becoming airborne and before reaching an altitude where a safe turn can be made.
8. Continues the takeoff (in a 14 CFR part 25 or 14 CFR section 23.3(d) commuter multiengine airplane) if the (simulated) powerplant failure occurs at a point where the airplane can continue to a specified airspeed and altitude at the end of the runway commensurate with the airplane's performance capabilities and operating limitations.
9. Maintains (in a multiengine airplane), after a simulated powerplant failure and after a climb has been established, the desired heading within $\pm 5^\circ$, desired airspeed within ± 5 knots, and, if appropriate for the airplane, establishes a bank of approximately 5° , or as recommended by the manufacturer, toward the operating powerplant.
10. Maintains the airplane alignment with the heading appropriate for climb performance and terrain clearance when powerplant failure occurs.
11. Acknowledges and makes appropriate callouts to crew, if in crew served aircraft.

G. TASK: REJECTED TAKEOFF

REFERENCES: 14 CFR part 61; FAA-H-8083-3; AC 120-62; POH/AFM.

Objective. To determine that the applicant understands when to reject or continue the takeoff and:

1. Exhibits satisfactory knowledge of the technique and procedure for accomplishing a rejected takeoff after powerplant/system(s) failure/warnings, including related safety factors.
2. Takes into account, prior to beginning the takeoff, operational factors, which could affect the maneuver, such as Takeoff Warning Inhibit Systems or other airplane characteristics, runway length, surface conditions, wind, visibility, precipitation, obstructions, and aircraft cleared for LAHSO that could affect takeoff performance and could adversely affect safety.
3. Aligns the airplane on the runway centerline or clear of obstacles and vessels on waterways.
4. Performs all required pre-takeoff checks as required by the appropriate checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
5. Adjusts the powerplant controls as recommended by the FAA-approved guidance for the existing conditions.
6. Applies the controls correctly to maintain longitudinal alignment on the centerline of the runway.
7. Aborts the takeoff if, in a single-engine airplane the powerplant failure occurs prior to becoming airborne, or in a multiengine airplane, the powerplant failure occurs at a point during the takeoff where the abort procedure can be initiated and the airplane can be safely stopped on the remaining runway/stopway. If a flight simulator is not used, the powerplant failure must be simulated before reaching 50 percent of V_{MC} .
8. Reduces the power smoothly and promptly, if appropriate to the airplane, when powerplant failure is recognized.
9. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, maintaining positive control in such a manner as to bring the airplane to a safe stop.
10. Accomplishes the appropriate powerplant failure or other procedures and/or checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer, as set forth in the POH or AFM.

H. TASK: DEPARTURE PROCEDURES

REFERENCES: 14 CFR part 61; AC 90-100; POH/AFM; AIM; FAA-H-8261-1, FAA-H-8083-15.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits satisfactory knowledge of DPs, En Route Low and High Altitude Charts, FMSP, and related pilot/controller responsibilities.
2. Uses the current and appropriate navigation publications for the proposed flight.
3. Selects, configures, and uses the appropriate communications frequencies, navigation and systems displays; selects and identifies the navigation aids and routes necessary to properly fly the assigned ATC clearance.
4. Coordinates with crew in crew served aircraft to ensure performance of, or performs the appropriate checklist items in a timely manner and as recommended by the manufacturer.
5. Establishes communications with ATC, using proper phraseology and advises ATC when unable to comply with a clearance or restriction.
6. Complies, in a timely manner, with all instructions and airspace restrictions.
7. Exhibits adequate knowledge of two-way radio communications failure procedures.
8. Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, clearance, or as directed by the examiner.
9. Maintains the appropriate airspeed within ± 10 knots, headings within $\pm 10^\circ$, altitude within ± 100 feet; and accurately tracks a course, radial, or bearing.
10. Conducts the departure phase to a point where, in the opinion of the examiner, the transition to the en route environment is complete.

IV. AREA OF OPERATION: INFLIGHT MANEUVERS

A. TASK: STEEP TURNS

REFERENCES: 14 CFR part 61; FAA-H-8083-3; FSB Report; POH/AFM.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits knowledge of steep turns (if applicable to the airplane) and the factors associated with performance; and, if applicable, wing loading, angle of bank, stall speed, pitch, power requirements, and over-banking tendencies.
2. Selects an altitude recommended by the manufacturer, training syllabus, or other training directive, but in no case lower than 3,000 feet AGL.
3. Establishes the recommended entry airspeed.
4. Rolls into a coordinated turn of 180° or 360° with a bank of at least 45°. Maintains the bank angle within $\pm 5^\circ$ while in smooth, stabilized flight.
5. Applies smooth coordinated pitch, bank, and power to maintain the specified altitude within ± 100 feet and the desired airspeed within ± 10 knots.
6. Rolls out of the turn (at approximately the same rate as used to roll into the turn) within $\pm 10^\circ$ of the entry or specified heading, stabilizes the airplane in a straight-and-level attitude or, at the discretion of the examiner, reverses the direction of turn and repeats the maneuver in the opposite direction.
7. Avoids any indication of an approaching stall, abnormal flight attitude, or exceeding any structural or operating limitation during any part of the maneuver.

B. TASK: APPROACHES TO STALLS

REFERENCES: 14 CFR part 61; FAA-H-8083-3; FSB Report; POH/AFM.

THREE approaches to stall are required, as follows (unless otherwise specified by the FSB Report):

1. One in the takeoff configuration (except where the airplane uses only zero-flap takeoff configuration) or approach (partial) flap configuration.
2. One in a clean cruise configuration.
3. One in a landing configuration (landing gear and landing flaps set).

CAUTION: Avoid deep stalls which are termed as “virtually unrecoverable” in airplanes, and “tip stalls” in swept wing airplanes.

One of these approaches to a stall must be accomplished while in a turn using a bank angle of 15 to 30°.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions exhibits satisfactory knowledge of the factors, which influence stall characteristics, including the use of various drag configurations, power settings, pitch attitudes, weights, and bank angles. Also, exhibits adequate knowledge of the proper procedure for resuming normal flight.
2. Selects an entry altitude that is in accordance with the AFM or POH, but in no case lower than an altitude that will allow recovery to be safely completed at a minimum of 3,000 feet AGL. When accomplished in an FTD or flight simulator, the entry altitude should be consistent with expected operational environment for the stall configuration.
3. Observes the area is clear of other aircraft prior to accomplishing an approach to a stall.
4. While maintaining altitude, slowly establishes the pitch attitude (using trim or elevator/stabilizer), bank angle, and power setting that will induce a stall.
5. Announces the first indication of an impending stall (such as buffeting, stick shaker, decay of control effectiveness, and any other cues related to the specific airplane design characteristics) and initiates recovery (using maximum power or as directed by the examiner).
6. Recovers to a reference airspeed, altitude and heading with minimal loss of altitude, airspeed, and heading deviation.
7. Demonstrates smooth, positive control during entry, approach to a stall, and recovery.

