



GHANA
CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR

AC 02-005

SKILL TEST STANDARDS: INSTRUMENT RATING

SECTION 1 GENERAL

1.1 PURPOSE

This Advisory Circular (AC) provides guidance to individuals, organizations and examiners regarding the determination that an individual's pilot skill level is adequate for the issuance of an instrument rating on Private or Commercial Pilot License for—

- 1) Aeroplane;
- 2) Helicopter; or
- 3) Powered Lift.

1.2 STATUS OF THIS ADVISORY CIRCULAR

This is an original issuance of this AC.

1.3 BACKGROUND

- A. ICAO Standards in Annex 1, Personnel Licensing, require that, before issuing an Instrument Rating for Private Pilot and Commercial Licenses, the State must assess the knowledge and skill of the individual to perform such operations. .
- B. Part 2 of the Ghana Aviation Directives establishes the specific requirements for Instrument Rating testing that parallel the ICAO Standards.
- C. This AC provides amplified standards for an Instrument Rating applicant and the person assigned to conduct the skill test for the rating.

1.4 APPLICABILITY

- A. These Skill Test Standards are for use by examiners for determination of an individual's fitness to be issued and continue to hold Instrument Rating privileges for a Private or Commercial Pilot Licenses.
- B. Flight instructors are expected to use these standards when preparing applicants for their Instrument Rating skill tests.
- C. Applicants should be familiar with these skill test standards and refer to them during their training.

- Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the directives, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
- Where a directive contains the words "prescribed by the Authority," the AC may considered to "prescribe" a viable method of compliance, but status of that "prescription" is always "guidance" (never directive).

1.5 RELATED DIRECTIVES

The following directives are directly applicable to the guidance contained in this advisory circular—

- GCADs Part 2, Personnel Licensing
- GCADs Part 08, Operations of Aircraft
- GCADs Part 09, AOC Personnel Qualification

1.6 RELATED PUBLICATIONS

For further information on this topic, individuals, instructors and examiners are invited to consult the following publications—

- 1) Ghana Civil Aviation Authority (GCAA)
 - ◆ AC 02-001, Personnel Licensing
 - ◆ AC 02-005, Flight Testing

Copies may be obtained from the GCAA Safety Regulations Department.
- 2) Manufacturer of the aircraft to be used for the skill test
 - ◆ Pilot Operating Handbook, or
 - ◆ Approved Flight Manual
- 3) United States Federal Aviation Administration (FAA)
 - ◆ AC 00-45, Aviation Weather
 - ◆ FAA-H-80-83-25, Pilot Handbook of Aeronautical Knowledge
 - ◆ FAA-H-8083-15, Instrument Flying Handbook
 - ◆ FAA-H-8261-1, Instrument Procedures Manual

- Copies are normally available through flight schools and instructors.
 - Contact the GCAA Safety Regulations Department if unable to find copies.
- 4) International Civil Aviation Organization (ICAO)
 - ◆ Annex, 1, Personnel Licensing

Copies may be obtained from Document Sales Unit, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

1.7 DEFINITIONS & ACRONYMS

A. The following definitions are used in this advisory circular—

- 1) **Aircraft – category.** Classification of aircraft according to specified basic characteristics, e.g. aeroplane, rotorcraft, glider, lighter-than-air, powered-lift.
- 2) **Competency.** A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.
- 3) **Crew resource management.** A program designed to improve the safety of flight operations by optimizing the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and coordination.
- 4) **Error.** An action or inaction by the flight crew that leads to deviations from organizational or flight crew intentions or expectations.
- 5) **Error management.** The process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors and mitigate the probability of further errors or undesired aircraft states.

- 6) **Examiner.** A qualified person designated by GCAA to conduct a proficiency test, a skill test for a licence or rating, or a knowledge test under the Ghana directives.
 - 7) **Flight simulation training device.** Any one of the following three types of apparatus in which flight conditions are simulated on the ground—
 - (a) A **flight simulator**, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;
 - (b) A **flight procedures trainer**, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;
 - (c) A **basic instrument flight trainer**, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions
 - 8) **Flight test.** For the purpose of this advisory circular, a portion of a skill test that includes Tasks that are normally accomplished while operating the aircraft.
 - 9) **Practical Test.** For the purpose of this advisory circular, a portion of the skill test that includes Tasks accomplished before the flight portion.
 - 10) **Rating.** An authorisation entered on or associated with a licence and forming part thereof, stating special conditions, privileges or limitations pertaining to such licence.
 - 11) **Scenario.** A plan of action that includes the provision for accomplishing each Task specified in the skill test standards in practical and logical manner.
 - 12) **Threat management.** The process of detecting and responding to threats with countermeasures that reduce or eliminate the consequences of threats and mitigate the probability of errors or undesired aircraft states
 - 13) **Threat.** Events or errors that occur beyond the influence of the flight crew, increase operational complexity and must be managed to maintain the margin of safety.
- B. The following acronyms are used in this advisory circular—
- 1) **AC** – Advisory Circular
 - 2) **ADF** – Automatic Direction Finder
 - 3) **APV** – Approach with Vertical Guidance
 - 4) **ATC** – Air Traffic Control
 - 5) **ATIS** – Automatic Terminal Information Service
 - 6) **ATS** – Air Traffic Service
 - 7) **CDI** – Course Deviation Indicator
 - 8) **CFIT** – Controlled Flight into Terrain
 - 9) **CPL** – Commercial Pilot License
 - 10) **DA/DH** – Decision Altitude/Decision Height
 - 11) **DH** – Decision Height
 - 12) **DME** – Distance Measuring Equipment

