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# Airline Transport Pilot and Aircraft Type Rating Practical Test Standards for Airplane

Flight Standards Department

Civil Aviation Administration of China

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# Introduction

## General Information

*The Airline Transport Pilot and Aircraft Type Rating — Airplane Practical Test Standards* (PTS) has been published by CAAC Flight Standards Department to establish the standards for airline transport pilot and aircraft type rating practical tests for airplanes. The examiners must conduct practical tests in compliance with these standards. 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.

## Practical Test Standards Concept

An applicant must demonstrate knowledge and skill in the areas specified in CCAR-61 to be issued an airline transport pilot license or an airplane type rating. The PTS has been developed in accordance with CCAR-61, containing the areas of operation and specific tasks in which pilot competency must be demonstrated. CAAC Flight Standards Department is responsible for the revision of the PTS and will revise the PTS for certain aircraft types whenever it is determined that changes should be made on certain maneuvers, tasks, procedures, or knowledge areas to facilitate the implementation of the PTS.

## Practical Test Book Description

*The Airline Transport Pilot and Aircraft Type Rating Practical Test Standards — Airplane* sets the standards for the airline transport pilot and aircraft type rating practical test. The book includes Areas of Operation and Tasks for the initial issuance of an airline transport pilot license and for the addition of category, class, and aircraft type ratings to an airline transport pilot license. These Areas of Operation and Tasks also apply for the issuance of an airplane type rating to a private or commercial pilot license.

The Areas of Operation are divided into two sections. The first section is the aeronautical knowledge portion, which determines the applicant's knowledge of the aircraft, equipment, performance, and limitations. The second section is the flight portion, which tests the applicant's flight skills and knowledge.

If all Tasks of the practical test are not completed within the scheduled duration, 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 conduct the practical test in any sequence that will result in a complete and efficient test; however, the aeronautical knowledge 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.

"Notes" are used to emphasize special considerations required in the Areas of Operation or Tasks.

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

1. Specifically what the applicant should be able to do.
2. The conditions under which the Task is to be performed.
3. The acceptable standards of performance.

**Use of the Practical Test Standards**

The Tasks in the PTS are for an initial airline transport pilot license, or the addition of a category, class, or aircraft type rating to an airline transport pilot license. All appropriate Tasks required for an initial type rating are also required for pilot-in-command proficiency checks conducted in accordance with CCAR-61.

If the multiengine airplane used for the flight check does not publish a Vmc, then the "Limited to Centerline Thrust" restriction will be added to any license issued from

this check, unless competence in a multiengine airplane with a published Vmc has already been demonstrated.

All Tasks are required, except as noted otherwise. When a particular element is not appropriate to the aircraft or its equipment, that element may be omitted. Examples of element exceptions are: operation of landing gear in fixed gear aircraft, other situations where the aircraft operation is not compatible with the requirement of the element.

In preparation for each practical test, the examiner must 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.

Any equipment inoperative shall be placarded in accordance with the approved minimum equipment list (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, especially for those noted areas in Runway hotspots and NOTAMs.

8. Land and hold short operations (LAHSO).

9. Controlled flight into terrain (CFIT).

10. Aeronautical decision making (ADM) and risk management.

11. Crew resource management (CRM).

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. De/anti-icing procedures specified in the specific aircraft manual.

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 and his or her responsibilities and roles. Prior to the test, the examiner must explain, and the applicant must understand, the examiner’s role regarding air traffic control, and the duties and responsibilities of the examiner through all phases of the practical test.

**Practical Test Prerequisites: Airline Transport Pilot License**

The applicant may not hold a first-class medical certificate for all portions of the practical test which can be conducted in a flight simulator or flight training device. An applicant for the original issuance of an airline transport pilot license shall meet the requirements of Section 61.183 of CCAR-61.

**Practical Test Prerequisites: Aircraft Type Ratings**

An applicant for a type rating in an airplane is required by CCAR-61 to have:

1. A valid CAAC medical certificate (not required for the portions conducted in a flight simulator or flight training device).

2. The appropriate category and class rating required by CAAC-61 or to accomplish the appropriate Tasks in the private/commercial pilot Practical Test Standards (Those Tasks are not listed in the PTS).

3. 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 standards that apply to the aircraft type rating sought.

4. 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 standards that apply to the aircraft type rating sought.

If the applicant is an employee of a CCAR-121 or CCAR-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 Subparagraphs 3 and 4 above.

An applicant who holds a private pilot or limited commercial pilot license 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 license 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 license, must be used in conjunction with the PTS. Also, the current instrument rating practical test standards must be used in conjunction with the 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 practical test standards (and not listed in the PTS) must be accomplished.