C. TASK: POWERPLANT FAILURE—MULTIENGINE AIRPLANE

REFERENCES: 14 CFR part 61; POH/AFM.

NOTE: The feathering of one propeller must be demonstrated in any multiengine airplane (or simulator/qualified FTD) equipped with propellers (includes turboprop), unless the airplane is an exception by the type rating and airplane certification (see page 13 of this document). The propeller must be safely feathered and unfeathered while airborne. In a multiengine jet airplane (or simulator/qualified FTD), one engine must be shut down and a restart must be demonstrated while airborne. Feathering or shutdown should be performed only under conditions and at such altitudes (no lower than 3,000 feet AGL) and in a position where a safe landing can be made on an established airport in the event difficulty is encountered in unfeathering the propeller or restarting the engine. At an altitude lower than 3,000 feet AGL, simulated engine failure will be performed by setting the powerplant controls to simulate zero-thrust. In the event the propeller cannot be unfeathered or the engine air started during the test, it should be treated as an emergency.

When authorized and conducted in a flight simulator, feathering or shutdown may be performed in conjunction with any procedure or maneuver and at locations and altitudes at the discretion of the examiner. However, when conducted in an FTD, authorizations are limited to shutdown, feathering, restart, and/or unfeathering procedures only. See appendix 1.

Objective. To determine that the applicant:

1. Exhibits knowledge of the flight characteristics and controllability associated with maneuvering with powerplant(s) inoperative (as appropriate to the airplane).
2. Maintains positive airplane control. Establishes a bank of approximately 5°, if required, or as recommended by the manufacturer, to maintain coordinated flight, and properly trims for that condition.
3. Sets powerplant controls, reduces drag as necessary, correctly identifies and verifies the inoperative powerplant(s) after the failure (or simulated failure).
4. Maintains the operating powerplant(s) within acceptable operating limits.
5. Follows the prescribed airplane checklist or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer, and verifies the procedures for securing the inoperative powerplant(s).
6. Determines the cause for the powerplant(s) failure and if a restart is a viable option.
7. Maintains desired altitude within ± 100 feet, when a constant altitude is specified and is within the capability of the airplane.
8. Maintains the desired airspeed within ± 10 knots.

9. Maintains the desired heading within $\pm 10^\circ$ of the specified heading.
10. Demonstrates proper powerplant restart procedures (if appropriate) in accordance with FAA-approved procedure/ checklist or the manufacturer's recommended procedures and pertinent checklist items.

D. TASK: POWERPLANT FAILURE—SINGLE-ENGINE AIRPLANE

REFERENCES: 14 CFR part 61; FAA-H-8083-3; POH/AFM.

NOTE: No simulated powerplant failure will be given by the examiner in an airplane when an actual touchdown cannot be safely completed, should it become necessary.

Objective. To determine that the applicant:

1. Exhibits knowledge of the flight characteristics, approach and forced (emergency) landing procedures, and related procedures to use in the event of a powerplant failure (as appropriate to the airplane).
2. Maintains positive control throughout the maneuver.
3. Establishes and maintains the recommended best glide airspeed, ± 5 knots, and configuration during a simulated powerplant failure.
4. Selects a suitable airport or landing area, which is within the performance capability of the airplane.
5. Establishes a proper flight pattern to the selected airport or landing area, taking into account altitude, wind, terrain, obstructions, and other pertinent operational factors.
6. Follows the emergency checklist items appropriate to the airplane to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
7. Determines the cause for the simulated powerplant failure (if altitude permits) and if a restart is a viable option.
8. Uses configuration devices, such as landing gear and flaps in a manner recommended by the manufacturer and/or approved by the FAA.

E. TASK: SPECIFIC FLIGHT CHARACTERISTICS

REFERENCES: 14 CFR part 61; FSB Reports; POH/AFM.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of specific flight characteristics appropriate to the specific airplane, as identified by FSB Reports, such as Dutch Rolls for certain aircraft.
2. Uses proper technique to enter into, operate within, and recover from specific flight situations.

F. TASK: RECOVERY FROM UNUSUAL ATTITUDES

REFERENCES: 14 CFR part 61; FSB Reports; FAA-H-8083-15; POH; AFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of recovery from unusual attitudes.
2. Recovers from nose-high banked and/or level unusual attitudes, using proper pitch, bank, and power techniques.
3. Recovers from nose-low banked and/or level unusual attitudes, using proper pitch, bank, and power techniques.

V. AREA OF OPERATION: INSTRUMENT PROCEDURES

NOTE: TASKS B through F are not required if the applicant holds a private pilot or commercial pilot certificate and is seeking a type rating limited to VFR.

A. TASK: STANDARD TERMINAL ARRIVAL/FLIGHT MANAGEMENT SYSTEM PROCEDURES

REFERENCES: 14 CFR part 61; POH/AFM; AIM; En Route Low and High Altitude Charts; Profile Descent Charts; STARs/FMSPs; Standard Instrument Approach Procedure Charts (SIAP); FAA-H-8261-1; AC 61-134, AC 90-100.

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits adequate knowledge of En Route Low and High Altitude Charts, STARs/FMSPs, Instrument Approach Procedure Charts (IAP), and related pilot and controller responsibilities.
2. Uses the current and appropriate navigation publications for the proposed flight.
3. Selects and correctly identifies all instrument references, flight director and autopilot controls, displays, and navigation and communications equipment associated with the arrival.
4. Performs the airplane checklist items or coordinates with crew to ensure completion of checklist items appropriate to the arrival in a timely manner and as recommended by the manufacturer.
5. Establishes communications with ATC, using proper phraseology.
6. Complies, in a timely manner, with all ATC clearances, instructions, and restrictions. Advises ATC if unable to comply with ATC clearances or instructions.
7. Exhibits satisfactory knowledge of two-way communications failure procedures.
8. Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, ATC clearance, or as directed by the examiner.
9. Adheres to airspeed restrictions and adjustments required by regulations, ATC, the POH, the AFM, or the examiner.
10. Establishes, where appropriate, a rate of descent consistent with the airplane operating characteristics and safety.
11. Maintains the appropriate airspeed/V-speed within ± 10 knots, but not less than V_{REF} , if applicable; heading $\pm 10^\circ$; altitude within ± 100 feet; and accurately tracks radials, courses, and bearings.
12. Complies with the provisions of the Profile Descent, STAR, and other arrival procedures, as appropriate.

