Director General of Civil Aviation Authority of the Republic of Kosovo,

Pursuant to Articles 3.5, 15.1(c) and 21.2 of the Law No. 03/L-051 on Civil Aviation,

Having regard to UNMIK's signature of the Multilateral Agreement on the Establishment of a European Common Aviation Area ("the ECAA Agreement") on behalf of Kosovo, and the provisional entry into force of the ECAA Agreement for Kosovo on 10 October 2006,

Whereas the Republic of Kosovo has undertaken the international obligations of Kosovo, including those concluded on behalf of Kosovo by UNMIK,

Whereas the ECAA Agreement requires that the Joint Aviation Requirements (JARs) adopted by the Joint Aviation Authorities, are implemented in the Republic of Kosovo,

Hereby issues the following:

REGULATION No. 3/2010 ON

JOINT AVIATION AUTHORITIES REQUIREMENTS AND ADMINISTRATIVE PROCEDURES APPLICABLE TO COMMERCIAL AIR TRANSPORTATION - HELICOPTERS

Article 1
Applicability

This Regulation prescribes the requirements and administrative procedures applicable to the operation of any civil helicopter for the purpose of commercial air transportation, helicopter operations and persons and organizations involved in these tasks.

Article 2
Definitions

For the purpose of this Regulation, the following definitions shall apply:

Air Operator Certificate (AOC) - a document issued by the Authority confirming that the air operator complies with the prescribed requirements for performing activities of commercial air transportation specified in the certificate,

Authority – shall mean the Civil Aviation Authority of the Republic of Kosovo,

Commercial Operations - an aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire, or operations performed in accordance with the contract between the aircraft operator and the service user, where the user has no control over the aircraft operator,

Joint Aviation Requirement (JAR) - aviation regulations issued by the Joint Aviation Authorities,

Article 3
Recognition of Approvals

Authorizations, approvals and certificates, issued in accordance with common technical requirements and administrative procedures specified in Joint Aviation Authorities Requirements JAR-OPS 3 – Commercial Air Transportation (Helicopters) -Amendment 5, of 01 July 2007, by the European Common Aviation Area (ECAA) Members and Partners, shall be recognized by the Authority, without further technical requirements or evaluation.

Article 4
References to other Regulations

Provisions of Section 1, Subpart M of the JAR-OPS 3 – Commercial Air Transportation - Helicopters, referring to the continuing airworthiness of the helicopters and provisions of the Annex 1, Part M of the 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, as amended and/or supplemented, shall be applicable.

Article 5
Applicable Joint Aviation Requirements

5.1 Apart from compliance with provisions of this Regulation, an air operator must comply with the relevant Joint Aviation Authorities Requirements which are associated with their operations in the following order:

1. JAR-1:- Definitions and Abbreviations;

2. JAR-26 – Additional Airworthiness Requirements for Operations;
3. JAR-STD-1H – Helicopter Flight Simulators;
4. JAR-STD-2H – Helicopter Flight Training Devices;
5. JAR-STD-3H – Helicopter Flight & Navigation Procedures Trainers;
6. JAR-FSTD-H – Helicopter Flight Simulation Training Devices;
7. JAR-MMEL/MEL – Master Minimum Equipment List/Minimum Equipment List;

5.2 Acceptable Means of Compliance (AMC)/Interpretative and Explanatory Material (IEM) in Section 2 of JAR-OPS 3, shall be applied until other instructions regulating this field are issued.

Article 6
Interpretation

In cases where any differences occur between the versions of JAR-OPS 3 (Amendment 5) in Albanian and/or Serbian, and the original English version, the English version of JAR-OPS 3 Amendment 5, thereof, which is annexed to this Regulation, shall prevail.

Article 7
Entry into Force

This Regulation shall enter into force on 10 October 2010.

