CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

ADVISORY CIRCULAR
AC 02-017

SKILL TEST STANDARDS: FLIGHT ENGINEER

SECTION 1 GENERAL

1.1 PURPOSE

This Advisory Circular (AC) provides guidance to individuals, organizations and examiners regarding the determination that an individual's skill level is adequate for the issuance of a Flight Engineer License (FEL).

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 Flight Engineer License, the State must assess the knowledge and skill of the individual to perform such operations.

B. PCAR Part 2 establishes the specific requirements for FEL testing that parallel the ICAO Standards.

C. This AC provides amplified standards for a FEL applicant and the person assigned to conduct the skill test for license

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 FEL privileges.

B. Flight engineer instructors are expected to use these standards when preparing applicants for their FEL skill tests.

C. Applicants should be familiar with these skill test standards and refer to them during their training.

1.5 RELATED REGULATIONS

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

- PCAR Part 2, Personnel Licensing
- PCAR Part 8, Operations of Aircraft

1.6 RELATED PUBLICATIONS

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

1) Civil Aviation Authority (of the Philippines

Copies may be obtained from the CAAP Flight Standards Inspectorate Service.

- ♦ AC 08- : Acceptable Required Flight Preparation Documents
- ♦ AC 10-012: Application & Process: Ground Deicing Program
- ♦ AC 08- : Development of Acceptable Minimum Equipment Lists
- ♦ AC 08-: Application & Process: Crew Flight Duty Time Scheme
- ♦ AC 08- : Acceptable Aircraft Mass & Balance Control

2) Airline Manuals

- ♦ Operations Manual, Part A
- ♦ Operations Manual, Part B
- ♦ Operations Manual, Part C
- ♦ Operations Manual, Part D

3) Manufacturer of the aircraft to be used for the skill test

- ♦ Flight Crew Operating Manua.

4) United States Federal Aviation Administration (FAA)

- Copies are normally available through flight schools and instructors.
- Contact the Safety Regulations Department if unable to find copies.

- ♦ AC 00-45, Aviation Weather
- ♦ FAA-H-80-83-25, Handbook of Aeronautical Knowledge

5) International Civil Aviation Organization (ICAO)

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

- ♦ Annex, 1, Personnel Licensing

1.7 DEFINITIONS & ACRONYMS

The following definitions are used in this advisory circular—

1) **Areas Of Operation.** The phases of the skill test arranged in a logical sequence within each standard.

- ♦ They begin with with Preflight Preparation and end with Postflight Procedures.
- ♦ The examiner, however, may conduct the other tasks of the skill test in any sequence that will result in a complete and efficient test.
- ♦ However the preflight planning of the skill test shall be accomplished before the sportion.

2) **Tasks.** The titles of knowledge and skill appropriate to an area of operation.

3) **Objective.** Listing of the elements that must be satisfactorily performed to demonstrate competency in a TASK. The Objective includes—

(a) Specifically what the applicant should be able to do;

(b) Conditions under which the *Task* is to be performed; and

(c) Acceptable performance standards.

1.7.1 ACRONYMS

The following acronyms and abbreviations are used in this advisory circular—

1) **AC** – Advisory Circular
2) **CAAP** – Civil Aviation Authority of the Philippines
3) **CRM** — Crew Resource Management
4) **FAC** – Formal Application Checklist
5) **FEL** – Flight Engineer Licenset
6) **PCAR** – Philippine Civil Aviation Regulations
7) **PEL** – Personnel Licensing

SECTION 2 INTRODUCTORY INFORMATION

2.1 FLIGHT ENGINEER SKILL TEST PREREQUISITES

An applicant for the Flight Engineer License Skill Test is required to—

1) Be at least 21 years of age;
2) Be able to read, speak, write, and understand the English language;
3) Have passed the appropriate flight engineer 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) Have an endorsement from an authorized instructor certifying that the applicant—
   (a) Has received and logged instruction time within 60 days preceding the date of application in preparation for the skill test, and
   (b) Is prepared for the skill test; and
6) Also have an endorsement certifying that the applicant has demonstrated satisfactory knowledge of the subject areas in which the applicant was deficient on the Flight Engineer knowledge test.

2.2 EQUIPMENT & DOCUMENTS REQUIRED FOR THE SKILL TEST

A. The examiner is responsible for supplying weather data and aeronautical information for the skill test when current weather information is not available.

> Where appropriate, the applicant should be allowed to use printed reference material commonly available to a flight engineer.