B. TASK: HOLDING

REFERENCES: 14 CFR part 61; POH/AFM; AIM; En Route Low and High Altitude Charts; STARs; FMSP; Standard Instrument Approach Procedure Charts (SIAP).

Objective. To determine that the applicant:

1. In actual or simulated instrument conditions, exhibits knowledge of holding procedures for standard and nonstandard, published and nonpublished holding patterns. If appropriate, demonstrates satisfactory knowledge of holding endurance, including, but not necessarily limited to, fuel on board, fuel flow while holding, fuel required to alternate, etc.
2. Changes to the recommended holding airspeed appropriate for the airplane and holding altitude, so as to cross the holding fix at or below maximum holding airspeed.
3. Recognizes arrival at the clearance limit or holding fix.
4. Follows appropriate entry procedures for a standard, nonstandard, published, or nonpublished holding pattern.
5. Complies with ATC reporting requirements.
6. Uses the proper timing criteria required by the holding altitude and ATC or examiner's instructions.
7. Complies with the holding pattern leg length when a distance measuring equipment (DME) distance is specified.
8. Uses the proper wind-drift correction techniques to accurately maintain the desired radial, track, courses, or bearing.
9. Arrives over the holding fix as close as possible to the "expect further clearance" time.
10. Maintains the appropriate airspeed/V-speed within ± 10 knots, altitude within ± 100 feet, headings within $\pm 10^\circ$; and accurately tracks radials, courses, and bearings.
11. Selects and correctly identifies required instrument navigation aids, flight director and autopilot controls, navigation equipment displays associated with the holding clearance and expected clearance, as appropriate.

C. TASK: PRECISION APPROACHES (PA)

REFERENCES: 14 CFR part 61; POH/AFM; AIM; Standard Instrument Approach Procedure Charts (SIAP); FAA-H-8261-1, FAA-H-8083-15.

NOTE: Two precision approaches, utilizing NAVAID equipment for centerline and glideslope guidance, must be accomplished in simulated or actual instrument conditions to DA/DH. At least one approach must be flown manually without the use of an autopilot. The second approach may be flown via the autopilot, if appropriate, and if the DA/DH altitude does not violate the authorized minimum altitude for autopilot operation. Manually flown precision approaches may use raw data displays or may be flight director assisted, at the discretion of the examiner.

If the aircraft is equipped with advanced flight instrument displays, the raw data approach should be flown by reference to the backup instrumentation as much as is possible with the airplane's configuration.

For multiengine airplanes at least one manually controlled precision approach must be accomplished with a simulated failure of one powerplant. The simulated powerplant failure should occur before initiating the final approach segment and must continue to touchdown or throughout the missed approach procedure. As the markings on localizer/glideslope indicators vary, a one-quarter scale deflection of either the localizer, or glide slope indicator is when it is displaced one-fourth of the distance that it may be deflected from the on glide slope or on localizer position.

NOTE: A stabilized approach is characterized by a constant angle, constant rate of descent approach profile ending near the touchdown point, where the landing maneuver begins.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the precision instrument approach procedures with all engines operating, and with one engine inoperative.
2. Accomplishes the appropriate precision instrument approaches as selected by the examiner.
3. Establishes two-way communications with ATC using the proper communications phraseology and techniques, or, directs co-pilot/safety pilot to do so, as appropriate for the phase of flight or approach segment.
4. Complies, in a timely manner, with all clearances, instructions, and procedures.
5. Advises ATC anytime the applicant is unable to comply with a clearance.

6. Establishes the appropriate airplane configuration and airspeed/V-speed considering turbulence, wind shear, microburst conditions, or other meteorological and operating conditions.
7. Completes the airplane checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer, appropriate to the phase of flight or approach segment, including engine out approach and landing checklists, if appropriate.
8. Prior to beginning the final approach segment, maintains the desired altitude ± 100 feet, the desired airspeed within ± 10 knots, the desired heading within $\pm 5^\circ$; and accurately tracks radials, courses, and bearings.
9. Selects, tunes, identifies, and monitors the operational status of ground and airplane navigation equipment used for the approach, or correctly programs and monitors the RNAV equipment to display the proper course/track.
10. Applies the necessary adjustments to the published DA/DH and visibility criteria for the airplane approach category as required, such as—
 - a. Notices to Airmen, including Flight Data Center (FDC) Procedural NOTAMs.
 - b. Inoperative airplane and ground navigation equipment.
 - c. Inoperative visual aids associated with the landing environment.
 - d. National Weather Service (NWS) reporting factors and criteria.
11. Establishes a predetermined rate of descent at the point where the electronic glideslope begins, which approximates that required for the airplane to follow the glideslope.
12. Maintains a stabilized final approach, from the precision final approach fix to DA/DH, allowing no more than one-quarter scale deflection of either the glideslope or localizer indications, and maintains the desired airspeed within ± 5 knots.
13. A missed approach or transition to a landing must be initiated at DA/DH.
14. Immediately initiates and executes the missed approach when at the DA/DH, if the required visual references for the runway are not unmistakably visible and identifiable.
15. Transitions to a normal landing approach (missed approach for seaplanes) only when the airplane is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal maneuvering.
16. Maintains localizer and glide slope within one-quarter-scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where the glideslope must be abandoned to accomplish a normal landing.

D. TASK: NONPRECISION APPROACHES (NPA)

REFERENCES: 14 CFR part 61; POH/AFM; AIM; Standard Instrument Approach Procedure Charts (SIAP); FAA-H-8261-1, FAA-H-8083-15; AC 90-94.

NOTE: The applicant must accomplish at least two nonprecision approaches (one of which must include a procedure turn or, in the case of an RNAV approach, a Terminal Arrival Area (TAA) procedure) in simulated or actual weather conditions. At least one nonprecision approach must be flown without the use of autopilot and without the assistance of radar vectors. (The yaw damper and flight director are not considered parts of the autopilot for purpose of this part). The examiner will select nonprecision approaches that are representative of the type that the applicant is likely to use. The choices must utilize two different types of navigational aids. Some examples of navigational aids for the purpose of this part are: NDB, VOR, LOC, LDA, GPS, or RNAV.