Dritan Gjonbalaj
Director General

Joint Aviation Authorities

Postal Address: P.O. Box 3000
2130 KA Hoofddorp
Visiting Address: Saturnusstraat 8-10
The Netherlands
Tel.: 31 (0)23 - 5679700
Fax: 31 (0)23 - 5621714

Our reference number: 07/03-1

1 November 2004

Your reference number:

JAR-1: DEFINITIONS

Please find attached a copy of Amendment 6 to JAR-1, effective 1 November 2004.

Following the establishment of the European Aviation Safety Agency in September 2003 and the adoption of EASA Implementing Rules (IR), Certification Specifications (CS), and Acceptable Means of Compliance and Guidance Material (AMC) the Joint Aviation Authorities Committee made the decision that in future the JAA would publish amendments to the airworthiness JARs by incorporation of reference to EASA Implementing Rules, AMC and CS. Such publications would have a JAA cover with reference to the relevant EASA document, as well as any differences to it agreed by the JAA.

For JAR-1 this means that all the airworthiness definitions have been removed from JAR-1 and replaced by a reference to the relevant EASA document, containing this definition.

Inge R Steenberg
Assistant to Regulation Director

Book Supplement

Joint Aviation Requirements

JAR–1

Definitions and Abbreviations

Joint Aviation Authorities

Joint Aviation Requirements

JAR–1 Definitions and Abbreviations

Amendment 6
1 November 2004

Printed and distributed by Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, USA
on behalf of the Joint Aviation Authorities Committee.

The members of the Joint Aviation Authorities Committee are representatives of the Civil Aviation Authorities of the countries that have signed the 'Arrangements Concerning the Development and the Acceptance of Joint Aviation Requirements'. A list of these countries is kept by European Civil Aviation Conference, 3 bis Villa Emile Bergerat, 92522 NEUILLY SUR SEINE Cedex, France.*

[Further printed copies of the Joint Aviation Authorities Documents can be purchased from Global Engineering Documents, whose world wide offices are listed on the JAA website (www.jaa.nl) and Global website (www.global.ihs.com).

For electronic versions of Joint Aviation Authorities Documents please refer to the website of Information Handling Services (IHS) on www.ihsaviation.com, where you will find information on how to order.

Enquiries regarding the contents should be addressed to Central JAA, Saturnusstraat 8–10, PO Box 3000, 2130 KA HOOFDDORP, Netherlands (Fax No. (31) 23 5621714). **]**

* These countries are:-
[Albania, Armenia**,** Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, European Aviation Safety Agency, Finland, Former Yugoslav Republic of Macedonia (FYROM), France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine & United Kingdom.**]**

CONTENTS

JAR–1

DEFINITIONS

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JAR–1

FOREWORD

1 The Civil Aviation Authorities of certain European countries have agreed common comprehensive and detailed aviation requirements (referred to as the Joint Aviation Requirements (JAR) with a view to minimising Type Certification problems on joint ventures, and also to facilitate the export and import of aviation products.

2 The JAR are recognised by the Civil Aviation Authorities of participating countries as an acceptable basis for showing compliance with their national airworthiness codes.

3 This JAR–1 contains definitions and abbreviations of terms used in other JAR Codes. JAR–1 is based partly on those definitions contained in ICAO Annexes, and partly on the Federal Aviation Administration's FAR Part 1.

4 Definitions which are identical to those in the ICAO Annexes are marked thus #. Definitions which are identical to those in FAR Part 1 are marked thus *.

5 New, amended and corrected text is enclosed within heavy brackets.

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JOINT AVIATION REQUIREMENTS

CHECK LIST of PAGES

JAR–1 DEFINITIONS

AMENDMENT 6, DATED 01.11.04

The following pages of JAR–1 are now current:

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PREAMBLES

JAR–1

First Issue Effective: 9.4.76

This issue of JAR–1 contains definitions and abbreviations pertinent to those Parts of JAR so far issued, hence no reference will be found, for example, to helicopters or helicopter engines.