- 13) **DP**– Departure Procedures
- 14) **FMS** – Flight Management System
- 15) **GCAA** – Ghana Civil Aviation Authority
- 16) **GCADs** – Ghana Civil Aviation Directives
- 17) **GNSS** – Global Navigation Satellite System
- 18) **GPS** – Global Positioning System
- 19) **GPWS** – Ground Proximity Warning System
- 20) **IAP** – Instrument Approach Procedures
- 21) **IFR** – Instrument Flight Rules
- 22) **ILS** – Instrument Landing System
- 23) **IMC** – Instrument Meteorological Conditions
- 24) **LCD** – Liquid Crystal Display
- 25) **LDA** – Localizer-type Directional Aid
- 26) **LED** – Light Emitting Diode
- 27) **LOC** – ILS Localizer
- 28) **MAP** – Missed Approach Point
- 29) **MDA** – Minimum Descent Attitude
- 30) **NAVAID** – Navigation Aid
- 31) **NDB** – Non-directional Beacon (Automatic Direction Finder)
- 32) **NOTAM** – Notice to Airmen
- 33) **NPA** – Nonprecision Approach
- 34) **PA** – Precision Approach
- 35) **PC** – Proficiency Check
- 36) **PEL** – Personnel Licensing
- 37) **PPL** – Private Pilot License
- 38) **RAIM** – Receiver Autonomous Integrity Monitoring
- 39) **RMI** – Radio Magnetic Indicator
- 40) **RNAV** – Area Navigation
- 41) **SAS** – Stability Augmentation System
- 42) **SDF** – Simplified Directional Facility
- 43) **SIGMETS** – Significant Meteorological Advisory
- 44) **STAR** – Standard Terminal Arrival
- 45) **STS** – Skill Test Standard
- 46) **ACAS** – Aircraft Collision Avoidance System
- 47) **VDP** – Visual Descent Point
- 48) **VHF** – Very High Frequency

- 49) **VNAV** – Vertical Navigation
- 50) **VOR** – Very High Frequency Omnidirectional Range

SECTION 2 INTRODUCTORY INFORMATION

2.1 INSTRUMENT RATING SKILL TEST PREREQUISITES

An applicant for the Instrument Rating Skill Test is required to—

- 1) Be at least 18 years of age;
- 2) Be able to read, speak, write, and understand the English language.
- 3) Have passed the appropriate instrument rating knowledge test since the beginning of the 24th month before the month in which he or she takes the skill test;
- 4) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed;
- 5) Possess at least a current Class 2 medical certificate;
- 6) Have an endorsement from an authorized instructor certifying that the applicant—
 - (a) Has received and logged training time within 60 days preceding the date of application in preparation for the skill test, and
 - (b) Is prepared for the skill test; and
- 7) Also have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the airman knowledge test.

If the applicant has not demonstrated at least Level 4 English language proficiency. The license will contain the limitation:

- NOT VALID FOR CONTROLLED OR INTERNATIONAL FLIGHT.

2.2 APPLICANT SKILL TEST PREPARATION CHECKLIST

The following guidance is provided to ensure that the applicant arrives at the appointment with all equipment and documents necessary for the administration of the skill test, including—

2.2.1 APPOINTMENT WITH EXAMINER

- A. Contact the GCAA to be assigned an examiner for the purpose of the skill test.
- B. Contact the examiner to arrange a suitable location, date and time.
- C. Plan to arrive at the designated location before the actual time of the appointment.

