

International Maintenance Review Board Policy Board (IMRBPB)
Issue Paper (IP)

Date: 27 Oct 2009

CIP Number: 2008-5 (replaces IPxx dated 14 Apr 2006)

Revision / Date:

Title: Handling of failures/degradations evident during pre flight inspection

a) Systems and Powerplant procedure

Submitter: Airbus

Issue:

A consistent approach for handling the types of failures/degradation that justify the required pre-flight inspections (e.g. walk round) should to be identified in MSG-3.

Problem:

Degradation/failures that are evident during the pre-flight inspections must currently be considered 'hidden' by MSG-3 logic in accordance with 2-3-5.1. This leads to FEC8 or 9 analyses depending on consequence of a second failure. Those leading to FEC8 require an MRB task to be developed. Such a task is not necessary if it is obvious that the failure / degradation would be noted pre flight.

Note: If there is any doubt on failure/degradation being evident during pre-flight inspection the current MSG-3 logic is applicable.

Various options have been followed by OEMs to avoid unnecessarily restrictive MRB tasks. Those OEMs that have selected tasks have either quoted the interval as 'daily' (which closely corresponds to the practice) or have taken credit for the pre-flight inspection and have quoted much higher intervals. In both cases the task has no value as a maintenance task. Other OEMs have taken credit for the pre-flight inspection in another way and declared the failure / degradation as evident. This drives FEC 6 or 7 analyses with no maintenance task being selected.

Recommendation (including Implementation):

MSG-3 should acknowledge that:

1. It is a flight crew responsibility to ensure that the pre-flight inspection has been carried out. This is thus part of the crew's 'normal duties'. Evidence of this responsibility is provided under European regulations in JAR OPS 1.085(f)(12) and under US regulations via 14CFR 121.441 (see note below) and 14 CFR 91.7b

Note: 14CFR 61.157(f) Proficiency and competency checks conducted under 14CFR Part 121 and 135 requires the successful completion of a PIC proficiency check under 121.441 (14CFR 121.441 "Proficiency Checks"). This Rule requires a PIC to satisfactorily complete a proficiency check that must include the procedures and manoeuvres set forth in appendix F of that part. Appendix F I(b) under Pre-flight Inspections: The pilot must (1) conduct an actual visual inspection of the exterior and interior of the airplane

2. The definition of 'maintenance' excludes the pre-flight inspection (this is explicitly stated in European regulations under EC 2042/2003 Article 2 Definitions)
3. In regulation M.A.301, European regulations acknowledge that the accomplishment of pre-flight inspections contributes to ensuring 'the aircraft continuing airworthiness and the serviceability of both operational and emergency equipment'.

Pre-flight inspections must be performed prior to each departure for the purpose of ensuring that the aircraft is fit for the intended flight. The person performing the inspection will have received appropriate training and is responsible for highlighting any findings. Departure

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clearance will not be given until these have been addressed. Whether the flight crew, the operator's maintenance staff or a subcontracted third party performs the inspection is not significant. The operational requirement to perform the inspection leads to certain failures / degradations being evident prior to departure. MSG-3 should be updated to allow credit to be taken for these inspections. It is proposed that the following paragraph is added in 2-3-5.1:

The pre-flight inspection is not to be considered as a maintenance function. It is required by Operational rules and may be performed by any appropriately trained person. The content of this inspection is practically identical for all aircraft types. The MSG-3 analyst may justify that certain failures / degradations will definitely be seen and addressed as a result of accomplishment of this operational requirement. Thus, in answering Question 1, a Functional Failure may be answered 'Yes' if it is certain that the Failure Cause(s) will be evident during the pre-flight inspection

Possible examples where the revised logic might be used:

- fuel pipe rupture leading to flow from drain masts
- severe degradation to tyres (cuts / loss of tread / flat spots)
- missing or deformed probes caused by FOD or ground vehicle contact
- obstruction at entrance to NACA air inlet

IMRBPB Position:

Date:

Position:

Status of Issue Paper (when closed state the closure date):

Recommendation Implementation:

Important Note: The IMRBPB positions are not policy. Positions become policy only when the policy is issued formally by the appropriate National Aviation Authority. (EASA, JAA, FAA, or TCCA)

2-3-5. Consequences of Failure (First Level)

The decision logic diagram (Ref. [\[Figure 2-2.1\]](#)) facilitates the identification of the tasks required. There are four first level questions.