JAR–1 will be amended as necessary when other Parts of JAR are issued.

Amendment 1 Effective: 30.11.77

Definitions of 'V_D/M_D', 'V_{Tmax}' and 'V_3' have been added.

Definitions of various terms and abbreviations used in the oxygen system requirements of JAR–25, Sub-part F, have been added.

Definitions of 'Fireproof', 'Fire-resistant' and 'Standard Flame' have been added.

A definition of 'Harness' has been added.

Amendment 2 Effective: 4.8.80

Definitions of 'TSO' and 'MIL Spec' have been added.

Definitions of 'Detent', 'Gate' and 'Safety Catch' have been added.

The definition of 'Accelerate-stop Distance' has been deleted.

A definition of 'V_1' has been added.

A definition of 'Notice of Proposed Amendment' has been added.

The definition of 'True Airspeed' has been amended.

Definitions of 'Sailplane' and 'Powered Sailplane' have been added.

Definitions of 'V_H' and 'V_Y' have been added.

A definition of 'NPA' has been added.

Amendment 3 Effective: 1.7.81

A definition of 'Normal operating differential pressure' has been added.

A definition of 'V_T' has been added.

A definition of 'V_W' has been added.

Change 4 Effective: 1.6.87

The main purpose of this amendment is to incorporate the engine and propeller definitions which have been temporarily included in JAR–E. The definitions will be deleted from JAR–E by a future amendment.

Also, the definitions applicable to auxiliary power units from JAR–APU have been incorporated.

The following other amendments have also been made:–

An amendment to the JAR Secretariat address on page ii.

Addition of new paragraphs to the Foreword and revision of other paragraphs.

Incorporation of minor editorial improvements in several places.

Boxes have been put round the National Variants.

Addition of the definition of V_{S1g}.

Change 5 Effective 15.7.96

The main purpose of this Amendment is to incorporate the priority definitions contained in NPA 1–7. Many of these derive from the need for definitions following the adoption of JAR–OPS. NPA 1–5 ‘Rotorcraft definitions’, drafted following the adoption of JAR–27 & JAR–29, is also incorporated in this amendment. A number of definitions arising from NPA 25D–181 Rev 3 & NPA 1–2 are included. NPA 25D–181 Rev 3 allows for the deletion of the remaining National Variants in JAR–1 (French NVs for Fireproof & Fire–resistant).

The following amendments have been made:–

An amendment to the addresses and the list of JAA member States on page ii.

Revision of the Foreword.

Incorporation of minor editorial improvements in several places.

A definition of ‘Accepted/Acceptable’ has been added, arising from NPA 1–7.

A definition of ‘Aerial Work’ has been added, arising from NPA 1–7.

The definition of ‘Aircraft’ has been amended, arising from NPA 1–7.

A definition of ‘Aircraft Type’ has been added, arising from NPA 1–7.

The definition of ‘Approved’ has been deleted, and is replaced by a definition of ‘Approved by the Authority’, arising from NPA 1–7.

The definition of ‘Authority’ has been amended, arising from NPA 1–7.

A definition of ‘Autorotation’ has been added, arising from NPA 1–5.

A definition of ‘Auxiliary rotor’ has been added, arising from NPA 1–5.

A definition of ‘Category’ has been added, arising from NPA 1–5 & NPA 1–7.

The definition of ‘Category II operation’ is deleted, arising from ‘Category’ in NPA 1–7.

A definition of ‘Commercial Air Transportation’ has been added, arising from NPA 1–7.

The definition of ‘Commuter aeroplane category’, introduced into OP 1/91/1 (NPA 1–4) is deleted, arising from NPA 1–7.

A definition of ‘Engine Type’ has been added, arising from NPA 1–7.

A definition of ‘External load’ has been added, arising from NPA 1–5.

A definition of ‘External-load attaching means’ has been added, arising from NPA 1–5.

A definition of ‘Final take-off speed’ has been added, arising from NPA 1–2.