2.2.2 ACCEPTABLE AIRCRAFT

The applicant must provide a suitable aircraft for the type of skill test to be administered, and provide the following associated documentation—

- 1) Airworthiness certificate
- 2) Registration certificate
- 3) Operating limitations
- 4) Aircraft logbook maintenance records of airworthiness inspections and AD compliance
- 5) Pilot's Operating Handbook and/or the Approved Airplane Flight Manual

2.2.3 PERSONAL EQUIPMENT

The applicant must provide the following personal equipment for the skill test—

- 1) View-limiting device
- 2) Current aeronautical charts
- 3) Computer and plotter
- 4) Flight plan form
- 5) Flight logs
- 6) Appropriate route guide and other flight information publications

2.2.4 PERSONAL RECORDS

The applicant must provide the following personal records before the skill test can be administered—

- 1) Identification-photo/signature ID
- 2) Pilot certificate
- 3) Current and appropriate medical certificate
- 4) Completed GCAA Form 547, Airman Certificate and/or Rating Application, with Instructor's Signature (If applicable)
- 5) Aeronautical knowledge test report
- 6) Pilot Logbook with appropriate instructor endorsements
- 7) GCAA-Form 551, Notice of Disapproval (if applicable)
- 8) Graduation certificate from an Approved Training Organization (if applicable)
- 9) Examiner's fee

2.3 SKILL TEST STANDARDS FORMAT

- A. **Areas Of Operation** are phases of the skill test arranged in a logical sequence within each standard.
- They begin with Preflight Preparation and end with Post flight Procedures.
 - The examiner, however, may conduct the operational portions of the skill test in any sequence that will result in a complete and efficient test.
 - However the ground portion of the skill test shall be accomplished before the flight portion.
- B. **Tasks** are titles of knowledge areas, flight procedures, or maneuvers appropriate to an Area Of Operation.
- C. **Applicable to:** The abbreviation(s) immediately following a TASK refer to the category and/ or class aircraft appropriate to that TASK. The meaning of each abbreviation is as follows.
- ASEL – Aeroplane-Single-Engine Land
 - AMEL – Aeroplane-Multiengine Land
 - ASES – Aeroplane-Single-Engine Sea
 - AMES– Aeroplane-Multiengine Sea

- D. The **Objective** lists the elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes—
- 1) Specifically what the applicant should be able to do;
 - 2) Conditions under which the *Task* is to be performed; and
 - 3) Acceptable performance standards.

NOTE TO EXAMINERS:

- When administering a test based sections 1 and 2 of this PTS, the TASKs appropriate to the class aeroplane (ASEL, ASES, AMEL, or AMES) used for the test shall be included in the plan of action.
- The absence of a class indicates the task is for all classes.
- An accompanying note is used to emphasize special considerations required in the AREA OF OPERATION or TASK.

2.4 WAIVERS FOR PREVIOUS ACCOMPLISHMENT OF TASK

- A. The actual accomplishment of the required Areas of Operation or specific Tasks in those operations may be waived at the examiner's discretion when the applicant holds another aeroplane category and class rating in which—
- 1) Those tasks were accomplished; and
 - 2) There are no obvious skill differences for the accomplishment of those tasks between the class ratings.

2.5 SKILL STANDARDS SPECIFIED BY DIRECTIVES

The final determination of an applicant's ability to hold a license or rating is based on a demonstration of the ability to perform as pilot-in command to perform the procedures and maneuvers to the degree of competency appropriate to the privileges granted and to—

- 1) Recognize and manage threats and errors;
- 2) Manually control the aircraft within its limitations at all times;
- 3) Complete all manoeuvres with smoothness and accuracy;
- 4) Exercise good judgement and airmanship;
- 5) Apply aeronautical knowledge; and
- 6) Maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.6 AIRCRAFT & EQUIPMENT: INSTRUMENT RATING SKILL TEST

2.6.1 INSTRUMENTS & EQUIPMENT

- A. The instrument rating applicant is required to provide an airworthy, certificated aircraft for use during the skill test.
- 1) Its operating limitations must not prohibit the TASKs required on the skill test.
 - 2) Flight instruments are those required for controlling the aircraft without outside references.
 - 3) The required radio equipment is that which is necessary for—
 - (a) Communications with ATC, and
 - (b) For the performance of two of the following non precision approaches: VOR, NDB, GPS, LOC, LDA, SDF, or RNAV; and
 - (c) One precision approach: ILS, GLS, or MLS.

(d) GPS equipment must be instrument certified and contain the current database.

2.6.2 AIRCRAFT WITH MODERN TECHNOLOGY

A. Modern technology has introduced into aviation a new method of displaying flight instruments, such as—

- Electronic Flight instrument systems,
- Integrated flight deck displays, and
- Other similar systems.

For the purpose of the skill test standards, any flight instrument display that utilizes LCD or picture tube like displays will be referred to as "Electronic Flight Instrument Display."

- B. Aircraft equipped with this technology may or may not have separate backup flight instruments installed.
- C. The abnormal or emergency procedure for loss of the electronic flight instrument display appropriate to the aircraft will be evaluated in the Loss of Primary Instruments TASK.
- D. The loss of the primary electronic flight instrument display must be tailored to failures that would normally be encountered in the aircraft.
- E. If the aircraft is capable, total failure of the electronic flight instrument display, or a supporting component, with access only to the standby flight instruments or backup display shall be evaluated.