1. Evident or Hidden Functional Failure

QUESTION 1:

IS THE OCCURRENCE OF A FUNCTIONAL FAILURE EVIDENT TO THE OPERATING CREW DURING THE PERFORMANCE OF NORMAL DUTIES?

This question asks if the operating crew will be aware of the loss (failure) of the function during performance of normal operating duties. Question 1 must be asked for each functional failure of the item being analyzed. The intent is to segregate the evident and hidden functional failures. The operating crew consists of qualified flight compartment and cabin attendant personnel who are on duty. Normal duties are those duties associated with the routine operation of the aircraft on a daily basis.

If there is uncertainty about the frequency of use of certain systems, and assumptions are to be made, then the assumptions made must be recorded in the analysis for later verification. This applies equally to assumptions made concerning tests that are performed automatically by electronic equipment.

Ground crew is not part of the operating crew.

Flight crew "normal duties" are described (in part) in the Airplane Flight Manual (AFM) and must be accomplished by the flight crew. Working groups may consider these flight crew checks part of the operating crew's "normal duties" for the purpose of categorizing failures as evident in the MSG-3 analysis. It should be documented in the analysis whenever credit is taken for such flight crew checks.

Since the AFM is not available during the initial MSG-3 analysis, working groups should document all Level 1 failure analysis that is based on flight crew checks assumed to be included in the AFM. Once the AFM is available, all Level 1 analyses based on such assumptions must be verified to ensure that these checks are included in the AFM. Level 1 analysis must be redone for any assumed flight crew check not included in the AFM. System failures which are indicated to the operating crew when performing their normal duties shall be considered as evident.

NOTE: Evidence of AFM tasks which are assumed in the MSG-3 Level 1 analysis submitted to the MRB must be available prior to the MRB Report approval; otherwise, the MSG-3 Level 1 analysis submitted to the MRB must be based on the assumption that these tasks are not part of the crew's normal duties.

A "YES" answer indicates the functional failure is evident; proceed to Question 2 (Ref. [\[Heading 2-3-5.2\]](#)).

A "NO" answer indicates the functional failure is hidden; proceed to Question 3 (Ref. [\[Heading 2-3-5.3\]](#)).

The following text will need to be integrated in the above paragraph after agreement. This will cause the current wording above to be modified to clarify that inclusion of the crew action in the AFM is not the only means to declare the functional failure as evident.

CIP 2008-6

The MSG-3 analyst may assess that a Functional Failure is made evident by flight crew actions not mandated through the AFM providing that either:

- written confirmation is available from manufacturer's Flight Operations / Training department to confirm that such actions constitute basic airmanship and will always be performed, or
- the actions that highlight the functional failures are part of the approved 'minimum syllabus' defined in the frame of an Operational Suitability Certificate (OSC) such as that proposed by EASA through NPA 2009-01

CIP 2008-5

The pre-flight inspection is not to be considered as a maintenance function. It is required by Operational rules and may be performed by any appropriately trained person. The content of this inspection is practically identical for all aircraft types. The MSG-3 analyst may justify that certain failures / degradations will definitely be seen and addressed as a result of accomplishment of this operational requirement. Thus, in answering Question 1, a Functional Failure may be answered 'Yes' if it is certain that the Failure Cause(s) will be evident during the pre-flight inspection.

JAR-OPS 1.065 Carriage of weapons of war and munitions of war
(See IEM OPS 1.065)

(a) An operator shall not transport weapons of war and munitions of war by air unless an approval to do so has been granted by all States concerned.

(b) An operator shall ensure that weapons of war and munitions of war are:

(1) Stowed in the aeroplane in a place which is inaccessible to passengers during flight; and

(2) In the case of firearms, unloaded, unless, before the commencement of the flight, approval has been granted by all States concerned that such weapons of war and munitions of war may be carried in circumstances that differ in part or in total from those indicated in this sub-paragraph.

(c) An operator shall ensure that the commander is notified before a flight begins of the details and location on board the aeroplane of any weapons of war and munitions of war intended to be carried.

[Ch. 1, 01.03.98]

JAR-OPS 1.070 Carriage of sporting weapons and ammunition
(See IEM OPS 1.070)

(a) An operator shall take all reasonable measures to ensure that any sporting weapons intended to be carried by air are reported to him.