NOTE: One approach should be flown with reference to backup or “fail down” instrumentation or navigation display depending on the aircraft’s avionics configuration.

NOTE: The requirements for conducting a GPS approach for the purpose of this test are explained on pages 13 and 14 of the Introduction.

Objective. To determine that the applicant:

1. Exhibits adequate knowledge of nonprecision approach procedures representative of those the applicant is likely to use.
2. Accomplishes the nonprecision instrument approaches selected by the examiner.
3. Establishes two-way communications with ATC as appropriate to the phase of flight or approach segment and uses proper communications phraseology and techniques.
4. Complies with all clearances issued by ATC.
5. Advises ATC or the examiner any time the applicant is unable to comply with a clearance.
6. Establishes the appropriate airplane configuration and airspeed, and completes all applicable checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.
7. Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet, the desired airspeed ± 10 knots, the desired heading $\pm 5^\circ$; and accurately tracks radials, courses, and bearings.

8. Selects, tunes, identifies, and monitors the operational status of ground and airplane navigation equipment used for the approach.
9. Applies the necessary adjustments to the published Minimum Descent Altitude (MDA) and visibility criteria for the airplane approach category when required, such as—
 - a. Notices to Airmen, including Flight Data Center Procedural NOTAMs.
 - b. Inoperative airplane and ground navigation equipment.
 - c. Inoperative visual aids associated with the landing environment.
 - d. National Weather Service (NWS) reporting factors and criteria.
10. Establishes a rate of descent that will ensure arrival at the MDA (at, or prior to reaching, the visual descent point (VDP), if published) with the airplane in a position from which a descent from MDA to a landing on the intended runway can be made at a normal rate using normal maneuvering.
11. Allows, while on the final approach segment, not more than quarter-scale deflection of the Course Deviation Indicator (CDI) or $\pm 5^\circ$ in the case of the RMI or bearing pointer, and maintains airspeed within ± 5 knots of that desired.
12. Maintains the MDA, when reached, within -0 , $+50$ feet to the missed approach point.
13. Executes the missed approach at the missed approach point if the required visual references for the intended runway are not unmistakably visible and identifiable at the missed approach point.
14. Executes a normal landing from a straight-in or circling approach when instructed by the examiner.

E. TASK: CIRCLING APPROACH

REFERENCES: 14 CFR part 61; POH/AFM; AIM; Standard Instrument Approach Procedure Charts (SIAP); FAA-H-8261-1, FAA-H-8083-15.

APPLICANT NOTE: Expect this task to be combined with other tasks to include Area VI, Task C.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of circling approach categories, speeds, and procedures to a specified runway.
2. In simulated or actual instrument conditions to MDA, accomplishes the circling approach selected by the examiner.
3. Demonstrates sound judgment and knowledge of the airplane maneuvering capabilities throughout the circling approach.
4. Confirms the direction of traffic and adheres to all restrictions and instructions issued by ATC.
5. Descends at a rate that ensures arrival at the MDA at, or prior to, a point from which a normal circle-to-land maneuver can be accomplished.
6. Avoids descent below the appropriate circling MDA or exceeding the visibility criteria until in a position from which a descent to a normal landing can be made.
7. Maneuvers the airplane, after reaching the authorized circling approach altitude, by visual references to maintain a flightpath that permits a normal landing on a runway that requires at least a 90° change of direction, from the final approach course, to align the aircraft for landing.
8. Performs the procedure without excessive maneuvering and without exceeding the normal operating limits of the airplane (the angle of bank should not exceed 30°).
9. Maintains the desired altitude within -0, +100 feet, heading/track within $\pm 5^\circ$, the airspeed/V-speed within ± 5 knots, but not less than the airspeed as specified in the POH or the AFM.
10. Uses the appropriate airplane configuration for normal and abnormal situations and procedures.
11. Turns in the appropriate direction, when a missed approach is dictated during the circling approach, and uses the correct procedure and airplane configuration.
12. Performs all procedures required for the circling approach and airplane control in a smooth, positive, and timely manner.

F. TASK: MISSED APPROACH

REFERENCES: 14 CFR part 61; POH/AFM; AIM; Standard Instrument Approach Procedure Charts (SIAP); FAA-H-8083-15, FAA-H-8261-1.

NOTE: The applicant must perform two missed approaches with one being from a precision approach (ILS, MLS, or GLS). One complete published missed approach must be accomplished. Additionally, in multiengine airplanes, a missed approach must be accomplished with one engine inoperative (or simulated inoperative). The engine failure may be experienced anytime prior to the initiation of the approach, during the approach, or during the transition to the missed approach attitude and configuration.

Descending below the MDA or continuing a precision approach below DH/DA as appropriate, unless the runway environment is in sight is considered unsatisfactory performance. However, even if the missed approach is properly initiated at DA/DH, most airplanes descend below DA/DH because of the momentum of the airplane transitioning from a stabilized approach to a missed approach. This descent below DA/DH is not considered unsatisfactory, as long as the precision approach was not continued below DA/DH.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of missed approach procedures associated with standard instrument approaches to include reference to standby (backup or fail down) instruments.
2. Initiates the missed approach procedure promptly by the timely application of power, establishes the proper climb attitude, and reduces drag in accordance with the approved procedures.
3. Reports to ATC, beginning the missed approach procedure.
4. Complies with the appropriate missed approach procedure or ATC clearance.
5. Advises ATC any time the applicant is unable to maneuver the airplane to comply with a clearance.
6. Follows the recommended airplane checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer appropriate to the go-around procedure for the airplane used.
7. Requests clearance, if appropriate, to the alternate airport, another approach, a holding fix, or as directed by the examiner.
8. Maintains the desired altitudes ± 100 feet, airspeed ± 5 knots, heading $\pm 5^\circ$; and accurately tracks courses, radials, and bearings.

VI. AREA OF OPERATION: LANDINGS AND APPROACHES TO LANDINGS

NOTE: Notwithstanding the authorizations for the combining of maneuvers and for the waiver of maneuvers, the applicant must make at least three actual landings (one to a full stop). These landings must include the types listed in this AREA OF OPERATION; however, more than one type may be combined where appropriate (i.e., crosswind and landing from a precision approach or landing with simulated powerplant failure, etc.). For all landings, touchdown should be 500 to 3,000 feet past the runway threshold, not to exceed one-third of the runway length, with the runway centerline between the main landing gear. An amphibian type rating must bear the limitation "LIMITED TO LAND" or "LIMITED TO SEA," as appropriate, unless the applicant demonstrates proficiency in both land and sea operations.