2.6.3 VIEW LIMITING DEVICE

The applicant is required to provide an appropriate view limiting device that is acceptable to the examiner.

- 1) This device shall be used during all testing that requires testing "solely by reference to instruments."
- 2) This device must prevent the applicant from having visual reference outside the aircraft, but not prevent the examiner from having visual reference outside the aircraft.



- A procedure should be established between the applicant and the examiner as to when and how this device should be donned and removed
- This procedure briefed before the flight.

2.6.4 AUTOPILOT AND/OR FLIGHT MANAGEMENT SYSTEM

The applicant is expected to utilize an autopilot and/or flight management system (FMS), if properly installed, during the instrument skill test to assist in the management of the aircraft.

- 1) The examiner is expected to test the applicant's knowledge of the systems that are installed and operative during the oral and flight portions of the skill test.
- 2) The applicant will be required to demonstrate the use of the autopilot and/or FMS during one of the non precision approaches.

2.6.5 GLOBAL POSITIONING SYSTEM (GPS)

If the skill test is conducted in the aircraft, and the aircraft has an operable and properly installed GPS, the applicant must demonstrate GPS approach proficiency when asked.

- If the applicant has contracted for training in an approved course that includes GPS training in the system that is installed in the airplane/simulator/FTD and the airplane/simulator/FTD used for the checking/testing has the same system properly installed and operable, the applicant must demonstrate GPS approach proficiency.

2.6.6 MULTI ENGINE PRIVILEGES

- A. To obtain an instrument rating with multiengine privileges, an applicant must demonstrate competency in a multiengine airplane not limited to center thrust.
- B. The multiengine airplane that is used to obtain unlimited multiengine privileges must have a published VMC speed established by the manufacturer, and produce an asymmetrical thrust configuration with the loss of one or more engines.
- C. If an instrument flight test is conducted in a multiengine airplane limited to center thrust, a limitation shall be placed on the applicant's certificate—
 - **INSTRUMENT RATING, AEROPLANE MULTIENGINE, LIMITED TO CENTER THRUST**

2.7 UNSATISFACTORY PERFORMANCE

- A. 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 skill test is failed.
- B. The examiner or applicant may discontinue the test at any time when the failure of an AREA OF OPERATION makes the applicant ineligible for the certificate or rating sought.
 - The test may be continued ONLY with the consent of the applicant.
- C. If the test is discontinued, the applicant is entitled credit for only those AREAS OF OPERATION and their associated TASKS satisfactorily performed.

The applicant must understand that during a retest, and at the discretion of the examiner, any TASK may be re-evaluated, including those previously passed.
- D. Typical areas of unsatisfactory performance and grounds for disqualification are—
 - 1) Any action or lack of action by the applicant that requires corrective intervention by the examiner to maintain safe flight.
 - 2) Failure to use proper and effective visual scanning techniques to clear the area before and while performing maneuvers.
 - 3) Consistently exceeding tolerances stated in the skill test TASK Objectives.
 - 4) Failure to take prompt corrective action when tolerances are exceeded.

SECTION 3 AREA OF OPERATION: PREFLIGHT PREPARATION

3.1 TASK: WEATHER INFORMATION

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to aviation weather information by obtaining, reading, and analyzing the applicable items, such as—
 - (a) Weather reports and forecasts.
 - (b) Pilot and radar reports.
 - (c) Surface analysis charts.

Where current weather reports, forecasts, or other pertinent information is not available, this information will be simulated by the examiner in a manner that will adequately measure the applicant's competence.

- (d) Radar summary charts.
 - (e) Significant weather prognostics.
 - (f) Winds and temperatures aloft.
 - (g) Freezing level charts.
 - (h) Stability charts.
 - (i) Severe weather outlook charts.
 - (j) SIGMETs and AIRMETs.
 - (k) ATIS reports.
- 2) Correctly analyzes the assembled weather information pertaining to the proposed route of flight and destination airport, and determines whether an alternate airport is required, and, if required, whether the selected alternate airport meets the regulatory requirement.

3.2 TASK: CROSS-COUNTRY FLIGHT PLANNING

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements by presenting and explaining a preplanned cross-country flight, as previously assigned by the examiner (preplanning is at examiner's discretion). It should be planned using real time weather and conform to the regulatory requirements for instrument flight rules within the airspace in which the flight will be conducted.
- 2) Exhibits adequate knowledge of the aircraft's performance capabilities by calculating the estimated time en route and total fuel requirement based upon factors, such as—
 - (a) Power settings.
 - (b) Operating altitude or flight level.
 - (c) Wind.
 - (d) Fuel reserve requirements.
- 3) Selects and correctly interprets the current and applicable en route charts, instrument departure procedures (DPs), RNAV, STAR, and Standard Instrument Approach Procedure Charts (IAP).
- 4) Obtains and correctly interprets applicable NOTAM information.
- 5) Determines the calculated performance is within the aircraft's capability and operating limitations.
- 6) Completes and files a flight plan in a manner that accurately reflects the conditions of the proposed flight. (Does not have to be filed with ATC.)
- 7) Demonstrates adequate knowledge of GPS and RAIM capability, when aircraft is so equipped.