(b) An operator accepting the carriage of sporting weapons shall ensure that they are:

(1) Stowed in the aeroplane in a place which is inaccessible to passengers during flight unless the Authority has determined that compliance is impracticable and has accepted that other procedures might apply; and

(2) In the case of firearms or other weapons that can contain ammunition, unloaded.

(c) Ammunition for sporting weapons may be carried in passengers' checked baggage, subject to certain limitations, in accordance with the Technical Instructions (see JAR-OPS 1.1160(b)(5)) as defined in JAR-OPS 1.1150(a)(1[5]).

[Ch. 1, 01.03.98; Amdt. 12, 01.12.06]

JAR-OPS 1.075 Method of carriage of persons

(a) An operator shall take all reasonable measures to ensure that no person is in any part of an aeroplane in flight which is not a part designed for the accommodation of persons unless temporary access

JAR-OPS 1.075(a) (continued)

has been granted by the commander to any part of the aeroplane:

(1) For the purpose of taking action necessary for the safety of the aeroplane or of any person, animal or goods therein; or

(2) In which cargo or stores are carried, being a part which is designed to enable a person to have access thereto while the aeroplane is in flight.

[Ch. 1, 01.03.98]

JAR-OPS 1.080 [Intentionally blank]

[Ch. 1, 01.03.98; Amdt. 12, 01.12.06]

JAR-OPS 1.085 Crew responsibilities
(See ACJ OPS 1.085(e)(3))

(a) A crew member shall be responsible for the proper execution of his duties that:

(1) Are related to the safety of the aeroplane and its occupants; and

(2) Are specified in the instructions and procedures laid down in the Operations Manual.

(b) A crew member shall:

(1) Report to the commander any fault, failure, malfunction or defect which he believes may affect the airworthiness or safe operation of the aeroplane including emergency systems.

(2) Report to the commander any incident that endangered, or could have endangered, the safety of operation; and

(3) Make use of the operator's occurrence reporting schemes in accordance with JAR-OPS 1.037(a)(2). In all such cases, a copy of the report(s) shall be communicated to the commander concerned.

(c) Nothing in paragraph (b) above shall oblige a crew member to report an occurrence which has already been reported by another crew member.

(d) A crew member shall not perform duties on an aeroplane:

(1) While under the influence of any drug that may affect his faculties in a manner contrary to safety;

(2) Until a reasonable time period has elapsed after deep water diving;

(3) Following blood donation except when a reasonable time period has elapsed;

(4) If he is in any doubt of being able to accomplish his assigned duties; or

JAR-OPS 1.085(d) (continued)

(5) If he knows or suspects that he is suffering from fatigue, or feels unfit to the extent that the flight may be endangered.

(e) A crew member shall not:

(1) Consume alcohol less than 8 hours prior to the specified reporting time for flight duty or the commencement of standby;

(2) Commence a flight duty period with a blood alcohol level in excess of 0.2 promille;

(3) Consume alcohol during the flight duty period or whilst on standby.

(f) The commander shall:

(1) Be responsible for the [safety of all crew members, passengers and cargo on board, as soon as he arrives on board, until he leaves the aeroplane at the end of the flight;

(2) Be responsible for the operation and safety of the aeroplane from the moment the aeroplane is first ready to move for the purpose of taxiing prior to take-off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down;]

([3]) Have authority to give all commands he deems necessary for the purpose of securing the safety of the aeroplane and of persons or property carried therein;

([4]) Have authority to disembark any person, or any part of the cargo, which, in his opinion, may represent a potential hazard to the safety of the aeroplane or its occupants;

([5]) Not allow a person to be carried in the aeroplane who appears to be under the influence of alcohol or drugs to the extent that the safety of the aeroplane or its occupants is likely to be endangered;

([6]) Have the right to refuse transportation of inadmissible passengers, deportees or persons in custody if their carriage poses any risk to the safety of the aeroplane or its occupants;

([7]) Ensure that all passengers are briefed on the location of emergency exits and the location and use of relevant safety and emergency equipment;

([8]) Ensure that all operational procedures and check lists are complied with in accordance with the Operations Manual;

([9]) Not permit any crew member to perform any activity during take-off, initial climb, final approach and landing except those duties required for the safe operation of the aeroplane;

([10])Not permit:

JAR-OPS 1.085(f) (continued)

(i) A flight data recorder to be disabled, switched off or erased during flight nor permit recorded data to be erased after flight in the event of an accident or an incident subject to mandatory reporting;

(ii) A cockpit voice recorder to be disabled or switched off during flight unless he believes that the recorded data, which otherwise would be erased automatically, should be preserved for incident or accident investigation nor permit recorded data to be manually erased during or after flight in the event of an accident or an incident subject to mandatory reporting;

([11])Decide whether or not to accept an aeroplane with unserviceabilities allowed by the CDL or MEL; and

([12])Ensure that the pre-flight inspection has been carried out.