A. TASK: NORMAL AND CROSSWIND APPROACHES AND LANDINGS

REFERENCES: 14 CFR part 61; POH/AFM; FAA-H-8083-3.

NOTE: In an airplane with a single powerplant, unless the applicant holds a commercial pilot certificate, he or she must accomplish three accuracy approaches and spot landings from an altitude of 1,000 feet or less, with the engine power lever in idle and 180° of change in direction. The airplane must touch the ground in a normal landing attitude beyond and within 200 feet of a designated line or point on the runway. At least one landing must be from a forward slip.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of normal and crosswind approaches and landings including recommended approach angles, airspeeds, V-speeds, configurations, performance limitations, wake turbulence, LAHSO, and safety factors (as appropriate to the airplane).
2. Establishes the approach and landing configuration appropriate for the runway and meteorological conditions, and adjusts the powerplant controls as required.
3. Maintains a ground track that ensures the desired traffic pattern will be flown, taking into account any obstructions and ATC or examiner instructions.
4. Verifies existing wind conditions, makes proper correction for drift, and maintains a precise ground track.
5. Maintains a stabilized approach and the desired airspeed/V-speed within ± 5 knots.
6. Accomplishes a smooth, positively controlled transition from final approach to touchdown.

7. Maintains positive directional control and crosswind correction during the after-landing roll.
8. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the airplane to a safe stop.
9. Completes the applicable after-landing checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

B. TASK: LANDING FROM A PRECISION APPROACH

REFERENCES: 14 CFR part 61; POH/AFM; AIM; FAA-H-8083-15.

NOTE: If circumstances beyond the control of the applicant prevent an actual landing, the examiner may accept an approach to a point where, in his or her judgment, a safe landing and a full stop could have been made, and credit given for a missed approach. Where a simulator approved for landing from a precision approach is used, the approach may be continued through the landing and credit given for one of the landings required by this AREA OF OPERATION.

APPLICANT NOTE: Expect other tasks to be combined with this task (to include Area VI, Task C for multiengine airplanes).

Objective. To determine that the applicant:

1. Exhibits awareness of landing in sequence from a precision approach.
2. Considers factors to be applied to the approach and landing such as displaced thresholds, meteorological conditions, NOTAMs, and ATC or examiner instructions.
3. Uses the airplane configuration and airspeed/V-speeds, as appropriate.
4. Maintains, during the final approach segment, glide slope and localizer indications within applicable standards of deviation, and the recommended airspeed/V-speed ± 5 knots.
5. Applies gust/wind factors as recommended by the manufacturer, and takes into account meteorological phenomena such as wind shear, microburst, and other related safety of flight factors.
6. Accomplishes the appropriate checklist items or coordinates with crew to ensure timely completion of checklist items in a timely manner and as recommended by the manufacturer or approved method.
7. Transitions smoothly from simulated instrument meteorological conditions (IMC) at a point designated by the examiner, maintaining positive airplane control.
8. Accomplishes a smooth, positively controlled transition from final approach to touchdown.
9. Maintains positive directional control and crosswind correction during the after-landing roll.
10. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the airplane to a safe stop after landing.
11. Accomplishes the appropriate after-landing checklist items or coordinates with crew to ensure completion of after-landing checklist items in a timely manner and as recommended by the manufacturer.

C. TASK: APPROACH AND LANDING WITH (SIMULATED) POWERPLANT FAILURE—MULTIENGINE AIRPLANE

REFERENCES: 14 CFR part 61; POH/AFM; FAA-H-8083-3.

NOTE: In airplanes with three powerplants, the applicant must follow a procedure (if approved) that approximates the loss of two powerplants, the center and one outboard powerplant. In other multiengine airplanes, the applicant must follow a procedure, which simulates the loss of 50 percent of available powerplants, the loss being simulated on one side of the airplane.

APPLICANT NOTE: Expect task to be combined with other tasks (to include Area V, Task E). May be limited by aircraft parameters under ambient conditions at examiner's discretion.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the flight characteristics and controllability associated with maneuvering to a landing with powerplant(s) inoperative (or simulated inoperative) including the controllability factors associated with maneuvering, and the applicable emergency procedures.
2. Maintains positive airplane control. Establishes a bank of approximately 5°, if required, or as recommended by the manufacturer, to maintain coordinated flight, and properly trims for that condition.
3. Sets powerplant controls, reduces drag as necessary, correctly identifies and verifies the inoperative powerplant(s) after the failure (or simulated failure).
4. Maintains the operating powerplant(s) within acceptable operating limits.
5. Follows the prescribed airplane checklist or coordinates with crew to ensure timely completion of checklist items in a timely manner and as recommended by the manufacturer, and verifies the procedures for securing the inoperative powerplant(s).
6. Proceeds toward the nearest suitable airport.
7. Maintains, prior to beginning the final approach segment, the desired altitude ± 100 feet, the desired airspeed ± 10 knots, the desired heading $\pm 5^\circ$; and accurately tracks courses, radials, and bearings.
8. Establishes the approach and landing configuration appropriate for the runway or landing area, and meteorological conditions; and adjusts the powerplant controls as required.
9. Maintains a stabilized approach and the desired airspeed/V-speed within ± 5 knots.
10. Accomplishes a smooth, positively controlled transition from final approach to touchdown.

11. Maintains positive directional control and crosswind corrections during the after-landing roll.
12. Uses spoilers, prop reverse, thrust reversers, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the airplane to a safe stop after landing.
13. Accomplishes the appropriate after-landing checklist items or coordinates with crew to ensure completion of after-landing checklist items in a timely manner and as recommended by the manufacturer.

D. TASK: LANDING FROM A CIRCLING APPROACH

REFERENCES: 14 CFR part 61; POH/AFM; AIM; FAA-H-8083-15.

APPLICANT NOTE: Expect task to be combined with other tasks (to include previous task, Task C for multiengine aircraft.)