SECTION 4 AREA OF OPERATION: PREFLIGHT PROCEDURES

4.1 TASK: AIRCRAFT SYSTEMS RELATED TO IFR OPERATIONS

Objective. To determine that the applicant exhibits adequate knowledge of the elements related to applicable aircraft anti-icing/deicing system(s) and their operating methods to include—

- 1) Airframe.

- 2) Propeller.
- 3) Intake.
- 4) Fuel.
- 5) Pitot-static.

4.2 TASK: AIRCRAFT FLIGHT INSTRUMENTS & NAVIGATION EQUIPMENT

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to applicable aircraft flight instrument system(s) and their operating characteristics to include—
 - (a) Pitot-static.
 - (b) Altimeter.
 - (c) Airspeed indicator.
 - (d) Vertical speed indicator.
 - (e) Attitude indicator.
 - (f) Horizontal situation indicator.
 - (g) Magnetic compass.
 - (h) Turn-and-slip indicator/turn coordinator.
 - (i) Heading indicator.
 - (j) Electrical systems.
 - (k) Vacuum systems.
 - (l) Electronic flight instrument display.
- 2) Exhibits adequate knowledge of the applicable aircraft navigation system(s) and their operating characteristics to include—
 - (a) VOR.
 - (b) DME.
 - (c) ILS.
 - (d) Marker beacon receiver/indicators.
 - (e) Transponder/altitude encoding.
 - (f) ADF.
 - (g) GPS.
 - (h) FMS.

4.3 TASK: INSTRUMENT COCKPIT CHECK

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to preflighting instruments, avionics, and navigation equipment cockpit check by explaining the reasons for the check and how to detect possible defects.
- 2) Performs the preflight on instruments, avionics, and navigation equipment cockpit check by following the checklist appropriate to the aircraft flown.
- 3) Determines that the aircraft is in condition for safe instrument flight including—

- (a) Communications equipment.
 - (b) Navigation equipment, as appropriate to the aircraft flown.
 - (c) Magnetic compass.
 - (d) Heading indicator.
 - (e) Attitude indicator.
 - (f) Altimeter.
 - (g) Turn-and-slip indicator/turn coordinator.
 - (h) Vertical speed indicator.
 - (i) Airspeed indicator.
 - (j) Clock.
 - (k) Power source for gyro-instruments.
 - (l) Pitot heat.
 - (m) Electronic flight instrument display
 - (n) Traffic awareness/warning/avoidance system.
 - (o) Terrain awareness/warning/alert system.
 - (p) FMS.
 - (q) Auto pilot.
- 4) Notes any discrepancies and determines whether the aircraft is safe for instrument flight or requires maintenance.

SECTION 5 AREA OF OPERATION: AIR TRAFFIC CONTROL CLEARANCES & PROCEDURES

5.1 TASK: AIR TRAFFIC CONTROL CLEARANCES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to ATC clearances and pilot/controller responsibilities to include tower en route control and clearance void times.
- 2) Copies correctly, in a timely manner, the ATC clearance as issued.
- 3) Determines that it is possible to comply with ATC clearance.
- 4) Interprets correctly the ATC clearance received and, when necessary, requests clarification, verification, or change.
- 5) Reads back correctly, in a timely manner, the ATC clearance in the sequence received.
- 6) Uses standard phraseology when reading back clearance.
- 7) Sets the appropriate communication and navigation systems and transponder codes in compliance with the ATC clearance.

The ATC clearance may be an actual or simulated ATC clearance based upon the flight plan.

5.2 TASK: COMPLIANCE WITH DEPARTURE, EN ROUTE, & ARRIVAL PROCEDURES & CLEARANCES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to ATS routes, and related pilot/ controller responsibilities.
- 2) Uses the current and appropriate navigation publications for the proposed flight.
- 3) Selects and uses the appropriate communication facilities; selects and identifies the navigation aids associated with the proposed flight.
- 4) Performs the appropriate aircraft checklist items relative to the phase of flight.
- 5) Establishes two-way communications with the proper controlling agency, using proper phraseology.
- 6) Complies, in a timely manner, with all ATC instructions and airspace restrictions.
- 7) Exhibits adequate knowledge of communication failure procedures.
- 8) Intercepts, in a timely manner, all courses, radials, and bearings appropriate to the procedure, route, or clearance.
- 9) Maintains the applicable airspeed within +/-10 knots; headings within +/-10°; altitude within +/-100 feet; and tracks a course, radial or bearing within ¾ scale deflection of the CDI.