**Aircraft Type Ratings Limited to "VFR Only"**

Pilot applicants who wish to add a type rating, limited to VFR, to their license must take a practical test that includes the following items:

Section 1: Preflight Preparation

Area of Operation I: Preflight Preparation

Task A: Equipment Examination

Task B: Performance and Limitations

Section 2: Preflight Procedures, Inflight Maneuvers, and Postflight Procedures

Area of Operation II: Preflight Procedures

Task A: Preflight Inspection

Task B: Powerplant Start

Task C: Taxiing

Task D: Pre-takeoff Checks

Area of Operation III: Takeoff and Departure Phase

Task A: Normal and Crosswind Takeoff

Task B: Powerplant Failure during Takeoff

Task C: Rejected Takeoff

Area of Operation IV: Inflight Maneuvers

Task A: Steep Turns

Task B: Approaches to Stalls and Stall Recovery

Task C: Powerplant Failure — Multiengine Airplane

Task D: Powerplant Failure — Single-engine Airplane

Task E: Specific Flight Characteristics

Area of Operation V: Instrument Procedures — Not Applicable

Area of Operation VI: Landings and Approaches to Landings

Task A: Normal and Crosswind Approaches and Landings

Task B: Approach and Landing with (Simulated) Powerplant Failure —Multiengine Airplane

Task C: Rejected Landing (Task E)

Task D: Landing from a No Flap or a Nonstandard Flap Approach

Area of Operation VII: Normal and Abnormal Procedures

Area of Operation VIII: Emergency Procedures

Area of Operation IX: Postflight Procedures (All Tasks as Applicable)

**Removal of the “Limited to Center Thrust” Limitation**

Applicants applying for removal of the “Limited to Center Thrust” limitation must satisfactorily perform the following Areas of Operation and Tasks from this Practical Test Standards for Airplane, and the following Areas of Operation and Tasks from *Commercial Pilot Practical Test Standards for Airplane*, during the practical test in a multiengine airplane that has a manufacturer's published Vmc speed.

Airline Transport Pilot and Aircraft Type Rating Practical Test Standards for Airplane:

Area of Operation III: Takeoff and Departure Phase

Task C: Powerplant Failure During Takeoff

Task D: Rejected Takeoff

Area of Operation IV: Inflight Maneuvers

Task C: Powerplant Failure — Multiengine Airplane

Area of Operation VI: Landings and Approaches to Landings

Task C: Approach and Landing with (Simulated) Powerplant Failure - Multiengine Airplane

Commercial Pilot Practical Test Standards - Commercial pilot Airplane - Multiengine Land and Multiengine Sea:

Area of Operation I: Preflight Preparation

Task F: Principles of Flight - Engine Inoperative

Area of Operation X: Multiengine Operations

Task A: Maneuvering with One Engine Inoperative

Task B: Vmc Demonstration

**Note:** A flight simulator or flight training device representative of a multiengine airplane, with a manufacturer’s published Vmc speed, may be used if used in accordance with the training program and training plan approved for a CCAR-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 the Section 61.45 of CCAR-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.

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.

The applicant is expected to demonstrate automation management skills in utilizing the autopilot, avionics and systems displays, and 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 aeronautical knowledge and flight portions of the practical test.

When a practical test is conducted for air operators operating under CCAR-121 or CCAR-135, the appropriate parts of the operator’s training program must be

currently valid. This is specifically to include meanings and limitations of airport, taxiway, and runway signs, lights, and markings.

**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 Flight Simulators or Flight Training Devices**

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, flight simulator or an aircraft to accomplish, but they may be used.

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

When accomplished in an aircraft, certain Task elements may be accomplished through "simulated" actions in the interest of safety, but when accomplished in a flight simulator or flight training device, 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 a simulator or flight training device, 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 a simulator or flight training device is used. It is important to understand that whether accomplished in a simulator or flight training device, 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 standards. 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 must use whatever means deemed suitable to determine that the applicant's equipment knowledge meets the standards.

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 any time, during the flight event. This specifically should include meanings and limitations of airport, taxiway, and runway signs, lights, and markings. 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, 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. Moreover, when occupying a required duty position, the examiner must perform crew resource management (CRM) functions as briefed and requested by the applicant. 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 within the approved standards;
2. Demonstrating mastery of the aircraft with the successful outcome of each task performed.
3. Demonstrating satisfactory proficiency and competency within the approved standards and single-pilot competence if the aircraft is type certificated for single-pilot operations.
4. Demonstrating sound judgment and single-pilot resource management/crew resource management.