The definition of ‘Fireproof’ has been amended, arising from NPA 25D–181 Rev 3.

The French NV for ‘Fireproof’ has been deleted, arising from NPA 25D–181 Rev 3.

The definition of ‘Fire-resistant’ has been amended, arising from NPA 25D–181 Rev 3.

The French NV for ‘Fire-resistant’ has been deleted, arising from NPA 25D–181 Rev 3.

The definition of ‘Flight Time’ has been amended, arising from NPA 1–7.

A definition of ‘Gyroplane’ has been added, arising from NPA 1–5.

A definition of ‘Helicopter’ has been added, arising from NPA 1–5 & NPA 1–7.

A definition of ‘Heliport’ has been added, arising from NPA 1–5.

The definition of ‘Large aeroplane’ has been amended, first by OP 1/91/1 (NPA 1–4), and subsequently further amended by NPA 1–7.

A definition of ‘Main rotor(s)’ has been added, arising from NPA 1–5.

A definition of ‘Maintenance’ has been added, arising from NPA 1–7.

A definition of ‘Reference landing speed’ has been added, arising from NPA 1–2.

A definition of ‘Rotorcraft’ has been added, arising from NPA 1–5.

A definition of ‘Rotorcraft-load combination’ has been added, arising from NPA 1–5.

The definition of ‘Standard Flame’ is deleted, arising from NPA 25D–181 Rev 3.

A definition of ‘Take-off safety speed’ has been added, arising from NPA 1–5.

Texts in Section 2 have been re-named as either IEM or AMC from the existing title, ‘ACJ’.

The definition of ‘CAT II’ is deleted, arising from the introduction ‘Category’ in NPA 1–7.

A definition of ‘LDP’ has been added, arising from NPA 1–5.

A definition of ‘OEI’ has been added, arising from NPA 1–5.

A definition of ‘rpm’ has been added, arising from NPA 1–5.

A definition of 'TDP' has been added, arising from NPA 1–5.

The definition of 'V_{AT}' is deleted, arising from NPA 1–2.

A definition of 'V_{FTO}' has been added, arising from NPA 1–2.

A definition of 'V_{REF}' has been added, arising from NPA 1–2.

A definition of 'V_{TOSS}' has been added, arising from NPA 1–5.

An IEM to 'Commercial Air Transportation' has been added, arising from NPA 1 –7.

Amendment 6 01.11.04

The purpose of this amendment is to introduce NPAs 1-8, 1-10, 1-6, and to delete airworthiness definitions, making reference to EASA CS Definitions.

The following amendments have been made:

Definition of 'Acceleration Datum Conditions' has been deleted, arising from NPA 1-6.

Definition of 'Civil Aircraft' has been added, arising from NPA 1-8.

Definition of 'Class' has been added, arising from NPA 1-8.

Definition of 'Commander' has been added, arising from NPA 1-8.

Definition of 'Co-pilot' has been added, arising from NPA 1-8.

Definition of 'Microlight' has been added, arising from NPA 1-10.

Definition of 'Pilot-in-Command' has been added, arising from NPA 1-8.

Definition of 'Pilot flying (PF)' has been added, arising from NPA 1-8.

Definition of 'Pilot not flying (PNF)' has been added, arising from NPA 1-8.

Definition of 'PF' has been added, arising from NPA 1-8.

Definition of 'PNF' has been added, arising from NPA 1-8.

An IEM for the Definition of 'Class' has been added, arising from NPA 1-8.

An IEM for the Definition of 'Commander' has been added, arising from NPA 1-8.

An IEM for the Definition of 'Pilot flying' has been added, arising from NPA 1-8.

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JAR 1.1 General Definitions

'Accepted/Acceptable' means not objected to by the Authority as suitable for the purpose intended.

[Ch. 5, 15.7.96]

'Adjustable Pitch Propeller'
[ ]

[Amdt. 6, 01.11.04]

#'Aerial Work' means an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, etc.