5.3 TASK: HOLDING PROCEDURES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to holding procedures.
- 2) Changes to the holding airspeed appropriate for the altitude or aircraft when 3 minutes or less from, but prior to arriving at, the holding fix.
- 3) Explains and uses an entry procedure that ensures the aircraft remains within the holding pattern airspace for a standard, nonstandard, published, or nonpublished holding pattern.
- 4) Recognizes arrival at the holding fix and initiates prompt entry into the holding pattern.
- 5) Complies with ATC reporting requirements.
- 6) Uses the proper timing criteria, where applicable, as required by altitude or ATC instructions.
- 7) Complies with pattern leg lengths when a DME distance is specified.
- 8) Uses proper wind correction procedures to maintain the desired pattern and to arrive over the fix as close as possible to a specified time.
- 9) Maintains the airspeed within +/-10 knots; altitude within +/-100 feet; headings within +/-10°; and tracks a selected course, radial or bearing within ¾ scale deflection of the CDI.

The ATC clearance may be an actual or simulated ATC clearance based upon the flight plan.

SECTION 6 AREA OF OPERATION: FLIGHT BY REFERENCE TO INSTRUMENTS

6.1 TASK: BASIC INSTRUMENT FLIGHT MANEUVERS

Applicable To: Ia, Ih, Pl, Aa, Ha, Pla, Pc

Objective. To determine the applicant can perform basic flight maneuvers—

- 1) Exhibits adequate knowledge of the elements related to attitude instrument flying during straight-and-level, climbs, turns, and descents while conducting various instrument flight procedures.
- 2) Maintains altitude within +/- 100 feet during level flight, headings within +/- 10°, airspeed within +/- 10 knots, and bank angles within +/- 5° during turns.
- 3) Uses proper instrument crosscheck and interpretation, and apply the appropriate pitch, bank, power, and trim corrections when applicable.

6.2 TASK: RECOVERY FROM UNUSUAL FLIGHT ATTITUDES

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements relating to attitude instrument flying during recovery from unusual flight attitudes (both nose-high and nose-low).
- 2) Uses proper instrument cross-check and interpretation, and applies the appropriate pitch, bank, and power corrections in the correct sequence to return the aircraft to a stabilized level flight attitude.

Any intervention by the examiner to prevent the aircraft from exceeding any operating limitations, or entering an unsafe flight condition, shall be disqualifying.

SECTION 7 AREA OF OPERATION: NAVIGATION SYSTEMS

7.1 TASK: INTERCEPTING & TRACKING NAVIGATIONAL SYSTEMS & DME ARCS

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to intercepting and tracking navigational systems and DME arcs.
- 2) Tunes and correctly identifies the navigation facility.
- 3) Sets and correctly orients the course to be intercepted into the course selector or correctly identifies the course on the RMI.
- 4) Intercepts the specified course at a predetermined angle, inbound or outbound from a navigational facility.
- 5) Maintains the airspeed within +/-10 knots, altitude within +/-100 feet, and selected headings within +/-5°.
- 6) Applies proper correction to maintain a course, allowing no more than three-quarter-scale deflection of the CDI or within +/-10° in case of an RMI.
- 7) Determines the aircraft position relative to the navigational facility or from a waypoint in the case of GPS.
- 8) Intercepts a DME arc and maintain that arc within +/-1 nautical mile.
- 9) Recognizes navigational receiver or facility failure, and when required, reports the failure to ATC.

Any reference to DME arcs, ADF, or GPS shall be disregarded if the aircraft is not equipped with these specified navigational systems..

SECTION 8 AREA OF OPERATION: INSTRUMENT APPROACH PROCEDURES

8.1 TASK: NONPRECISION APPROACH (NPA)

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to an instrument approach procedure.
- 2) Selects and complies with the appropriate instrument approach procedure to be performed.
- 3) Establishes two-way communications with ATC, as appropriate, to the phase of flight or approach segment, and uses proper communication phraseology and technique.
- 4) Selects, tunes, identifies, and confirms the operational status of navigation equipment to be used for the approach procedure.
- 5) Complies with all clearances issued by ATC or the examiner.
- 6) Recognizes if any flight instrumentation is inaccurate or inoperative, and takes appropriate action.
- 7) Advises ATC or examiner anytime that the aircraft is unable to comply with a clearance.
- 8) Establishes the appropriate aircraft configuration and airspeed considering turbulence and wind shear, and completes the aircraft checklist items appropriate to the phase of the flight.
- 9) Maintains, prior to beginning the final approach segment, altitude within +/-100 feet, heading within +/-10° and allows less than ¾ scale deflection of the CDI or within +/-10° in the case of an RMI, and maintains airspeed within +/-10 knots.
- 10) Applies the necessary adjustments to the published MDA and visibility criteria for the aircraft approach category when required, such as—
 - (a) NOTAMs.
 - (b) Inoperative aircraft and ground navigation equipment.
 - (c) Inoperative visual aids associated with the landing environment.
 - (d) NWS reporting factors and criteria.
- 11) Establishes a rate of descent and track that will ensure arrival at the MDA prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made at a normal rate using normal maneuvers.
- 12) Allows, while on the final approach segment, no more than a three-quarter-scale deflection of the CDI or within 10° in case of an RMI, and maintains airspeed within +/-10 knots of that desired.
- 13) Maintains the MDA, when reached, within +100 feet, -0 feet to the MAP.
- 14) Executes the missed approach procedure when the required visual references for the intended runway are not distinctly visible and identifiable at the MAP.