B. Materials to be supplied by the applicant, as determined by the examiner—

1) Aircraft Flight Manual (type-specific to the aircraft to be used)
2) Operations Manual, Part A (Company Procedures)
3) Airline Operations Specifications
4) Operations Manual, Part B (Type-Specific Aircraft Procedures, Limitations, Systems, Performance)

> If the applicant was trained in a training organization approved by the CAAP for conduct of a flight engineer course, materials used in that course may be substituted for company specific materials supplied by the applicant.

5) Operations Manual, Part C,(Route Guide) to include
   (a) Instrument Enroute Charts;
   (b) Standard Instrument Departures
   (c) Standard Terminal Arrival Routes
   (d) Standard Instrument Approach Procedures Charts
6) ATC Flight Plan Form
7) Navigation Log/Flight Log
8) Load Manifest Form
9) Weight and Balance Form
10) Computer and Plotter
11) NOTAM Information
12) PCAR Part 7, 8, 9
13) 4Completed Applicant Form 543
14) Flight Engineer Knowledge Test Result issued by CAAP
15) Statement of Graduation Certificate (if applicable for evidence of graduation from ATO)
16) Identification: Photo/Signature ID
17) Examiner's Fee

2.3 CONDUCT OF THE SKILL TEST

A. The Flight Engineer skill test will conducted in accordance with these Skill Test Standards and policies.

B. Applicants shall be evaluated in **all** tasks included in each area of operation of these Skill Tests Sandards unless otherwise noted.

C. When using these Skill Test Standards, the examiner must evaluate the applicant's knowledge and skill in sufficient depth to determine that the standards of performance listed for all tasks are met.

> When a particular Element is not appropriate to the aircraft, its equipment, or operational capability, etc., that Element, at the discretion of the examiner, may be omitted.

D. The examiner is not required to follow the precise progression of task and elements listed in this AC..

- The examiner may change the sequence or combine TASKs with similar Objectives to conserve time.

2.3.1 PLAN OF ACTION (SCENARIO)

A. In preparation for each skill test, the examiner shall develop a written "plan of action."

> One or more scenarios may be used in testing the applicant.

- The "plan of action" shall include all required tasks in each area of operation.

B. The "plan of action" should be written in the order that the evaluation will be conducted but maintain the flexibility to be changed due to unexpected situations as they arise.

> - The plan of action must be complete enough to ensure that all the selected TASKs are evaluated.
> - Any task selected for evaluation during a skill test shall be evaluated in its entirety.

C. If the elements in one task have already been evaluated in another task, they need not be repeated.

- For example, the “plan of action” need not include evaluating the applicant on hazardous weather conditions or accident/incident reporting requirements at the end of the skill test if knowledge of that element was sufficiently demonstrated at the beginning of the test.

2.3.2 SUCCESSFUL COMPLETION OF OBJECTIVES

A. The objectives of all tasks must be demonstrated at some time during the skill test. It is of the utmost importance that the examiner accurately evaluates the applicant’s ability to perform safely as an flight engineer.

B. One of these areas to evaluate is sound judgment in decision-making. Although these areas may not be shown under each task, They are essential to flight safety and shall receive careful evaluation throughout the skill test.

C. In an simulated or actual environment, the examiner must require an applicant to demonstrate adequate knowledge and skill in manual flight engineer procedures.

2.3.3 SPECIAL EMPHASIS AREAS

Examiners shall place special emphasis upon areas that are most critical to flight crew procedures and flight safety, such as—

Although these areas may not be specifically addressed under each task, they are essential to flight safety and will be evaluated during the skill test.

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

1) Positive aircraft control;
2) Positive exchange of the flight controls procedure (who is flying the aeroplane);
3) Stall/spin awareness;
4) Collision avoidance;
5) Wake turbulence avoidance;
6) Land and Hold Short Operations (LAHSO);
7) Runway incursion avoidance;
8) Controlled flight into terrain (CFIT);
9) Aeronautical decision making (ADM);
10) Checklist usage; and
11) Other areas as subsequently determined by the CAAP to be important

2.4 EVALUATION OF PERFORMANCE

2.4.1 SATISFACTORY PERFORMANCE

Satisfactory performance to meet the requirements for certification is based on the applicant’s ability to—

1) Perform the tasks specified in the areas of operation within the approved standards outlined in this Skill Test Standard and the aircraft’s performance capabilities and limitations;
2) Follow normal, abnormal, and emergency procedures as required by the regulations and company procedures;

3) Demonstrate sound judgment, aeronautical decision-making, and crew resource management skills; and

4) Apply aeronautical knowledge.