[Ch. 5, 15.7.96]

***'Aerodynamic coefficients'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Aeroplane'**
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

***'Airborne'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

#'Aircraft'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96]

'Aircraft Type' as used with respect to;

a. licensing and operations of flight crew, is defined in JAR–FCL;

b. type certification of aircraft, is defined in JAR–21;

c. cabin crew, is defined in JAR–OPS; or

d. certifying staff, is defined in JAR–145.

[Ch. 5, 15.7.96]

'Aircraft Variant' as used with respect to the licensing and operation of flight crew, means an aircraft of the same basic certificated type which contain modifications not resulting in significant changes of handling and/or flight characteristic, or flight crew complement, but causing significant changes to equipment and/or procedures.

[Ch. 5, 15.7.96]

***'Airframe'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Alternate airport'** means an airport at which an aircraft may land if a landing at the intended airport becomes inadvisable.

'Applicant' means a person applying for approval of an aircraft or any part thereof.
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Approved by the Authority' means documented by the Authority as suitable for the purpose intended.

[Ch. 5, 15.7.96]

'Atmosphere, International Standard'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Authority' means the competent body responsible for the safety regulation of Civil Aviation. <u>(See IEM 1.1, Authority)</u>.

[Ch. 5, 15.7.96]

***'Autorotation'**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

Auxiliary Power Units:–
Definitions applicable to auxiliary power units:–

a. **'Accessory drives'**
[ ]

b. **'Auxiliary Power Unit (APU)'**.
[ ]

c. **'Blade'**.
[ ]

d. **'Compressor air'**.
[ ]

e. **'Containment'**.
[ ]

f. **'Critical rotor stage'**.
[ ]

g. '**Demonstrate'**.
[ ]

h. **'Essential APU'**.
[ ]

i. **'High energy rotor'**.
[ ]

j. **'Major part'**.
[ ]

k. **'Maximum allowable speed'**.
[ ]

l. **'Maximum allowable temperature'**.
[ ]

m **'Minor part'**.
[ ]

n. **'Non-essential APU'**.
[ ]

o. **'Output provisions'**.
[ ]

p. '**Rated output'**.
[ ]

q. **'Rated temperature'**.
[ ]

r. **'Rotor'**.
[ ]

s. **'Start'**.
[ ]

t. **'Substantiate'**.
[ ]

u. **'Type'**.
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Auxiliary rotor'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Beta Control'
ref. EASA CS-P.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Boost Pressure'
ref. EASA CS-E.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

***'Brake Horsepower'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Calibrated airspeed'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Category' as used with respect to;

a. licensing of flight crew, is defined in JAR–FCL;

b. **[ ];**

c. **[ ];**

d. aerodrome operating minima required in JAR–OPS, is defined in JAR–OPS 1.430;

e. **[ ]**; or

f. all weather operations in accordance with JAR–OPS, is defined in JAR–OPS 1.430.

[ ]

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Charge Cooling'
ref. EASA CS-Definitions and CS-E.

[Amdt. 6, 01.11.04]

'Clearway' means, for turbine engine powered aeroplanes certificated after August 29, 1959, an area beyond the runway, not less than 152 m (500 ft) wide, centrally located about the extended centreline of the runway, and under the control of the airport authorities. The clearway is expressed in terms of a clearway plane, extending from the end of the runway with an upward slope not exceeding 1·25%, above which no object or terrain protrudes. However, threshold lights may protrude above the plane if their height above the end of the runway is 0·66 m (26 ins) or less and if they are located to each side of the runway.