**Unsatisfactory Performance**

Consistently exceeding tolerances stated in the Task Objective, or failure to take prompt, corrective action when tolerances are exceeded, is indicative of unsatisfactory performance. The tolerances represent the performance expected in good flying conditions. Any action, or lack thereof, by the applicant which requires corrective intervention by the examiner to maintain safe flight shall be disqualifying. If the applicant fails the practical test because of a special emphasis area, the Notice of Disapproval shall indicate the associated Task (i.e., Area of Operation IV, “Approaches to Stalls and Stall Recovery” Task, failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers).

**Note:** It should be particularly emphasized that the applicant, safety pilot and the examiner should use correct and effective visual observation techniques to observe the status of other flight operations in the flight area to avoid any conflict before commencing any action.

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. 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 license or rating sought. The test may be continued ONLY with the consent of the applicant. In such cases, it is usually better for the examiner to continue with the practical test to complete the other Tasks. If the examiner determines that the entire practical test must be repeated, the practical test should not be continued but should be terminated immediately.

If the remainder of the practical test is completed within 60 days when the practical test was 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.

Whether the remaining parts of the practical test are continued or not after a failure, a Notice of Disapproval must be issued.

When the examiner determines that a Task is incomplete, or the outcome uncertain, the examiner may require the applicant to repeat that Task, or portions of that Task. This provision has been made in the interest of fairness and does not mean that instruction is permitted during the certification process. When practical, the remaining Tasks of the practical test phase should be completed before repeating the questionable Task. If the second attempt to perform a questionable Task is not clearly satisfactory, the examiner shall consider it unsatisfactory.

If the practical test must be terminated for disqualification of the applicant’s competency and there are other Areas of Operation which have not been tested or still need to be repeated, a Notice of Disapproval shall be issued listing the specific Areas of Operation which have not been successfully completed or tested.

When a practical test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure, weather, illness), the Airmen License, Rating

Application and the Airmen Knowledge Test Report is return to the applicant. The examiner then must issue a Letter of Discontinuance to the applicant. The Letter of Discontinuance should identify the portions of the practical test that were successfully completed and the day when the practical test is resumed. The applicant must be advised that the Letter of Discontinuance must be presented to the examiner, when the practical test is resumed, and made part of the certification file.

**Recording Unsatisfactory Performance**

When a Notice of Disapproval is issued, the examiner shall record the applicant's unsatisfactory performance in terms of the Areas of Operation appropriate to the practical test conducted.

**Crew Resource Management**

CRM refers to the effective use of all available resources (information, hardware and human resources) to identify and respond to threats, prevent, detect and correct errors, and identify and address unanticipated aircraft conditions, so as to achieve a safe and efficient flight. CRM is not a single Task but a set of competencies, which must be evident in all Tasks in this practical test standards, as applied to the single-pilot or the multicrew operation.

The evaluators are supposed to test the ability in the aspect of CRM of the applicant:

1. The concept of CRM
2. Threat and Error Management
3. The comprehensive framework of culture, standard operating procedures (SOP) and CRM
4. Individual factors that influence team performance
5. Communication skills
6. Situational awareness
7. Decision making
8. Management of workload

9. Leadership and teamwork
10. Automation management skills

An amplified list of CRM competencies may be found in Crew Resource Management Training (AC-121-41).

CRM evaluation is a comprehensive task. 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 CAAC-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**

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

Pass/Fail judgments based solely on CRM 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 CAAC-approved operations manuals that must be accomplished. 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 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.

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 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.

**Conversion between Measurement Units**

Two systems of measurement units are used in indicating height in these practical test standards: metric units and imperial units. The applicant should be familiar with the use of metric units, the use of imperial units and the conversion between these two measurement units.

**Effective Date**

These practical test standards will be effective on April 19, 2013, and the previous edition released in January 2004 will be obsolete as of this date.

## Section 1 Preflight Preparation

### I. Areas of Operation: Preflight Preparation

**Task A: Equipment Examination**

**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, nosewheel 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; cross-feeding; 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 Navigation Satellite System

(GNSS); VOR, NDB, ILS, RNAV systems and components; traffic collision 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), winglet, canard, 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.

**Task B: Performance and Limitations**

**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) Departure airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, taxi restrictions, specific taxi procedures, as applicable, and signage/markings

b) Accelerate-stop distance.

c) Accelerate-go distance.

d) Takeoff performance — all engines and with engine(s) inoperative.

e) 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.

f) Service ceiling — all engines, with engines(s) inoperative, including drift down, if appropriate.

g) Cruise performance.

h) Fuel consumption, range, and endurance.

i) Descent performance.

j) Arrival airport, taxiway, and runway NOTAMs, runway usable lengths, HOT Spots, tax restrictions, specific tax procedures as applicable, and signage/markings.

k) Landing distance.

l) Land and hold short operations (LAHSO).

m) Go-around from rejected landings (landing climb).

n) 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.