Objective. To determine that the applicant:

1. Exhibits knowledge of a landing from a circling approach.
2. Selects, and complies with, a circling approach procedure to a specified runway.
3. Considers the environmental, operational, and meteorological factors, which affect a landing from a circling approach.
4. Confirms the direction of traffic and adheres to all restrictions and instructions issued by ATC.
5. Descends at a rate that ensures arrival at the MDA at, or prior to, a point from which a normal circle-to-land maneuver can be accomplished.
6. Avoids descent below the appropriate circling MDA or exceeding the visibility criteria until in a position from which a descent to a normal landing can be made.
7. Accomplishes the appropriate checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer or approved method.
8. Maneuvers the airplane, after reaching the authorized circling approach altitude, by visual references, to maintain a flightpath that requires at least a 90° change of direction, from the final approach course, to align the aircraft for landing.
9. Performs the maneuver without excessive maneuvering and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30°.
10. Maintains the desired altitude within +100, -0 feet, heading within $\pm 5^\circ$, and approach airspeed/V-speed within ± 5 knots.
11. Uses the appropriate airplane configuration for normal and abnormal situations and procedures.
12. Performs all procedures required for the circling approach and airplane control in a timely, smooth, and positive manner.

13. Accomplishes a smooth, positively controlled transition to final approach and touchdown or to a point where in the opinion of the examiner that a safe full stop landing could be made.
14. Maintains positive directional control and crosswind correction during the after-landing roll.
15. Uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the airplane to a safe stop.
16. Accomplishes the appropriate after-landing checklist items or coordinates with crew to ensure completion of after-landing checklist items in a timely manner and as recommended by the manufacturer, after clearing the runway in a timely manner and as recommended by the manufacturer.

**E. TASK: ROUGH WATER APPROACH AND LANDING
(AMES/ASES)**

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: If a rough water condition does not exist, the applicant's knowledge of rough water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the TASK.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a rough water approach and landing.
2. Considers the wind conditions, surrounding terrain, water depth, debris, and other watercraft.
3. Selects a suitable approach direction and touchdown area.
4. Establishes the recommended approach and landing configuration and adjusts power and pitch attitude as required.
5. Ensures that the landing gear and water rudders are retracted, if applicable.
6. Maintains a stabilized approach and recommended airspeed with gust factor applied, ± 5 knots.
7. Contacts the water at the correct pitch attitude and touchdown speed.
8. Makes smooth, timely, and correct power and control application during the landing while remaining alert for a go-around should conditions be too rough.
9. Maintains positive after-landing control.
10. Completes appropriate checklists or coordinates with crew to ensure completion of after-landing checklist items in a timely manner and as recommended by the manufacturer or approved method.

**F. TASK: GLASSY WATER APPROACH AND LANDING
(AMES/ASES)**

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: If a glassy water condition does not exist, the applicant's satisfactory knowledge of glassy water elements must be evaluated through oral testing. The applicant's skill must be evaluated by simulating the TASK.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the elements related to a glassy water approach and landing.
2. Considers the surrounding terrain, visual attitude references, water depth, debris, and other watercraft.
3. Selects a suitable approach path and touchdown area.
4. Ensures that the landing gear and water rudders are retracted, if applicable.
5. Establishes the recommended approach and landing configuration and adjusts power and pitch attitude as required.
6. Maintains a slightly nose-high stabilized approach at the recommended airspeed, ± 5 knots and descent rate from last altitude reference, until touchdown.
7. Makes smooth, timely, and correct power and control adjustments to maintain proper attitude and rate of descent to touchdown.
8. Contacts the water at the correct pitch attitude and slows to idle taxi speed.
9. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

G. TASK: CONFINED-AREA APPROACH AND LANDING (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

NOTE: This TASK simulates an approach and landing to a small pond, which would require a spiral approach, wings level landing, and step turn upon landing; and a straight ahead approach and landing to a narrow waterway with obstructions at either end. The examiner must evaluate both landing situations for this TASK.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to a confined-area approach and landing.
2. Considers the wind conditions, surrounding terrain, surface condition, water depth, debris, and other watercraft.
3. Selects a suitable approach path and touchdown area.
4. Establishes the recommended approach and landing configuration and airspeed, and adjusts pitch attitude and power as required.
5. Ensures that the landing gear and water rudders are retracted, if applicable.
6. Maintains a stabilized approach and recommended approach airspeed with gust factor applied, ± 5 knots.
7. Makes smooth, timely, and correct power and control application during the roundout and touchdown.
8. Touches down smoothly at the recommended airspeed and pitch attitude, beyond and within 100 feet of a specified point/area.
9. Maintains crosswind correction and directional control throughout the approach and landing.
10. Completes appropriate checklists or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer.

H. TASK: REJECTED LANDING

REFERENCES: 14 CFR part 61; AIM; POH/AFM; FSB Report; FAA-H-8083-3.

NOTE: The maneuver may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet above the runway. This maneuver should be initiated approximately 50 feet above the runway or landing area and approximately over the runway threshold or as recommended by the FSB Report.

For those applicants seeking a VFR only type rating in an airplane not capable of instrument flight, and where this maneuver is accomplished with a simulated engine failure, it should not be initiated at speeds or altitudes below that recommended in the POH.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of a rejected landing procedure including the conditions that dictate a rejected landing, the importance of a timely decision, LAHSO considerations, the recommended airspeed/V-speeds, and also the applicable "clean-up" procedure.
2. Makes a timely decision to reject the landing for actual or simulated circumstances and makes appropriate notification when safety-of-flight is not an issue.
3. Applies the appropriate power setting for the flight condition and establishes a pitch attitude necessary to obtain the desired performance.
4. Retracts the wing flaps/drag devices and landing gear, if appropriate, in the correct sequence and at a safe altitude, establishes a positive rate of climb and the appropriate airspeed/V-speed within ± 5 knots.
5. Trims the airplane as necessary, and maintains the proper ground track during the rejected landing procedure.
6. Accomplishes the appropriate after-landing checklist items or coordinates with crew to ensure timely completion of checklist items, in accordance with approved procedures.
7. Reports reject to ATC in a timely manner, after executing reject procedures.

I. TASK: LANDING FROM A NO FLAP OR A NONSTANDARD FLAP APPROACH

REFERENCES: 14 CFR part 61; FSB Report; POH/AFM; FAA-H-8083-3.

NOTE: This maneuver need not be accomplished for a particular airplane type if the Administrator has determined that the probability of flap extension failure on that type airplane is extremely remote due to system design. The examiner must determine whether checking on slats only and partial-flap approaches are necessary for the practical test. However, probability of asymmetrical flap failures should be considered in this making this determination.