- The applicant must accomplish at least two nonprecision approaches.
- One of these approaches 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 STS)
- 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 STS are: NDB, VOR, LOC, LDA, GPS, or RNAV.

- 15) Executes a normal landing from a straight-in or circling approach when instructed by the examiner.

8.2 TASK: PRECISION APPROACH (PA)

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the precision instrument approach procedures.
- 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, as required for the phase of flight or approach segment.
- 4) Complies, in a timely manner, with all clearances, instructions, and procedures.
- 5) Advises ATC anytime that 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 aircraft 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, the desired airspeed within +/-10 knots, the desired heading within +/-10°; 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.
- 10) Applies the necessary adjustments to the published DA/DH and visibility criteria for the airplane approach category as required, such as—
 - (a) NOTAMs
 - (b) Inoperative airplane and ground navigation equipment.
 - (c) Inoperative visual aids associated with the landing environment.
 - (d) NWS reporting factors and criteria.
- 11) Establishes a predetermined rate of descent at the point where the electronic glide slope begins, which approximates that required for the aircraft to follow the glide slope.
- 12) Maintains a stabilized final approach, from the Final Approach Fix to DA/DH allowing no more than three-quarter scale deflection of either the glide slope or localizer indications and maintains the desired airspeed within +/-10 knots.
- 13) A missed approach or transition to a landing shall be initiated at Decision Height.
- 14) Initiates immediately the missed approach when at the DA/DH, and the required visual references for the runway are not unmistakably visible and identifiable.
- 15) Transitions to a normal landing approach (missed approach for seaplanes) only when the aircraft 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.

A precision approach, utilizing aircraft NAVAID equipment for centerline and vertical guidance, must be accomplished in simulated or actual instrument conditions to DA/DH.

- APV approaches may be substituted only for nonprecision approaches in this skill test standard.
- An APV approach shall not be used in lieu of the required precision approach.

- 16) Maintains localizer and glide slope within three-quarter-scale deflection of the indicators during the visual descent from DA/DH to a point over the runway where glide slope must be abandoned to accomplish a normal landing.

8.3 TASK: MISSED APPROACH

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to missed approach procedures associated with standard instrument approaches.
- 2) Initiates the missed approach promptly by applying power, establishing a climb attitude, and reducing drag in accordance with the aircraft manufacturer's recommendations.
- 3) Reports to ATC beginning the missed approach procedure.
- 4) Complies with the published or alternate missed approach procedure.
- 5) Advises ATC or examiner anytime that the aircraft is unable to comply with a clearance, restriction, or climb gradient.
- 6) Follows the recommended checklist items appropriate to the go-around procedure.
- 7) Requests, if appropriate, ATC clearance to the alternate airport, clearance limit, or as directed by the examiner.
- 8) Maintains the recommended airspeed within +/-10 knots; heading, course, or bearing within +/-10°; and altitude(s) within +/-100 feet during the missed approach procedure.

8.4 TASK: CIRCLING APPROACH

Applicable To: Aeroplane Category Only

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to a circling approach procedure.
- 2) Selects and complies with the appropriate circling approach procedure considering turbulence and wind shear and considering the maneuvering capabilities of the aircraft.
- 3) Confirms the direction of traffic and adheres to all restrictions and instructions issued by ATC and the examiner.
- 4) Does not exceed the visibility criteria or descend below the appropriate circling altitude until in a position from which a descent to a normal landing can be made.
- 5) Maneuvers the aircraft, after reaching the authorized MDA and maintains that altitude within +100 feet, -0 feet and a flight path that permits a normal landing on a runway.

The runway selected must be such that it requires at least a 90° change of direction, from the final approach course, to align the aircraft for landing.

8.5 TASK: LANDING FROM A STRAIGHT-IN OR CIRCLING APPROACH

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements related to the pilot's responsibilities, and the environmental, operational, and meteorological factors, which affect a landing from a straight-in or a circling, approach.
- 2) Transitions at the DA/DH, MDA, or VDP to a visual flight condition, allowing for safe visual maneuvering and a normal landing.