(g) The commander or the pilot to whom conduct of the flight has been delegated shall, in an emergency situation that requires immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures and methods in the interest of safety.

[Ch. 1, 01.03.98; Amdt. 3, 01.12.01; Amdt. 7, 01.09.04]

JAR-OPS 1.090 Authority of the commander

An operator shall take all reasonable measures to ensure that all persons carried in the aeroplane obey all lawful commands given by the commander for the purpose of securing the safety of the aeroplane and of persons or property carried therein.

Ch. 1, 01.03.98

[JAR-OPS 1.095 Authority to taxi an aeroplane

(a) An operator shall take all reasonable steps to ensure that an aeroplane in his charge is not taxied on the movement area of an aerodrome by a person other than a flight crew member, unless that person, seated at the controls:]

[(1) Has been duly authorised by the operator or a designated agent and is competent to;

(i) taxi the aeroplane;

(ii) use the radio telephone; and

(2) Has received instruction in respect of aerodrome layout, routes, signs, marking, lights, air traffic control signals and instructions, phraseology and procedures, and is able to

I

(Acts whose publication is obligatory)

COMMISSION REGULATION (EC) No 2042/2003**of 20 November 2003****on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks****(Text with EEA relevance)**

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Regulation (EC) No 1592/2002 of the European Parliament and of the Council of 15 July 2002 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency ⁽¹⁾, (hereinafter referred to as the 'basic Regulation') and in particular Article 5 and 6 thereof,

Whereas:

- (1) The basic Regulation establishes common essential requirements to provide for a high uniform level of civil aviation safety and environmental protection; it requires the Commission to adopt the necessary implementation rules to ensure their uniform application; it establishes the European Aviation Safety Agency (hereinafter referred to as the 'Agency') to assist the Commission in the development of such implementing rules.
- (2) Existing aviation requirements in the field of maintenance as listed in Annex II to Council Regulation (EEC) No 3922/91 ⁽²⁾ will be repealed as from 28 September 2003.
- (3) It is necessary to adopt common technical requirements and administrative procedures to ensure the continuing airworthiness of aeronautical products, parts and appliances subject to the basic Regulation.
- (4) Organisations and personnel involved in the maintenance of products, parts and appliances should be required to comply with certain technical requirements in order to demonstrate their capability and means of discharging their obligations and associated privileges; the Commission is required to adopt measures to specify conditions of issuing, maintaining, amending, suspending or revoking certificates attesting such compliance.

- (5) The need to ensure uniformity in the application of common technical requirements in the field of continuing airworthiness of aeronautical parts and appliances requires that common procedures be followed by competent authorities to assess compliance with these requirements; the Agency should develop certification specifications to facilitate the necessary regulatory uniformity.
- (6) It is necessary to provide sufficient time for the aeronautical industry and Member State administrations to adapt to the new regulatory framework; it is also necessary to recognise the continuing validity of certificates issued before entry into force of this Regulation, in accordance with Article 57 of the basic Regulation.
- (7) The measures provided by this Regulation are based on the opinion issued by the Agency ⁽³⁾ in accordance with Articles 12(2)(b) and 14(1) of the basic Regulation.
- (8) The measures provided by this Regulation are in accordance with the Opinion of the European Aviation Safety Agency Committee ⁽⁴⁾ established by Article 54(3) of the basic Regulation,

HAS ADOPTED THIS REGULATION:

*Article 1***Objective and scope**

1. This Regulation establishes common technical requirements and administrative procedures for ensuring the continuing airworthiness of aircraft, including any component for installation thereto, which are:

- (a) registered in a Member State; or
- (b) registered in a third country and used by an operator for which a Member State ensures oversight of operations.

⁽¹⁾ OJ L 240, 7.9.2002, p. 1; Regulation as last amended by Commission Regulation (EC) No 1701/2003 (OJ L 243, 27.9.2003, p. 5).