Objective. To determine that the applicant:

1. Exhibits knowledge of the factors, which affect the flight characteristics of an airplane when full or partial flaps, leading edge flaps, and other similar devices become inoperative.
2. Uses the correct airspeeds/V-speeds for the approach and landing.
3. Maintains the proper airplane pitch attitude and flightpath for the configuration, gross weight, surface winds, and other applicable operational considerations.
4. Uses runway of sufficient length for the zero or nonstandard flap condition.
5. Maneuvers the airplane to a point where a touchdown at an acceptable point on the runway and a safe landing to a full stop could be made.
6. After landing, uses spoilers, prop reverse, thrust reverse, wheel brakes, and other drag/braking devices, as appropriate, in such a manner to bring the airplane to a safe stop.

VII. AREA OF OPERATION: NORMAL AND ABNORMAL PROCEDURES

A. TASK: NORMAL AND ABNORMAL PROCEDURES

REFERENCES: 14 CFR part 61; POH/AFM; FSB Report. |

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the normal and abnormal procedures of the systems, subsystems, and devices relative to the airplane type (as may be determined by the examiner); knows immediate action items to accomplish, if appropriate, and proper checklist to accomplish or to call for, if appropriate.
2. Demonstrates the proper use of the airplane systems, subsystems, and devices (as may be determined by the examiner) appropriate to the airplane, such as—
 - a. powerplant.
 - b. fuel system.
 - c. electrical system.
 - d. hydraulic system.
 - e. environmental and pressurization systems.
 - f. fire detection and extinguishing systems.
 - g. navigation and avionics systems to include backup (fail down) modes and procedures.
 - h. automatic flight control system, electronic flight instrument system, and related subsystems to include backup (fail down) modes and procedures.
 - i. flight control systems.
 - j. anti-ice and deice systems.
 - k. airplane and personal emergency equipment.
 - l. other systems, subsystems, and devices specific to the type airplane, including make, model, and series.

VIII. AREA OF OPERATION: EMERGENCY PROCEDURES

A. TASK: EMERGENCY PROCEDURES

REFERENCES: 14 CFR part 61; POH/AFM.

Objective. To determine that the applicant:

1. Exhibits satisfactory knowledge of the emergency procedures (as may be determined by the examiner) relating to the particular airplane type.
2. Demonstrates the proper emergency procedures (as must be determined by the examiner) relating to the particular airplane type, such as—
 - a. emergency descent (maximum rate).
 - b. inflight fire and smoke removal.
 - c. rapid decompression.
 - d. emergency evacuation.
 - e. airframe icing.
 - f. others (as may be required by the AFM).
3. Demonstrates the proper procedure for any other emergency outlined (as determined by the examiner) in the appropriate approved AFM to include demonstration of flight by reference to standby flight instruments.

IX. AREA OF OPERATION: POSTFLIGHT PROCEDURES

A. TASK: AFTER-LANDING PROCEDURES

REFERENCE: POH/AFM.

Objective. To determine that the applicant:

1. Exhibits knowledge of safe afterlanding, taxi, ramping, anchoring, docking, and mooring procedures, as appropriate.
2. Demonstrates proficiency by maintaining correct and positive control. In airplanes equipped with float devices, this includes water taxiing, approaching a buoy, sailing, and docking.
3. Maintains proper spacing on other aircraft, obstructions, and persons.
4. Accomplishes the applicable checklist items or coordinates with crew to ensure completion of checklist items in a timely manner and as recommended by the manufacturer and performs the recommended procedures.
5. Maintains the desired track and speed.
6. Complies with instructions issued by ATC (or the examiner simulating ATC).
7. Observes runway hold lines, localizer and glide slope critical areas, and other surface control markings and lighting to prevent a runway incursion.
8. Maintains constant vigilance and airplane control during the taxi operation.

B. TASK: ANCHORING (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to anchoring in lakes, rivers, and tidal areas.
2. Selects a suitable area for anchoring considering seaplane movement, water depth, tides, wind, and weather changes.
3. Uses an adequate number of anchors and lines of sufficient strength and length to ensure the seaplane's security.

C. TASK: DOCKING AND MOORING (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to docking or mooring.
2. Approaches the dock or mooring buoy in the proper direction considering speed, hazards, wind, and water current.
3. Ensures seaplane security.

D. TASK: BEACHING (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to beaching.
2. Selects a suitable area for beaching, considering water depth, current, tide, and wind.
3. Approaches from the proper direction and at a suitable speed for the beach condition.
4. Beaches and secures the seaplane in a manner that will protect it from harmful effects of wind, waves, and changes in water level.
5. Departs the beach in a safe manner, considering wind, current, traffic, and hazards.

E. TASK: RAMPING (AMES/ASES)

REFERENCES: POH/AFM; FAA-H-8083-3, FAA-H-8083-23.

Objective. To determine that the applicant:

1. Exhibits knowledge of the elements related to ramping.
2. Approaches the ramp from the proper direction and at a safe speed, considering current, wind, and type of ramp.
3. Ramps the seaplane at the proper speed and attitude.
4. Secures the seaplane on the ramp in a manner that will protect it from the harmful effects of wind, waves, and changes of water level.
5. Departs the ramp in a manner that does not endanger other persons or watercraft in the area.
6. Re-enters the water.

F. TASK: PARKING AND SECURING

REFERENCE: POH/AFM.

Objective. To determine that the applicant:

1. Demonstrates knowledge of the parking, and the securing airplane procedures.
2. Demonstrates knowledge of the airplane forms/logs to record the flight time/discrepancies.
3. Demonstrates knowledge of any installed and auxiliary aircraft security equipment, as appropriate.

APPENDIX 1

TASK VS. SIMULATION DEVICE CREDIT

APPENDIX 1—AIRPLANES TASK VS. SIMULATION DEVICE CREDIT

Examiners conducting the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards—Airplane with simulation devices should consult appropriate documentation to ensure that the device has been approved for training, testing, and checking the TASKs in question. The documentation for each device should reflect that the following activities have occurred.

1. The device must be evaluated, determined to meet the appropriate standards, and assigned the appropriate qualification level by the National Simulator Program Manager. The device must continue to meet qualification standards through continuing evaluations as outlined in the appropriate advisory circular (AC). For airplane flight training devices (FTDs), AC 61-136 (as revised) (replaces AC 120-45A), FAA Approval of Basic Aviation Training Devices (BATD) and Advanced Aviation Training Devices (AATD), will be used. For simulators, AC 120-40 (as revised), Airplane Simulator Qualification, will be used.
2. The FAA must approve the device for training, testing, and checking the specific TASKs listed in this appendix.
3. The device must continue to support the level of student or applicant performance required by this PTS.