**Task C: Water and Seaplane Characteristics (AMES/ASES)**

**Objective: To determine that the applicant exhibits knowledge including:**

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

**Task D: Seaplane Bases, Maritime Rules, and Aids to Marine Navigation (AMES/ASES)**

**Objective: To determine that the applicant exhibits satisfactory knowledge including:**

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

### Ⅱ. Area of Operation: Preflight Procedures

**Task A: Preflight Inspection**

**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, and winglets, as appropriate.

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.

**Task B: Powerplant Start**

**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 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.

**Task C: Taxiing**

**Objective: To determine that the applicant:**

1. Exhibits adequate knowledge of safe taxi procedures (as appropriate to the airplane including push-back).
2. Demonstrating and explaining procedures for holding the pilot’s workload to a minimum during taxi operations.
3. Exhibiting taxi operation planning procedures, such as recording taxi instructions, reading back taxi clearances, and reviewing taxi routes on the airport diagram.
4. Demonstrating procedures to insure that clearance or instructions that are actually received are adhered to rather than the ones expected to be received.
5. Know, explain and discuss the hazards of low visibility operations.

6. 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.

7. Maintains proper spacing on other aircraft, obstructions, and persons.

8. Accomplishes the applicable checklist items and performs recommended procedures.

9. Maintains desired track and speed.

10. Complies with instructions issued by ATC (or the examiner simulating ATC).

11. Observes runway hold lines, localizer and glide slope critical areas, buoys, beacons, and other surface control and lighting.

12. Maintains constant vigilance and airplane control during taxi operation to prevent runway/waterway incursion.

13. Demonstrating and/or explaining procedural differences for day and night operations.

14. Demonstrating and explaining the use(s) of aircraft exterior lighting and differences for day and night operations.

**Task D: Sailing (AMES/ASES)**

**Objective: To determine that the applicant:**

1. Exhibits knowledge of the elements related to sailing.

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.

**Task E: Seaplane Base/Water Landing Site Markings and Lighting (AMES/ASES)**

**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.

**Task F: Pre-Takeoff Checks**

**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

### Task A: Normal and Crosswind Takeoff

**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. Completes required checks prior to 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.
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 CAAC-approved procedure and the exterior 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 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, ±5°, and the desired airspeed (V-speed), ±5 knots (of the appropriate V-speed range).

**Task B: Glassy Water Takeoff and Climb (AMES/ASES)**

**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.

**Task C: Rough Water Takeoff and Climb (AMES/ASES)**

**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 surface hazards 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 in a timely manner and as recommended by the manufacturer.

**Task D: Confined-Area Takeoff and Climb (AMES/ASES)**

**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 Vx values within 5 knots of Vmc, the use of Vy 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 obstructions prior to selecting a takeoff path.
4. Selects a takeoff path that will allow maximum safe utilization of wind, water, and 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.
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.

**Task E: Instrument Takeoff**

**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 (30m) AGL. If accomplished in a flight simulator, visibility should be no greater than one quarter (1/4) mile (450m), 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. Completes the appropriate checklist to ensure that the airplane systems applicable to the instrument takeoff are operating properly.
4. Sets the applicable radio aids or 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 ±5° and desired airspeeds within ±5 knots.
10. Complies with ATC clearances and instructions issued by ATC (or the examiner simulating ATC).
11. Makes appropriate callouts to coordinate with the crew, if in a crew served airplane.

**Task F: Powerplant Failure during Takeoff**

**Note:** In a multiengine airplane certificated with published V1, $V_R$, and/or V2 speeds, the failure of the most critical powerplant should be simulated at a point:

1) after V1 and prior to V2, if in the opinion of the examiner, it is appropriate under the prevailing conditions; or

2) as close as possible after V1 when V1 and V2 or V1 and VR are identical.

In a multiengine airplane for which no V1, VR, or V2 speeds are published the failure of the most critical powerplant should be simulated at a point after reaching a minimum of Vsse and, if accomplished in the aircraft, at an altitude not lower than 500 feet (150 m) AGL, giving consideration to local atmospheric conditions, terrain, and aircraft performance available.

**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 takeoff performance and 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.

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 CAAC-approved guidance, for the exiting 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 (in a multiengine airplane) the takeoff 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 ±5°, 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.

**Task G: Rejected Takeoff**

**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 actors, 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.

5. Adjusts the powerplant controls as recommended by the CAAC-approved guidance and the exterior 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/stop way. If a flight simulator is not used, the powerplant failure must be simulated before reaching 50 percent of Vmcg.