2.4.2 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 performance will be unsatisfactory.

- 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 sought.

The test may be continued only with the consent of the applicant.

- If the test is discontinued, the applicant is entitled to credit for only those areas of operation and their associated tasks satisfactorily performed.

During the re-test and at the discretion of the examiner, any TASK may be re-evaluated, including those previously passed.

B. When a Notice of Disapproval is issued, the examiner shall record the—

1) Applicant's unsatisfactory performance in terms of the area of operation and specific task(s) not meeting the standard appropriate to skill test conducted; .

2) The area(s) of operation/task(s) not tested; and

3) Number of skill test failures shall also be recorded.

2.4.3 LETTER OF DISCONTINUANCE

A. When a skill test is discontinued for reasons other than unsatisfactory performance (i.e., equipment failure or illness), the examiner at that time shall prepare, sign and issue a Letter of Discontinuance to the applicant.

The Letter of Discontinuance should identify the areas of operation and their associated tasks of the skill test that were successfully completed.

B. The following documents will be returned to the applicant—

1) The license applicantion form; and

2) The flight engineer knowledge test results

C. The applicant shall be advised that the Letter of Discontinuance shall be presented to the examiner when the skill test is resumed, and made part of the certification file.

SECTION 3 EXAMINER RESPONSIBILITY

3.1 CONDUCT OF SKILL TEST

A. The examiner conducting the skill test is responsible for determining that the applicant meets the acceptable standards of knowledge and skill of each task within the skill test standard.

Where accompanying notes is used to emphasize special considerations required in the area of operation or task, the examiner must consider the intent of thes notes.

- Since there is no formal division between the questioning and task performance portions of the skill test, this becomes an ongoing process throughout the test.
- Oral questioning, to determine the applicant's knowledge of tasks and related safety factors, should be used judiciously at all times.

> Examiners shall test to the greatest extent practicable the applicant's correlative abilities, rather than rote memorization of facts, throughout the skill test.

B. If 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, practice, or the repetition of an unsatisfactory TASK is permitted during the certification process.
- When practical, the remaining TASKs of the skill test phase should be completed before repeating the questionable TASK.

> When administering a test based on sections 4 and 9 of this STS, the tasks appropriate to the company operations selected by the applicant shall be included in the plan of action.

3.2 DECISION MAKING & RISK MANAGEMENT

A. The examiner shall evaluate the applicant's ability throughout the skill test to use good decision-making procedures in order to evaluate risks.

B. The examiner shall accomplish this requirement by developing scenarios that incorporate as many tasks as possible to evaluate the applicant's risk management procedures in making safe decisions.

- For example, the examiner may develop a scenario that incorporates fuel allocation decisions and performance planning.
- The applicant's ability to utilize all the assets available in making a risk analysis to determine the safest course of action is essential for satisfactory performance.

> The scenarios should be realistic and within the capabilities of the aircraft and company operations used for the skill test.

SECTION 4 AREA OF OPERATION: PREFLIGHT PREPARATION

4.1 TASK: EQUIPMENT EXAMINATION—SYSTEMS KNOWLEDGE

Objective. To determine that the applicant exhibits adequate knowledge appropriate to the aircraft; its systems and components; its normal, abnormal, and emergency procedures; and uses the correct terminology with regard to the following items—

1) Flight controls—ailerons, elevator(s), rudder(s), control tabs, stabilizer, flaps, spoilers, leading edge flaps/slats, and trim systems.

2) Landing gear—indicators, brakes, antiskid, tires, nose- wheel steering, and shock absorbers.

3) Powerplant—controls and indicators, induction system, carburetor and fuel injection, turbocharging, cooling, fire detection and protection, mounting points, thrust reversers, turbine wheels, compressors, deicing, anti-icing, and other related components.

4) Propellers—type, controls, feathering/unfeathering, autofeather, negative torque sensing, synchronizing, and synchrophasing.

5) Fuel system—capacity, drains, pumps, controls, indicators, crossfeeding, transferring, jettison, fuel grade, color and additives, fueling and defueling procedures, and substitutions, if applicable.

6) Oil system—capacity, grade, quantities, and indicators.

7) Hydraulic system—capacity, pumps, pressure, reservoirs, grade, and regulators.

8) Electrical system—alternators, generators, battery, circuit breakers and protection devices, controls, indicators, external and auxiliary power sources, and priority of electrical power distribution and ratings.