⁽²⁾ OJ L 373, 31.12.1991, p. 4; Regulation as last amended by Commission Regulation (EC) No 2871/2000 (OJ L 333, 29.12.2000, p. 47).

⁽³⁾ Opinion of the European Aviation Safety Agency 1/2003, 1 September 2003.

⁽⁴⁾ Opinion of the European Aviation Safety Agency Committee, 23 September 2003.

2. Paragraph 1 shall not apply to aircraft the regulatory safety oversight of which has been transferred to a third country and which are not used by a Community operator, or to aircraft referred to in Annex II to the basic Regulation.

3. The provisions of this Regulation related to commercial air transport are applicable to licensed air carriers as defined by Community law.

Article 2

Definitions

Within the scope of the basic Regulation, the following definitions shall apply:

- (a) 'aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth's surface;
- (b) 'certifying staff' means personnel responsible for the release of an aircraft or a component after maintenance;
- (c) 'component' means any engine, propeller, part or appliance;
- (d) 'continuing airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation;
- (e) 'JAA' means 'Joint Aviation Authorities';
- (f) 'JAR' means 'Joint Aviation Requirements';
- (g) 'large aircraft' means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg, or a multi-engined helicopter;
- (h) 'maintenance' means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection;
- (i) 'organisation' means a natural person, a legal person or part of a legal person. Such an organisation may be established at more than one location whether or not within the territory of the Member States;
- (j) 'pre-flight inspection' means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight.

Article 3

Continuing airworthiness requirements

1. The continuing airworthiness of aircraft and components shall be ensured in accordance with the provisions of Annex I.

2. Organisations and personnel involved in the continuing airworthiness of aircraft and components, including maintenance, shall comply with the provisions of Annex I and where appropriate those specified in Articles 4 and 5.

3. By derogation from paragraph 1, the continuing airworthiness of aircraft holding a permit to fly shall, without prejudice to Community law, be ensured on the basis of the national regulations of the State of registry.

Article 4

Maintenance organisation approvals

1. Organisations involved in the maintenance of large aircraft or of aircraft used for commercial air transport, and components intended for fitment thereto, shall be approved in accordance with the provisions of Annex II.

2. Maintenance approvals issued or recognised by a Member State in accordance with the JAA requirements and procedures and valid before the entry into force of this Regulation shall be deemed to have been issued in accordance with this Regulation. For this purpose, by derogation from the provisions of 145.B.50(2) under Annex II, level 2 findings associated with the differences between JAR 145 and Annex II may be closed within one year. Certificates of release to service and authorised release certificates issued by an organisation approved under JAA requirements during that one-year period shall be deemed to have been issued under this Regulation.

3. Personnel qualified to carry out and/or control a continued airworthiness non-destructive test of aircraft structures and/or components, on the basis of any standard recognised by a Member State prior to the entry into force of this Regulation as providing an equivalent level of qualification, may continue to carry out and/or control such tests.

Article 5

Certifying staff

1. Certifying staff shall be qualified in accordance with the provisions of Annex III, except as provided for in M.A.607(b) and M.A.803 of Annex I and in 145.A.30(j) of and Appendix IV to Annex II.

2. Any aircraft maintenance licence and if any, the technical limitations associated with that licence, issued or recognised by a Member State in accordance with the JAA requirements and procedures and valid at the time of entry into force of this Regulation, shall be deemed to have been issued in accordance with this Regulation.

SUBPART C

CONTINUING AIRWORTHINESS

M.A.301 Continuing airworthiness tasks

The aircraft continuing airworthiness and the serviceability of both operational and emergency equipment shall be ensured by:

1. the accomplishment of pre-flight inspections;
2. the rectification to an officially recognised standard of any defect and damage affecting safe operation taking into account, for all large aircraft or aircraft used for commercial air transport, the minimum equipment list and configuration deviation list if applicable to the aircraft type;
3. the accomplishment of all maintenance, in accordance with the M.A.302 approved aircraft maintenance programme;
4. for all large aircraft or aircraft used for commercial air transport the analysis of the effectiveness of the M.A.302 approved maintenance programme;
5. the accomplishment of any applicable:
 - (i) airworthiness directive,
 - (ii) operational directive with a continuing airworthiness impact,
 - (iii) continued airworthiness requirement established by the Agency,
 - (iv) measures mandated by the competent authority in immediate reaction to a safety problem;
6. the accomplishment of modifications and repairs in accordance with M.A.304;
7. for non-mandatory modifications and/or inspections, for all large aircraft or aircraft used for commercial air transport the establishment of an embodiment policy;
8. maintenance check flights when necessary.