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, as set forth in the POH or AFM.

**Task H: Departure Procedures**

**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 and uses the appropriate communications frequencies and systems displays; selects and identifies the navigation aids to properly fly the assigned ATC clearance for the proposed flight.

4. Performs the appropriate checklist items in a timely manner.

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 ±10°, altitude within ±100 feet（30 meters）; 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

**Task A: Steep Turns**

**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 and the training syllabus, but in no case lower than 3,000 feet (900m) 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 ±5° while in smooth, stabilized flight.

5. Applies smooth coordinated pitch, bank, and power to maintain the specified altitude within ±100 feet (30m) 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 ±10° 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.

**Task B: Approaches to Stalls and Stall Recovery**

The following three approaches to stall and stall recovery are required (but deep stalls in airplanes and “tip stalls” in swept wing airplanes should be avoided):

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).

**Note:** When published, the aircraft manufacturer’s procedures for the specific make/model/series airplane take precedent over the identification and recovery actions herein. One of these approaches to a stall must be accomplished while in a turn with a bank angle of 15 to 30. If installed, one of these approaches to a stall should be accomplished by commands to the autopilot.

**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, demonstrates adequate knowledge of and skill in the proper procedure for resuming normal flight.
2. If accomplished in an airplane, 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（900 m） AGL for non-transport certificated airplanes and 5,000 feet （1500 m）for transport certificated airplanes. When accomplished in a flight simulator or flight training device, the entry should be consistent with expected operational environment for the stall configuration with no minimum entry altitude defined.
3. Observes the area is clear of other aircraft prior to accomplishing an approach to a stall.
4. While maintaining the briefed profile, either manually or with the autopilot engaged, smoothly adjust pitch attitude, bank angle, and/or 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 promptly initiates recovery by disconnecting autopilot, reducing the angle of attack, leveling the wings, increasing power as necessary, and retracting any speed brakes/spoilers to effect a safe and timely recovery.

**Note:** If accomplished in an airplane in actual flight, the power should be set in accordance with the evaluator's instructors, when a limitation of power application is prudent for operational considerations and safety is not impaired.

6. Regains control of the airplane and recovers to maneuvering speed and flight path appropriate for the airplane's configuration without exceeding the airplane's limitations or losing excessive altitude consistent with the airplane's performance capabilities. This should include reducing pitch attitude as necessary, reducing bank angle and adding power (no particular order implied!) to recover to missed approach or cruise configuration, airspeed and altitude. Some altitude loss is expected during the recovery, but re-establishment of controlled flight is paramount.

**Note:** Evaluation criteria for a recovery from an approach to stall should not mandate a predetermined value for altitude loss. Valid evaluation criteria must take into account the multitude of external (such as density altitude) and internal variables (ie. airplane mass, drag configuration and powerplant response time) which affect the recovery altitude.

7. Demonstrates smooth, positive control during entry, approach to a stall, and recovery.

**Task C: Powerplant Failure — Multiengine Airplane**

**Note:** The feathering of one propeller and engine shutdown 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. 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 [900 m] 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 (900 m) 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.

**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 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 (30m), 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 ±10° of the specified heading.

10. Demonstrates proper powerplant restart procedures (if appropriate) in accordance with CAAC-approved procedure/ checklist or the manufacturer's recommended procedures and pertinent checklist items.

**Task D: Powerplant Failure — Single–Engine Airplane**

**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 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 in a manner recommended by the manufacturer or approved by the CAAC.

**Task E: Specific Flight Characteristics**

**Objective: To determine that the applicant:**

1. Exhibits knowledge of specific flight characteristics appropriate to the specific airplane, such as Dutch Rolls for certain aircraft.

2. Uses proper technique to enter into, operate within, and recover from specific flight situations.

**Task F: Recovery from Unusual Attitudes**

**Objective: To determine that the applicant:**

1. Exhibits knowledge of recovery from unusual attitudes.

2. Recovers from nose-high banked, using proper pitch, bank, and power techniques.

3. Recovers from nose-low banked, 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 license and is seeking a type rating limited to VFR.

**Task A: Standard Terminal Arrival/Flight Management System Procedures**

**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 appropriate airplane checklist items 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, or 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 ±10°; altitude within ±100 feet (30m); and accurately tracks radials, courses, and bearings.

12. Complies with the provisions of the Profile Descent, STAR, and other arrival procedures, as appropriate.

**Task B: Holding**

**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 (30m), headings within ±10°; 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.