- 3) Adheres to all ATC (or examiner) advisories, such as NOTAMs, wind shear, wake turbulence, runway surface, braking conditions, and other operational considerations.
- 4) Completes appropriate checklist items for the pre-landing and landing phase.
- 5) Maintains positive aircraft control throughout the complete landing maneuver.

SECTION 9 AREA OF OPERATION: EMERGENCY OPERATIONS

9.1 TASK: LOSS OF COMMUNICATIONS

Objective. To determine that the applicant exhibits adequate knowledge of the elements related to applicable loss of communication procedures to include—

- 1) Recognizing loss of communication.
- 2) Continuing to destination according to the flight plan.
- 3) When to deviate from the flight plan.
- 4) Timing for beginning an approach at destination.

9.2 TASK: ONE ENGINE INOPERATIVE DURING STRAIGHT-AND-LEVEL FLIGHT & TURNS

Applicable To: Multiengine Aeroplane

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the procedures used if engine failure occurs during straight-and-level flight and turns while on instruments.
- 2) Recognizes engine failure simulated by the examiner during straight-and-level flight and turns.
- 3) Sets all engine controls, reduces drag, and identifies and verifies the inoperative engine.
- 4) Establishes the best engine-inoperative airspeed and trims the aircraft.
- 5) Verifies the accomplishment of prescribed checklist procedures for securing the inoperative engine.
- 6) Establishes and maintains the recommended flight attitude, as necessary, for best performance during straight-and-level and turning flight.
- 7) Attempts to determine the reason for the engine failure.
- 8) Monitors all engine control functions and makes necessary adjustments.
- 9) Maintains the specified altitude within +/-100 feet, (if within the aircraft's capability), airspeed within +/-10 knots, and the specified heading within +/-10°.
- 10) Assesses the aircraft's performance capability and decides an appropriate action to ensure a safe landing.
- 11) Avoids loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft.

9.3 TASK: ONE ENGINE INOPERATIVE—INSTRUMENT APPROACH

Applicable To: Multiengine Aeroplane

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements by explaining the procedures used during an instrument approach in a multiengine aircraft with one engine inoperative.
- 2) Recognizes promptly, engine failure simulated by the examiner.
- 3) Sets all engine controls, reduces drag, and identifies and verifies the inoperative engine.
- 4) Establishes the best engine-inoperative airspeed and trims the aircraft.
- 5) Verifies the accomplishment of prescribed checklist procedures for securing the inoperative engine.
- 6) Establishes and maintains the recommended flight attitude and configuration for the best performance for all maneuvering necessary for the instrument approach procedures.
- 7) Attempts to determine the reason for the engine failure.
- 8) Monitors all engine control functions and makes necessary adjustments.
- 9) Requests and receives an actual or a simulated ATC clearance for an instrument approach.
- 10) Follows the actual or a simulated ATC clearance for an instrument approach.
- 11) Establishes a rate of descent that will ensure arrival at the MDA/DH prior to reaching the MAP with the aircraft continuously in a position from which descent to a landing on the intended runway can be made straight-in or circling.
- 12) Maintains, where applicable, the specified altitude within +/-100 feet, the airspeed within +/-10 knots if within the aircraft's capability, and the heading within +/-10°.
- 13) Sets the navigation and communication equipment used during the approach and uses the proper communications technique.
- 14) Avoids loss of aircraft control, or attempted flight contrary to the engine-inoperative operating limitations of the aircraft.
- 15) Complies with the published criteria for the aircraft approach category when circling.
- 16) Allows, while on final approach segment, no more than three-quarter-scale deflection of either the localizer or glide slope or GPS indications, or within +/-10° or ¾ scale deflection of the nonprecision final approach course.
- 17) Completes a safe landing.

9.4 TASK: APPROACH WITH LOSS OF PRIMARY FLIGHT INSTRUMENT INDICATORS

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements relating to recognizing if primary flight instruments are inaccurate or inoperative, and advise ATC or the examiner.
- 2) Advises ATC or examiner anytime that the aircraft is unable to comply with a clearance.
- 3) Demonstrates a nonprecision instrument approach without the use of the primary flight instrument using the objectives of the nonprecision approach.

This approach shall count as one of the required nonprecision approaches.

SECTION 10 AREA OF OPERATION: POSTFLIGHT PROCEDURES

10.1 TASK: CHECKING INSTRUMENTS & EQUIPMENT

Objective. To determine that the applicant—

- 1) Exhibits adequate knowledge of the elements relating to all instrument and navigation equipment for proper operation.
- 2) Notes all flight equipment for proper operation.
- 3) Notes all equipment and/or aircraft malfunctions and makes appropriate documentation of improper operation or failure of such equipment.

End of Skill Test Standard