NOTE: Users of the following chart are cautioned that use of the chart alone is incomplete. The description and Objective of each TASK as listed in the body of the PTS, including all NOTES, must also be incorporated for accurate simulation device use.

USE OF CHART

- | | |
|---|--|
| X | Creditable. |
| A | Creditable if appropriate systems are installed and operating. |

- NOTES:**
1. The airplane may be used for all TASKs.
 2. Training Devices below Level 4 may NOT be used for airplane type ratings.
 3. Standards for and use of Level 1 Flight Training Devices have not been determined.

FLIGHT TASK

FLIGHT SIMULATION DEVICE LEVEL

Areas of Operation: Section Two

1 2 3 4 5 6 7 A B C D

II. Preflight Procedures

A. Preflight Inspection (Cockpit Only)	A	X	A	A	X	X	X	X	X	X	X
B. Powerplant Start	A	X	A	A	X	X	X	X	X	X	X
C. Taxiing										X	X
F. Pretakeoff Checks	A	X	A	A	X	X	X	X	X	X	X

III. Takeoff and Departure Phase

A. Normal and Crosswind Takeoff										X	X
E. Instrument Takeoff (Levels 3, 6, and 7 require a visual system approved in accordance with AC 120-40, as amended.)			X			X	X	X	X	X	X
F. Powerplant Failure During Takeoff								X	X	X	X
G. Rejected Takeoff (Levels 3, 6, and 7 require a visual system approved in accordance with AC 120-40, as amended.)			X			X	X	X	X	X	X
H. Departure Procedures			X			X	X	X	X	X	X

IV. Inflight Maneuvers

A. Steep Turns			X			X	X	X	X	X	X
B. Approaches to Stalls (Use of Levels 3, 6, and 7 requires operational synthetic stall warning system.)			X			X	X	X	X	X	X
C. Powerplant Failure—Multiengine Airplane								X	X	X	X
D. Powerplant Failure—Single-Engine Airplane			X			X	X	X	X	X	X
E. Specific Flight Characteristics	<i>Level of device as determined by the airplane Flight Standardization Board (FSB)</i>										
F. Recovery From Unusual Attitudes								X	X	X	X

FLIGHT TASK**FLIGHT SIMULATION DEVICE LEVEL****Areas of Operation: Section Two****1 2 3 4 5 6 7 A B C D****V. Instrument Procedures**

A. Standard Terminal Arrival/Flight Management System Procedures			X			X	X	X	X	X	X	X
B. Holding			X			X	X	X	X	X	X	X
C1. Precision Instrument Approach (All Engines Operating) (Autopilot/Manual Flt. Dir. Assist/Manual Raw Data) (Levels 2 and 5 use limited to A/P coupled approach only)		A	X		A	X	X	X	X	X	X	X
C2. Precision Instrument Approach (PA) (One Engine Inop.) (Manual Flt. Dir. Asst/Manual Raw Data)								X	X	X	X	X
D. Nonprecision Approaches (NPA) (Not more than one authorized in a device less than Level A simulator) (Levels 2 and 5 use limited to A/P coupled approach only)		A	X		A	X	X	X	X	X	X	X
E. Circling Approach (each appr. must be specifically auth.)								X	X	X	X	X
F1. Missed Approach (Normal)								X	X	X	X	X
F2. Missed Approach (Powerplant Failure)								X	X	X	X	X

VI. Landings and Approaches to Landings

A. Normal and Crosswind Approaches and Landings										X	X	X
B. Landing From a Precision Approach (PA)										X	X	X
C. Approach and Landing With (Simulated) Powerplant Failure— Multiengine Airplane										X	X	X
D. Landing From Circling Approach										X	X	X
H. Rejected Landing								X	X	X	X	X
I. Landing From a No Flap or a Nonstandard Flap Approach										X	X	X

FLIGHT TASK**FLIGHT SIMULATION DEVICE LEVEL****Areas of Operation: Section Two****1 2 3 4 5 6 7 A B C D****VII. Normal and Abnormal Procedures (*1) (**2)**

A. Powerplant (including shutdown and restart)		A	X	A	A	X	X	X	X	X	X
B. Fuel System		A	X	A	A	X	X	X	X	X	X
C. Electrical System		A	X	A	A	X	X	X	X	X	X
D. Hydraulic System		A	X	A	A	X	X	X	X	X	X
E. Environmental and Pressurization Systems		A	X	A	A	X	X	X	X	X	X
F. Fire Protection and Extinguisher Systems		A	X	A	A	X	X	X	X	X	X
G. Navigation and Avionics Systems		A	X	A	A	X	X	X	X	X	X
H. Automatic Flight Control System, Electronic Flight Instrument System, and Related Subsystems		A	X	A	A	X	X	X	X	X	X
I. Flight Control Systems								X	X	X	X
J. Anti-ice and Deice Systems		A	X	A	A	X	X	X	X	X	X
K. Aircraft and Personal Emergency Equipment		A	X	A	A	X	X	X	X	X	X
L. Others, as determined by make, model, or series				A	A	X	X	X	X	X	X

VIII. Emergency Procedures

A. Emergency Descent (Max. Rate)			X			X	X	X	X	X	X
B. Inflight Fire and Smoke Removal		A	X	A	A	X	X	X	X	X	X
C. Rapid Decompression		A	X	A	A	X	X	X	X	X	X
D. Emergency Evacuation			X			X	X	X	X	X	X
E. Others (as may be required by AFM)		A	X	A	A	X	X	X	X	X	X

FLIGHT TASK**FLIGHT SIMULATION DEVICE LEVEL****Areas of Operation: Section Two****1 2 3 4 5 6 7 A B C D****IX. Postflight Procedures**

A. After-Landing Procedures	A	X	A	A	X	X	X	X	X	X	X
F. Parking and Securing	A	X	A	A	X	X	X	X	X	X	X

(*1) Evaluation of normal and abnormal procedures may be accomplished in conjunction with other events.

(**2) Situations resulting in asymmetrical thrust or drag conditions (i.e., asymmetrical flight controls) must be accomplished in at least a Level A device. However, shutdown and restart (procedures only) may be accomplished in a properly equipped FTD.