**Task C: Precision Approaches (PA)**

**Note:** Two precision approaches, utilizing airplane navigation 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.

**Note:** If the installed equipment and data base is current and qualified for IFR flight and LPV approaches, an LPV approach can be flown to demonstrate precision approach proficiency if the LPV DA is equal to or less than 300 feet HAT.

**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 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 (30m), the desired airspeed within ±10 knots, the desired heading within ±5°; 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.

b. Inoperative airplane and ground navigation equipment.

c. Inoperative visual aids associated with the landing environment.

d. Meteorological information and conditions from meteorological departments.

11. Establishes a predetermined rate of descent at the point where the 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 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.

**Task D: Nonprecision Approaches (NPA)**

**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, RNP, or LOC.

**Note:** One approach should be flown with reference to backup or "fail down" instrumentation or navigation display depending on the aircraft's avionics configuration.

**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.
7. Maintains, prior to beginning the final approach segment, the desired altitude ±100 feet (30m), the desired airspeed ±10 knots, the desired heading ±5°; 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/Height (MDA/H) and visibility criteria for the airplane approach category when required, such as:
    a. Notices to Airmen.
    b. Inoperative airplane and ground navigation equipment.
    c. Inoperative visual aids associated with the landing environment.
    d. Weather criteria.
10. Establishes a rate of descent that will ensure arrival at the MDA/H (at the visual descent point (VDP), if published) with the airplane in a position from which a descent from MDA/H 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 ±5° in the case of the RMI or bearing pointer, and maintains airspeed within ±5 knots of that desired.

12. Maintains the MDA/H, when reached, within −0, +50 feet (15m) to the missed approach point.

13. Executes the missed approach at the missed approach point (MAP) 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.

**Task E: Circling Approach**

**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/H, 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 and the examiner.

5. Descends at a rate that ensures arrival at the MDA/H 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/H 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 (-0m), +100 feet (+30m), heading/ track within ±5°, 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.

**Task F: Missed Approach**

**Note:** The applicant must perform two missed approaches with one being from a precision approach (ILS, MLS, or GLS). One complete missed approach must be accomplished in accordance with the published procedure. Additionally, in multiengine airplanes, a missed approach must be accomplished with one engine inoperative (or simulated inoperative). The engine failure may be experienced any time 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/H or continuing a precision approach below DH/DA as appropriate 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.

**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.

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 and completes the recommended airplane 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 (±30m), airspeed ±5 knots, heading ±5°; 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, touch down at the aiming point markings - 250' to +500' or where there are no runway aiming point markings, 750' to 1,500' from the approach threshold of the runway. Deceleration to taxi speed (20 knots or less on dry pavement, 10 knots or less on contaminated pavement) should be demonstrated on at least one landing to within the calculated landing distance plus 25% for the actual conditions with the runway centerline between the main landing gear. At no time will the outcome of the rollout and subsequent taxi be in doubt. Go-arounds will incur no penalty if successful. “Successful” is defined as no surface contact except for the landing gear on the runway. 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.

**Task A: Normal and Crosswind Approaches and Landings**

**Note:** In an airplane with a single powerplant, unless the applicant holds a commercial pilot license, he or she must accomplish accuracy approaches and spot landings from an altitude of 1,000 feet (300m) 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 within 200 feet (60m) 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, 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 in a timely manner and as recommended by the manufacturer.

**Task B: Landing from a Precision Approach**

**Note:** If circumstances (i.e., poor weather conditions) 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.

**Objective: To determine that the applicant:**

1. Exhibits ability and 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 in a timely manner and as recommended by the manufacturer or approved method.
7. Transitions smoothly from simulated instrument meteorological conditions (IMC) to visual meteorological conditions (VMC) 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 in a timely manner and as recommended by the manufacturer.

**Task C: Approach and Landing with (Simulated) Powerplant Failure — Multiengine Airplane**

**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.

**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. Correctly 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 in a timely manner and as recommended by the manufacturer, and verifies the appropriate 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 (30m), the desired airspeed ±10 knots, the desired heading ±5°; 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 after exiting the runway in a timely manner and as recommended by the manufacturer.

**Task D: Landing From a Circling Approach**

**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/H 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/H or exceeding the visibility criteria until in a position from which descent to a normal landing can be made.
7. Accomplishes the appropriate checklist items in a timely manner and as recommended by the manufacturer.
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 (+30m), −0 feet (-0m), heading within ±5°, 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 in a timely manner and as recommended by the manufacturer, after clearing the runway.

**Task E: Rough Water Approach and Landing (AMES/ASES)**

**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. Follows appropriate checklists items to ensure completion of after-landing checklist as recommended by the manufacturer in a timely manner.