9) Environmental systems—heating, cooling, ventilation, oxygen and pressurization, controls, indicators, and regulating devices.

10) Pneumatic systems.

11) Avionics and communications—autopilot, flight director, Electronic Flight Indicating Systems (EFIS), Flight Management System(s) (FMS), Long Range Navigation Inertial Navigation Systems (INS), Global Positioning System (GPS/DGPS/WGPS), VOR, NDB, ILS/MLS, RNAV systems and components, indicating devices, transponder, and emergency locator transmitter.

12) Crewmember and passenger equipment—oxygen system(s), survival and emergency equipment and exits, smoke and fire fighting equipment, evacuation procedures and crew duties, and quick donning oxygen mask for crewmembers and passengers.

4.2 TASK: AIRCRAFT HANDBOOKS, MANUALS, MINIMUM EQUIPMENT LIST (MEL), CONFIGURATION DEVIATION LIST (CDL), & OPERATIONS SPECIFICATIONS

Objective. To determine that the applicant exhibits adequate knowledge of the contents of the Aircraft Operating Manual or AFM with regard to the systems and components listed in TASK A (above), the MEL and CDL, the MEL Procedures Manual or Dispatch Deviation Guide, if appropriate, and the Operations Specifications, if applicable.

4.3 TASK: PERFORMANCE & LIMITATIONS

Objective. To determine that the applicant—

1) Exhibits adequate 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 aircraft) performance charts, tables, graphs, or other data relating to items such as—

   (a) Accelerate-stop distance.

   (b) Accelerate-go distance.

   (c) Takeoff performance and calculations, all engines and engine(s) inoperative.

   (d) Climb performance, including segmented climb performance, with all engines operating, with one or more engine(s) inoperative, and with other engine malfunctions as may be appropriate.

   (e) Service ceiling, all engines, engine(s) inoperative, including drift down, if appropriate.

   (f) Cruise performance.

   (g) Fuel planning, loading, consumption, range, and endurance.

   (h) Descent performance.

   (i) Go-around performance.

   (j) Other performance data (appropriate to the aircraft).

3) Describes (as appropriate to the aircraft) 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. Demonstrates the ability to read METAR weather data and interpret ATIS.

5) Computes the weight and balance and 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, cruise, and landing.

7) Demonstrates good planning and knowledge of procedures in applying operational factors affecting aircraft performance, such as high altitude airports, cluttered/ contaminated runways, ground and inflight icing precautions, and MEL/CDL corrections.

SECTION 5 AREA OF OPERATION: PREFLIGHT PROCEDURES

5.1 TASK: PREFLIGHT INSPECTION & COCKPIT SETUP

Objective. To determine that the applicant—

When the cockpit preflight is accomplished in a flight training device (FTD) or flight simulator, the examiner should include typical failures and inoperative items.

1) Exhibits adequate 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; and
   (c) The corrective action to take.
2) Exhibits adequate knowledge of the operational status of the aircraft by locating and explaining the significance and importance of related documents such as—
   (a) Airworthiness and registration certificates and radio station license;
   (b) Operating limitations, handbooks, and manuals;
   (c) Minimum equipment list (MEL) and configuration deviation list (CDL), if appropriate;
   (d) Weight and balance data, aircraft performance data, and airport analysis information, as appropriate; and
   (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 approved checklist to inspect the aircraft internally, including the passenger cabin, and configures the aircraft in preparation for flight.
4) Uses the challenge-and-response (or other approved) method with the other crewmembers, where applicable, to accomplish the checklist procedures.
5) Verifies the aircraft 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 normal and alternate 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) Landing gear—brakes and steering system;

(g) Tires—condition, inflation, and correct mounting, where applicable;

(h) Fire protection/detection systems—proper operation, servicing, pressures, and discharge indications;

(i) Pneumatic system—pressures and servicing;

(j) Ground environmental systems—proper servicing and operation;

(k) Auxiliary power unit (APU)—servicing and operation;

(l) Flight control systems—trim, spoilers, and leading/trailing edge devices; and

(m) Anti-ice, deice systems—servicing and operation.

6) Coordinates with ground crew and ensures adequate clearance prior to powering any system which results in device movement such as door hatches and flight control surfaces.

7) Complies with the provisions of the appropriate Operations Specifications, if applicable, as they pertain to the particular aircraft and operation.

8) Demonstrates proper operation of all applicable aircraft systems.

9) Notes any discrepancies, determines if the aircraft is airworthy and safe for flight, or takes the proper corrective action.