['Civil Aircraft'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

['Class'

a. As used with respect to aeroplanes means a group of single-pilot aeroplane types having similar handling and flight characteristics.

b. Reserved.

c. Reserved. **]**

[Amdt. 6, 01.11.04]

Climates, Standard
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

['Commander' as used with respect to aircraft operations, is defined in JAR-OPS. **]**

[Amdt. 6, 01.11.04]

'Commercial Air Transportation' means the transportation by air of passengers, cargo or mail for remuneration or hire. <u>(See IEM 1.1, Commercial Air Transportation.)</u>

[Ch. 5, 15.7.96]

'Component, Parts, Appliances, Product'
Ref. EASA Basic Regulation and IR Maintenance

[Amdt. 6, 01.11.04]

'Continuous Maximum Icing' (see 'Icing Atmospheric Conditions')

[Ch. 4, 1.6.87]

['Co-pilot' means a pilot serving in any piloting capacity other than as pilot-in-command or commander, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a licence or rating. **]**

[Amdt. 6, 01.11.04]

***'Crewmember'** means a person assigned to perform duty in an aircraft during flight time.

'Critical Altitude'
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

***'Critical Engine'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Critical Part.' Engine Critical Part
ref. EASA CS-E.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Decision Height', with respect to the operation of aircraft, means the wheel height above the runway elevation by which a go-around must be initiated unless adequate visual reference has been established and the aircraft position and approach path have been visually assessed as satisfactory to continue the approach and landing in safety.

[Ch. 4, 1.6.87]

'Detent'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

'Engine'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Engine Dry Weight'.
[ ]

[Amdt. 6, 01.11.04]

'Engine Type'.
[ ]

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***'Equivalent airspeed'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Exhaust Gas Temperature'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'External load'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***'External load attaching means'**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'False Start'
[ ]

[Amdt. 6, 01.11.04]

'Feathered Pitch'
[ ]

[Amdt. 6, 01.11.04]

'Final take-off speed'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Fireproof.'
ref. EASA CS-Definitions.

[Ch. 1, 30.11.77; Ch. 4, 1.6.87; Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Fire-resistant.'
ref. EASA CS-Definitions.

[Ch. 1, 30.11.77; Ch. 4, 1.6.87; Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'First aid oxygen' means the additional oxygen provided for the use of passengers, who do not satisfactorily recover following subjection to excessive cabin altitudes, during which they had been provided with supplemental oxygen.

'Fixed Pitch Propeller'
[ ]

[Amdt. 6, 01.11.04]

'Flame resistant'
[ ]

[Amdt. 6, 01.11.04]

'Flammable'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Flap extended speed'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Flash resistant'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Flight crewmember'** means a pilot, flight engineer, or flight navigator assigned to duty in an aircraft during flight time.

'Flight Time' as used with respect to;

a. licensing of flight crew, is defined in JAR–FCL;

b. aircraft operations, is defined in JAR–OPS;

[ ]

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Gate'
[ ]

[Amdt. 6, 01.11.04]

‘Ground Idling Conditions’
[ ]

[Amdt. 6, 01.11.04]

‘Gyroplane’
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

‘Harness’
ref. EASA CS-Definitions.

[Ch. 1, 30.11.77; Amdt. 6, 01.11.04]

***‘Helicopter’**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***‘Heliport’**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

‘Icing Atmospheric Conditions’.
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

***‘IFR conditions’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘Indicated airspeed’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘Instrument’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘Intermittent Maximum Icing’ (see ‘Icing Atmospheric Conditions’)

[Ch. 4, 1.6.87]

***‘Landing gear extended speed**’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘Landing gear operating speed’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘Large aeroplane’
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***‘Load factor’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Mach number'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Main rotor(s)'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Maintenance'
ref. EASA IR Maintenance.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Manifold Pressure'
ref. EASA CS-E.