**Task F: Glassy Water Approach and Landing (AMES/ASES)**

**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. Accomplishes the appropriate after-landing checklist items in a timely manner and as recommended by the manufacturer.

**Task G: Confined-Area Approach and Landing (AMES/ASES)**

**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 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 touchdown.
8. Touches down smoothly at the recommended airspeed and pitch attitude, within 100 feet of a specified point/area.
9. Maintains crosswind correction and directional control throughout the approach and landing.
10. Accomplishes the appropriate after-landing checklist items in a timely manner and as recommended by the manufacturer.

**Task H: Rejected Landing**

**Note:** The maneuver may be combined with instrument approach, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 feet (30m) above the runway. This maneuver should be initiated approximately 50 feet (15m) above the runway and approximately over the runway threshold. 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, 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 advises ATC 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 checklist items in a timely manner according to approved procedures.

**Task I: Landing from a No Flap or a Nonstandard Flap Approach**

**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. 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

**Task A: Normal and Abnormal Procedures**

**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

### Task A: Emergency Procedures

**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

### Task A: After-Landing Procedures

**Objective: To determine that the applicant**

1. Exhibits knowledge of safe after-landing, taxi, ramping, anchoring, docking and mooring procedures, as appropriate.
2. Exhibits procedures to ensure the pilot maintains strict focus on the movement of the aircraft and ATC communications.

3. Demonstrates proficiency by maintaining correct and positive control. In airplanes equipped with float devices, this includes water taxiing, approaching a buoy, sailing and docking.

4. Utilizes procedures for holding the pilot's workload to a minimum during taxi operations.

5. Maintains proper spacing on other aircraft, obstructions, and persons.

6. Utilizes taxi operation planning procedures, such as recording taxi instructions, reading back taxi clearances and reviewing taxi routes on the airport diagram.

7. Utilizes procedures to ensure that clearance or instructions that are actually received are adhered to rather than the ones expected to be received.

8. Demonstrates procedures for briefing if a landing rollout to a taxiway exit will place the pilot in close proximity to another runway which can result in a runway incursion.

9. Performs all procedures required and completes the applicable checklist items in a timely manner and as recommended by the manufacturer.

10. Conducts appropriate after-landing/taxi procedures in the event the aircraft is on a taxiway that is between parallel runways.

11. Demonstrates specific procedures for operations at an airport with an operating air traffic control tower, with emphasis on ATC communications and runway entry/crossing authorizations.

12. Demonstrates and explains ATC communications and pilot actions before landing, and after landing at airports.

13. Maintains the desired track and speed.

14. Complies with instructions issued by ATC (or the examiner simulating ATC).

15. Observes runway hold lines, localizer and glide slope critical areas, and other surface control markings and lighting to prevent a runway incursion.

16. Maintains constant vigilance and airplane control during the taxi operation.

17. Demonstrates and/or explains procedural differences for day and night operations.

18. Demonstrates and explains the use(s) of aircraft exterior lighting and differences for day and night operations.

19. Explains and discusses the hazards of low visibility operations.

**Task B: Anchoring (AMES/ASES)**

**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 to ensure the seaplane's security.

**Task C: Docking and Mooring (AMES/ASES)**

**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.

**Task D: Beaching (AMES/ASES)**

**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. Correctly 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.

**Task E: Ramping (AMES/ASES)**

**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.

**Task F: Parking and Securing**

**Objective**: **To determine that the applicant:**

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

## Appendix: Simulation Device Credit

1. The airplane may be used for all Tasks.

2. If a flight simulator or flight training device is used for accomplishing all of the training and the required practical test for an airplane transport pilot license with an airplane category, class, and type rating, the flight simulator or flight training device shall represent that airplane class or type rating sought and be used in accordance with CAAC-approved training course.

(1) A level C or level D flight simulator can be used to accomplish all trainings and tests except preflight inspection, provided that the applicant meets one of the following requirements:

(i) Hold a type rating for a turbojet airplane of the same class of airplane for which the type rating is sought;

(ii) Hold a type rating for a turbo-propeller airplane of the same class as the airplane for which the type rating is sought;

(iii) Have at least 2,000 hours of flight time, of which 500 hours must be in turbine-powered airplanes of the same class as the airplane for which the type rating is sought;

(iv) Have at least 500 hours of flight time in the same type of airplane as the airplane for which the type rating is sought;

(v) Have at least 1,000 hours of flight time in at least two different airplanes requiring a type rating.