M.A.302 Maintenance programme

- (a) Every aircraft shall be maintained in accordance with a maintenance programme approved by the competent authority, which shall be periodically reviewed and amended accordingly.
- (b) The maintenance programme and any subsequent amendments shall be approved by the competent authority.
- (c) The maintenance programme must establish compliance with:
 1. instructions for continuing airworthiness issued by type certificate and supplementary type certificate holders and any other organisation that publishes such data in accordance with Part-21, or
 2. instructions issued by the competent authority, if they differ from subparagraph 1 or in the absence of specific recommendations, or
 3. instructions defined by the owner or the operator and approved by the competent authority if they differ from subparagraphs 1 and 2.
- (d) The maintenance programme shall contain details, including frequency, of all maintenance to be carried out, including any specific tasks linked to specific operations. The programme must include a reliability programme when the maintenance programme is based:
 1. on Maintenance Steering Group logic, or;
 2. mainly on condition monitoring.
- (e) When the aircraft continuing airworthiness is managed by an M.A. Subpart G organisation the maintenance programme and its amendments may be approved through a maintenance programme procedure established by such organisation (hereinafter called indirect approval).

M.A.303 Airworthiness directives

Any applicable airworthiness directive must be carried out within the requirements of that airworthiness directive, unless otherwise specified by the Agency.

Extracts from FAA requirements that support CIP 2008-5 and -7

(all downloaded from FAA website on 27 Oct 2009)

§ 61.157 Flight proficiency.

- (a) *General.* (1) The practical test for an airline transport pilot certificate is given for—
- An airplane category and single engine class rating.
 - An airplane category and multiengine class rating.
 - A rotorcraft category and helicopter class rating.
 - A powered-lift category rating.
 - An aircraft type rating.
- (2) A person who is applying for an airline transport pilot practical test must meet—
- The eligibility requirements of §61.153; and
 - The aeronautical knowledge and aeronautical experience requirements of this subpart that apply to the aircraft category and class rating sought.
- (b) *Aircraft type rating.* Except as provided in paragraph (c) of this section, a person who applies for an aircraft type rating to be added to an airline transport pilot certificate or applies for a type rating to be concurrently completed with an airline transport pilot certificate:
- Must receive and log ground and flight training from an authorized instructor on the areas of operation under this section that apply to the aircraft type rating;
 - Must receive a logbook endorsement from an authorized instructor that certifies the applicant completed the training on the areas of operation listed under paragraph (e) of this section that apply to the aircraft type rating; and
 - Must perform the practical test in actual or simulated instrument conditions, except as provided under paragraph (g) of this section.
- (c) *Exceptions.* A person who applies for an aircraft type rating to be added to an airline transport pilot certificate or an aircraft type rating concurrently with an airline transport pilot certificate, and who is an employee of a certificate holder operating under part 121 or part 135 of this chapter, does not need to comply with the requirements of paragraph (b) of this section if the applicant presents a training record that shows completion of that certificate holder's approved pilot in command training program for the aircraft type rating.
- (d) *Upgrading type ratings.* Any type rating(s) and limitations on a pilot certificate of an applicant who completes an airline transport pilot practical test will be included at the airline transport pilot certification level, provided the applicant passes the practical test in the same category and class of aircraft for which the applicant holds the type rating(s).
- (e) *Areas of operation.* (1) For an airplane category—single engine class rating:
- Preflight preparation;
 - Preflight procedures;
 - Takeoff and departure phase;
 - In-flight maneuvers;
 - Instrument procedures;
 - Landings and approaches to landings;
 - Normal and abnormal procedures;
 - Emergency procedures; and
 - Postflight procedures.
- (2) For an airplane category—multiengine class rating:
- Preflight preparation;
 - Preflight procedures;
 - Takeoff and departure phase;
 - In-flight maneuvers;
 - Instrument procedures;
 - Landings and approaches to landings;
 - Normal and abnormal procedures;
 - Emergency procedures; and
 - Postflight procedures.
- (3) For a powered-lift category rating:
- Preflight preparation;

- (ii) Preflight procedures;
 - (iii) Takeoff and departure phase;
 - (iv) In-flight maneuvers;
 - (v) Instrument procedures;
 - (vi) Landings and approaches to landings;
 - (vii) Normal and abnormal procedures;
 - (viii) Emergency procedures; and
 - (ix) Postflight procedures.
- (4) For a rotorcraft category—helicopter class rating:

- (i) Preflight preparation;
- (ii) Preflight procedures;
- (iii) Takeoff and departure phase;
- (iv) In-flight maneuvers;
- (v) Instrument procedures;
- (vi) Landings and approaches to landings;
- (vii) Normal and abnormal procedures;
- (viii) Emergency procedures; and
- (ix) Postflight procedures.