5.2 TASK: PREFLIGHT INSPECTION—EXTERIOR

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the preflight inspection procedures, while explaining briefly—

(a) The purpose of inspecting the items that must be checked;

(b) How to detect possible defects; and

(c) The corrective action to take.

For initial certification and issuance of an unrestricted flight engineer certificate, the exterior and interior preflight must be observed by the examiner or inspector on an actual, airworthy aircraft of the type used during training.

2) Exhibits adequate knowledge of the operational status of the aircraft by locating and explaining the significance and importance of exterior aircraft components.

3) Checks the general area around the aircraft for hazards to the safety of the aircraft and personnel.

SECTION 6 AREA OF OPERATION: GROUND OPERATIONS

6.1 TASK: 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) Exhibits adequate knowledge of normal starts, battery starts, bottle starts, cross-bleed starts, start valve failures, ignition failure, hot/hung starts, fire during start, and APU failure during start.

3) Ensures the ground safety procedures are followed during the before-start, start, and after-start phases.

4) Ensures the use of appropriate ground crew personnel during the start procedures.

5) Performs all items of the start procedures by systematically following the approved checklist items for the before-start, start, and after-start phases.

6) Demonstrates sound judgment and operating practices in those instances where specific instructions or checklist items are not published.

6.2 TASK: TAXI & PRE-TAKEOFF CHECKS

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the correct taxi and pretakeoff procedures (as appropriate to the aircraft), including pushback or powerback, as applicable, by stating the reason for checking the items outlined on the approved checklist, and explaining how to detect possible malfunctions.

2) Accomplishes the applicable checklist items and performs the recommended procedures.

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 aircraft is safe for the proposed flight or requires maintenance.

6) Determines the aircraft's takeoff performance, considering such factors as wind, density altitude, weight, temperature, pressure altitude, and runway condition and length.

7) Determines airspeeds/V-speeds and properly sets all applicable instrument and systems references.

8) Upon request, reviews procedures for emergency and abnormal situations which may be encountered during takeoff, and states the corrective action required of the other concerned crewmembers.

9) Monitors and correctly interprets the takeoff and departure clearance as issued by ATC and other radio communications.

SECTION 7 AREA OF OPERATION: NORMAL PROCEDURES

7.1 TASK: TAKEOFF

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of normal takeoff and climbs, including (as appropriate to the aircraft), airspeeds, configurations, meteorological considerations, and normal procedures.

2) Takes into account, prior to beginning the takeoff, operational factors that could affect the maneuver such as Takeoff Warning Inhibit Systems or other aircraft characteristics; runway length, surface condition, obstructions, and other hazards; wind, wake turbulence, and other related factors that could adversely affect safety.

3) Verifies and correctly computes takeoff performance requirements and applies correction for the existing wind component to the aircraft speeds.

4) Adjusts the powerplant controls as recommended by the FAA- approved guidance for the existing conditions.

5) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

7.2 TASK: INFLIGHT

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of instrument procedures, including SID's, Low and High Altitude Charts, STAR's and related pilot/crew/controller responsibilities.

2) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

Although not explicitly required by Par 7, knowledge of this objective is necessary by flightcrew positions, including flight engineers.

3) Exhibits adequate knowledge of high altitude performance and specific flight characteristics appropriate to the specific aircraft. FSB reports should be used when applicable.

4) Possesses adequate knowledge of the aircraft systems, subsystems, and devices relative to the aircraft type (as determined by the examiner).

5) Demonstrates the proper use of the aircraft systems, subsystems, and devices (as determined by the examiner) appropriate to the aircraft 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.

   (h) Automatic flight control system, electronic flight instrument system, and related subsystems.

   (i) Flight control systems.

   (j) Anti-ice and deice systems.

   (k) Aircraft and personal emergency equipment.

   (l) Other systems, subsystems, and devices specific to the type aircraft, including make, model, and series.

   (m) Pneumatic system(s).

7.3 TASK: APPROACH & LANDING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of descents, precision and nonprecision instrument approaches, visual approaches, missed approach, and other procedures; and aircraft performance requirements, including (as appropriate to the specific aircraft), airspeeds, configurations, meteorological considerations, and normal procedures.

2) Takes into account, prior to beginning the descent, approach and/or landing, operational factors that could affect the maneuver such as inoperative aircraft systems or other aircraft characteristics; runway length, surface condition, obstructions, and other hazards; and wind, wake turbulence, and other related factors that could adversely affect safety.