(2) The applicant who applies for an additional rating but fails to meet the requirement stated in Subparagraph (1) of this Paragraph can accomplish all trainings and practical tests in a Flight Training Device or Flight Simulation Device. But the following maneuvers and procedures shall be accomplished in the aircraft:

(i) Preflight Inspection;

(ii) Normal takeoff;

(iii) Normal ILS and approach;

(iv) Rejected approach;

(v) Normal landing.

3. Examiners conducting the Airline Transport Pilot and Aircraft Type Rating Practical Test Standards for Airplane with flight simulators or flight training devices should consult appropriate documentation to ensure that the devices have been approved for training, testing and checking. 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. The device must continue to meet qualification standards.

(2) CAAC must approve the device for training, testing and checking. The specific Tasks are listed in this appendix.

(3) The device must meet the standards required by the applicant's 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

*: Asterisk items require use of a FTD or the simulator visual reference.

**NOTES:**

1. The airplane may be used for all Tasks.

2. For airline transport pilot practical tests, not more than 50% of the flight maneuvers may be accomplished in a simulator or a Flight Training Device unless:

   a. Each maneuver has been satisfactorily accomplished for an instructor, in the appropriate airplane, not less than 3 times, or

   b. The applicant has accumulated not less than 1,500 hours of flight time.

3. No applicant may use a Level C simulator unless he or she meets the flight experience requirements as required by CAAC.

4. Training Devices below Level 4 may not be used for airplane type ratings.

5. Standards for and use of Level 1 Flight Training Devices have not been determined.

| Flight Task | Flight Training Devices Level | | | | | | | Flight Simulator Level | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Areas of Operation： | 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 |
| B. Powerplant Start | | A | X | A | A | X | X | X | X | X | X |
| C. Taxiing | | | | | | | | | | X | X |
| F. Pretakeoff Checks | | A | X | A | A | X | X | X | X | X | X |
| | | | | | | | | | | | |
| **III. Takeoff and Departure Phase** | | | | | | | | | | | |
| A. Normal and Crosswind Takeoff and Climb | | | | | | | | | | X | X |
| E. Instrument Takeoff (levels 3, 6 & 7 require a visual system) | | | X | | | X | X | X | X | X | X |
| F. Powerplant Failure During Takeoff | | | | | | | | X | X | X | X |
| G. Rejected Takeoff (levels 3, 6 & 7 require a visual system) | | | 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 and Recovery (Levels 3, 6 & 7 require an 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 | Level of devices as determined by Flight Standards Department of Civil Aviation Administration of China | | | | | | | | | | |
| F. Recovery from Unusual Attitudes | | | | | | | X | X | X | X | X |
| | | | | | | | | | | | |
| **V. Instrument Procedures** | | | | | | | | | | | |
| A. Standard Terminal Arrival/Flight Management System Procedures | | | X | | | X | X | X | X | X | X |
| B. Holding | | | X | | | X | X | X | X | X | X |
| C1. Precision Instrument Approach (All Engines Operating) (Autopilot/Manual Flt. Dir. Assist/Manual Raw Data) (Levels 2 & 5 use limited to A/P coupled approach only) | | A | X | | A | 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 |
| D. Nonprecision Approaches (NPA) (Not more than 1 authorized in a device less than Level A simulator) (Levels 2 & 5 use limited to A/P coupled approach only) | | A | X | | A | X | X | X | X | X | X |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E. Circling Approach (each approach must be specifically authorized) | | | | | | | | X | X | X | X |
| F1. Missed Approach (Normal) | | | X | | | X | X | X | X | X | X |
| F2. Missed Approach (Powerplant Failure) | | | | | | | | X | X | X | X |
| | | | | | | | | | | | |
| VI. Landings and Approaches to Landings | | | | | | | | | | | |
| A. Normal and Crosswind Approaches and Landings | | | | | | | | | | X | X |
| B. Landing from a Precision Approach (PA) | | | | | | | | | | X | X |
| C. Approach and Landing With (Simulated) Powerplant Failure – Multiengine Airplane | | | | | | | | | | X | X |
| D. Landing from Circling Approach | | | | | | | | | | X | X |
| H. Rejected Landing | | | | | | | | X | X | X | X |
| I. Landing from a No Flap or a Nonstandard Flap Approach | | | | | | | | | | X | X |
| | | | | | | | | | | | |
| **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 other procedures required by AFM) | | A | X | A | A | X | X | X | X | X | X |
| | | | | | | | | | | | |
| **IX. Postflight Procedures** | | | | | | | | | | | |
| A. After-landing Procedures | | A | X | A | A | X | X | X | X | X | X |
| F. Parking and Securing | | A | X | A | A | X | X | X | X | X | X |

Note 1: Evaluation of normal and abnormal procedures may be accomplished in conjunction with other conditions or Tasks.

Note 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.