(f) Proficiency and competency checks conducted under part 121, part 135, or subpart K of part 91. (1) Successful completion of any of the following checks satisfies the flight proficiency requirements of this section for the issuance of an airline transport pilot certificate and/or the appropriate aircraft rating:

(i) A proficiency check under §121.441 of this chapter.

- (ii) Both a competency check under §135.293(a)(2) and §135.293(b) of this chapter and pilot-in-command instrument proficiency check under §135.297 of this chapter.
- (iii) Both a competency check under §91.1065 of this chapter and a pilot-in-command instrument proficiency check under §91.1069 of this chapter.

(2) The checks specified in paragraph (f)(1) of this section must be conducted by one of the following:

- (i) An FAA Aviation Safety Inspector.
- (ii) An Aircrew Program Designee who is authorized to perform proficiency and/or competency checks for the air carrier whose approved training program has been satisfactorily completed by the pilot applicant.
- (iii) A Training Center Evaluator with appropriate certification authority who is also authorized to perform the portions of the competency and/or proficiency checks required by paragraph (f)(1) of this section for the air carrier whose approved training program has been satisfactorily completed by the pilot applicant.

(g) *Aircraft not capable of instrument maneuvers and procedures.* An applicant may add a type rating to an airline transport pilot certificate with an aircraft that is not capable of the instrument maneuvers and procedures required on the practical test under the following circumstances—

- (1) The rating is limited to “VFR only.”
- (2) The type rating is added to an airline transport pilot certificate that has instrument privileges in that category and class of aircraft.
- (3) The “VFR only” limitation may be removed for that aircraft type after the applicant:
 - (i) Passes a practical test in that type of aircraft on the appropriate instrument maneuvers and procedures in §61.157; or
 - (ii) Becomes qualified in §61.73(d) for that type of aircraft.
- (h) *Multiengine airplane with a single-pilot station.* An applicant for a type rating, at the ATP certification level, in a multiengine airplane with a single-pilot station must perform the practical test in the multi-seat version of that airplane. The practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test in the case where there is no multi-seat version of that multiengine airplane.
- (i) *Single engine airplane with a single-pilot station.* An applicant for a type rating, at the ATP certification level, in a single engine airplane with a single-pilot station must perform the practical test in the multi-seat version of that single engine airplane. The practical test may be performed in the single-seat version of that airplane if the Examiner is in a position to observe the applicant during the practical test in the case where there is no multi-seat version of that single engine airplane.

(j) *Waiver authority.* An Examiner who conducts a practical test may waive any task for which the FAA has provided waiver authority.
[Doc. No. FAA-2006-26661, 74 FR 42560, Aug. 21, 2009; Amdt. 61-124A, 74 FR 53647, Oct. 20, 2009]

§ 121.441 Proficiency checks.

(a) No certificate holder may use any person nor may any person serve as a required pilot flight crewmember unless that person has satisfactorily completed either a proficiency check, or an approved simulator course of training under §121.409, as follows:

(1) For a pilot in command, a proficiency check within the preceding 12 calendar months and, in addition, within the preceding 6 calendar months, either a proficiency check or the simulator training.

(2) For all other pilots—

(i) Within the preceding 24 calendar months either a proficiency check or the line-oriented simulator training course under §121.409; and

(ii) Within the preceding 12 calendar months, either a proficiency check or any simulator training course under §121.409.

(b) Except as provided in paragraphs (c) and (d) of this section, a proficiency check must meet the following requirements:

(1) It must include at least the procedures and maneuvers set forth in appendix F to this part unless otherwise specifically provided in that appendix.

(2) It must be given by the Administrator or a pilot check airman.