Although not explicitly required by Part 2, knowledge of this objective is necessary by flightcrew positions, including flight engineers.

3) Verifies and correctly computes approach and landing performance requirements, and applies correction for the existing wind component and aircraft configuration to the aircraft speeds.

4) Adjusts the powerplant controls and aircraft systems as recommended by the FAA-approved guidance for the existing conditions.

5) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

7.4 TASK: ENGINE & SYSTEMS MONITORING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the aircraft systems, including normal procedures and checklists.

2) Adjusts the powerplant controls and aircraft systems, as recommended by the FAA-approved guidance, for the existing conditions.

3) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

SECTION 8 AREA OF OPERATION: ABNORMAL & EMERGENCY PROCEDURES

8.1 TASK: TAKEOFF

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the technique and procedure for accomplishing a rejected takeoff after powerplant/system(s) failure/warnings, and related safety factors.

Abnormal or emergency procedures should be tested for engines and each major system such as hydraulic, pneumatic, and electrical.

2) Exhibits adequate knowledge of the procedures used during powerplant failure on takeoff, the appropriate reference airspeeds, aircraft performance requirements, and the specific crew actions required.

3) Exhibits adequate knowledge of abnormal and emergency procedures, including, as appropriate, airspeeds, configurations, and meteorological considerations.

4) Adjusts the powerplant controls as recommended by the FAA- approved guidance for the existing conditions.

5) Accomplishes immediate action items; calls for and verifies the accomplishment of the appropriate checklist.

8.2 TASK: INFLIGHT

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the emergency procedures relating to the particular aircraft type (as may be determined by the examiner).

2) Exhibits adequate knowledge of two-way radio communication failure procedures.

3) Identifies malfunctions and applies the proper procedure relating to abnormal operation of aircraft systems, subsystems, and devices relative to the aircraft type (as determined by the examiner) 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.

   (h) Automatic flight control system, electronic flight instrument system, and related subsystems.

   (i) Flight control systems.

   (j) Anti-ice and deice systems.

   (k) Aircraft and personal emergency equipment.

   (l) Other systems, subsystems, and devices specific to the type aircraft, including make, model, and series.

   (m) Pneumatic system(s).

4) Demonstrates the proper emergency procedures relating to the particular aircraft type, including —

   (a) Emergency descent.

   (b) Inflight fire and smoke removal.

   (c) Rapid decompression.

   (d) Emergency evacuation.

   (e) Engine fire.

   (f) Others (as required by the AFM).

5) Adjusts the powerplant controls, as recommended by the FAA-approved guidance, for the existing conditions.

6) Accomplishes immediate action items; calls for and verifies the accomplishment of the appropriate checklist.

8.3 TASK: APPROACH & LANDING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the emergency procedures relating to the particular aircraft type (as determined by the examiner).
2) Correctly computes approach and landing performance requirements taking into account operational factors that may affect the maneuver such as malfunctioning aircraft systems, abnormal or emergency situations, or other related factors that could adversely affect safety.
3) Adjusts the powerplant controls and aircraft systems as recommended by the FAA-approved guidance for the existing conditions.
4) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

8.4 TASK: ENGINE & SYSTEMS MONITORING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the aircraft systems, including malfunctions, abnormal and emergency procedures, and checklists.
2) Identifies and applies the appropriate procedure relating to subtle system failures such as slow leaks in the lubricating or hydraulics system(s), minor electrical overloads, inadequate pressurization, fuel imbalance/transfer/jettison, and abnormal procedures specified by the AFM.
3) Adjusts the powerplant controls and aircraft systems as recommended by the FAA-approved guidance for the existing conditions.
4) Accomplishes or calls for and verifies the accomplishment of the appropriate checklist items to ensure that the aircraft systems are operating properly.

SECTION 9 AREA OF OPERATION: POSTFLIGHT PROCEDURES

9.1 TASK: AFTER LANDING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of safe after-landing/taxi procedures, as appropriate.
2) Accomplishes the applicable checklist items and performs the recommended procedures.

9.2 TASK: PARKING & SECURING

Objective. To determine that the applicant—

1) Exhibits adequate knowledge of the parking and the securing aircraft procedures.
2) Accomplishes the applicable checklist items and performs the recommended procedures.
3) Has adequate knowledge of the aircraft forms/logs to record the flight time and discrepancies.

End of Advisory Circular

RAMON S. GUTIERREZ
Director General

Date of Issue : **23 September 2011**

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