(c) An approved airplane simulator or other appropriate training device may be used in the conduct of **a proficiency check as provided in appendix F to this part.**

(d) A person giving a proficiency check may, in his discretion, waive any of the maneuvers or procedures for which a specific waiver authority is set forth in appendix F to this part if—

(1) The Administrator has not specifically required the particular maneuver or procedure to be performed;

(2) The pilot being checked is, at the time of the check, employed by a certificate holder as a pilot; and

(3) The pilot being checked is currently qualified for operations under this part in the particular type airplane and flight crewmember position or has, within the preceding six calendar months, satisfactorily completed an approved training program for the particular type airplane.

(e) If the pilot being checked fails any of the required maneuvers, the person giving the proficiency check may give additional training to the pilot during the course of the proficiency check. In addition to repeating the maneuvers failed, the person giving the proficiency check may require the pilot being checked to repeat any other maneuvers he finds are necessary to determine the pilot's proficiency. If the pilot being checked is unable to demonstrate satisfactory performance to the person conducting the check, the certificate holder may not use him nor may he serve in operations under this part until he has satisfactorily completed a proficiency check.

However, the entire proficiency check (other than the initial second-in-command proficiency check) required by this section may be conducted in an approved visual simulator if the pilot being checked accomplishes at least two landings in the appropriate airplane during a line check or other check conducted by a pilot check airman (a pilot-in-command may observe and certify the satisfactory accomplishment of these landings by a second-in-command). If a pilot proficiency check is conducted in accordance with this paragraph, the next required proficiency check for that pilot must be conducted in the same manner, or in accordance with appendix F of this part, or a course of training in an airplane visual simulator under §121.409 may be substituted therefor.

[Doc. No. 9509, 35 FR 96, Jan. 3, 1970, as amended by Amdt. 121-103, 38 FR 12203, May 10, 1973, Amdt. 121-108, 38 FR 35446, Dec. 28, 1973; Amdt. 121-144, 43 FR 22648, May 25, 1978; Amdt. 121-263, 62 FR 13791, Mar. 21, 1997]

Appendix F to Part 121—Proficiency Check Requirements

The maneuvers and procedures required by §121.441 for pilot proficiency checks are set forth in this appendix and must be performed inflight except to the extent that certain maneuvers and procedures may be performed in an airplane simulator with a visual system (visual simulator), an airplane simulator without a visual system (nonvisual simulator), or a training device as indicated by the appropriate symbol in the respective column opposite the maneuver or procedure.

Whenever a maneuver or procedure is authorized to be performed in a nonvisual simulator, it may also be performed in a visual simulator; when authorized in a training device, it may be performed in a visual or nonvisual simulator.

For the purpose of this appendix, the following symbols mean—

P=Pilot in Command. B=Both Pilot in Command and Second in Command. *=A symbol and asterisk (B*) indicates that a particular condition is specified in the maneuvers and procedures column. #=When a maneuver is preceded by this symbol it indicates the maneuver may be required in the airplane at the discretion of the person conducting the check.

Throughout the maneuvers prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the person conducting the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of prudence and care in selecting a course of action.

Maneuvers/Procedures	Required		Permitted			
	Simulated instrument conditions	Inflight	Visual simulator	Nonvisual simulator	Training device	Waiver provisions of §121.441(d)
The procedures and maneuvers set forth in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to—						
(1) The airplane, its systems and components;						
(2) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with procedures and limitations contained in the approved Airplane Flight Manual, the certificate holder's operations Manual, check lists, or other approved material						

appropriate to the airplane type; and						
(3) Compliance with approach, ATC, or other applicable procedures						
I. Preflight:						
(a) Equipment examination (oral or written). As part of the practical test the equipment examination must be closely coordinated with, and related to, the flight maneuvers portion but may not be given during the flight maneuvers portion. The equipment examination must cover—					B	
(1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational, and performance factors;						
(2) Normal, abnormal, and emergency procedures, and the operations and limitations relating thereto; and						
(3) The appropriate provisions of the approved Airplane Flight Manual						

The person conducting the check may accept, as equal to this equipment test, an equipment test given to the pilot in the certificate holder's ground school within the preceding 6 calendar months							
	(b) Preflight inspection. The pilot must—					B	B*
	(1) Conduct an actual visual inspection of the exterior and interior of the airplane,						
	locating each item and explaining briefly the purpose for inspecting it; and						
	(2) Demonstrate the use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies						

§ 91.7 Civil aircraft airworthiness.

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.