[Amdt. 6, 01.11.04]

'Maximum Engine Overspeed'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Engine Overspeed(s)'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Engine Over-torque'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Power-turbine Overspeed'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Exhaust Gas Overtemperature'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Power-turbine Speed for Autorotation'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Governed Rotational Speed'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Permissible Rotational Speed'
(ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Maximum Propeller Overspeed'
(ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

['Microlight' is an aeroplane having no more than two seats, V_{so} not exceeding 35 knots (65 KM/h) CAS, and a maximum take-off mass of no more than:-

- 300 kg for a landplane, single seater; or
- 450 kg for a landplane, two-seater; or
- 330 kg for an amphibian or floatplane, single seater; or
- 495 kg for an amphibian or floatplane, two-seater, provided that a microlight capable of operating as both a floatplane and a landplane falls below both MTOM limits, as appropriate.

Note: Foot-launched aircraft are excluded from this definition. **]**

[Amdt. 6, 01.11.04]

'Minimum Drainage Period After a False Start'
[ ]

[Amdt. 6, 01.11.04]

'Minimum Governed Rotational Speed'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Minimum Take-off Crankshaft Rotational Speed'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Modified Engine'
[ ]

[Amdt. 6, 01.11.04]

'Modified Propeller'
[ ]

[Amdt. 6, 01.11.04]

'Module'.
[ ]

[Amdt. 6, 01.11.04]

[Ch. 4, 1.6.87]

'New Engine'
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'New Propeller'
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Normal operating differential pressure'
ref. EASA CS-Definitions.

[Ch. 3, 1.7.81; Amdt. 6, 01.11.04]

'Notice of Proposed Amendment' means a notice of a proposed amendment to a JAR Code.

[Ch. 2, 4.8.80; Ch. 4, 1.6.87]

'Overhauled Engine or Module'
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Overhauled Propeller'
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

[ ] 'Pilot in command' means the pilot **[** who is **]** responsible for the operation and safety of an aircraft during flight time.

[Amdt. 6, 01.11.04]

['Pilot flying (PF)' means the pilot, who for the time being, is in charge of the controls of an aircraft. **]**

[Amdt. 6, 01.11.04]

['Pilot not flying (PNF)' means the pilot who is assisting the *Pilot flying* in accordance with the multi-crew co-operatoin concept, when the required flight cres is more than one. **]**

[Amdt. 6, 01.11.04]

Piston Engines :–
Power definitions applicable to engines for aeroplanes and helicopters:–

a. **'Take-off Power'**
[ ]

b. **'Take-off Power Rating'**
[ ]

c. **Maximum Continuous Power'**
[ ]

d. 'Maximum Continuous Power Rating'
[ ]

e. **'Maximum Recommended Cruising Power Conditions'**
[ ]

f. **'Maximum Best Economy Cruising Power Conditions'**
[ ]

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Pitch Setting'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Powered sailplane'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

'Propeller'
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Propeller Equipment'
[ ]

[Amdt. 6, 01.11.04]

'Protective breathing equipment'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Prototype Engine'
[ ]

[Amdt. 6, 01.11.04]

'Prototype Propeller'
[ ]

[Amdt. 6, 01.11.04]

'Reference landing speed'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Reverse Pitch'
[ ]

[Amdt. 6, 01.11.04]

'Rotational Direction of Equipment'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'Rotational Speed'
[ ]

[Amdt. 6, 01.11.04]

'Rotational Speed'
[ ]

[Amdt. 6, 01.11.04]

***'Rotorcraft'**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***'Rotorcraft-load combination'**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

'Safety catch'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

'Sailplane'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

'Series Propeller'
[ ]

[Amdt. 6, 01.11.04]

'Standard Atmosphere' See 'Atmosphere, International Standard'.

***'Stopway'**
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Supplemental oxygen'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'Take-off safety speed'**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

Terms associated with probabilities (for engines):–

NOTE: Because an Effect can only be assessed in relation to a complete aircraft and as, for airworthiness purposes, each category of Effect is related to a particular frequency of occurrence, the definitions and associated numerical values are given in aircraft terms (hours in flight).

Frequency of occurrences:–

a **'Reasonably Probable'**

b. **'Remote'**

c. **'Extremely Remote'**
ref. EASA CS-E.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Total Equivalent Static Power'
[ ]

[Amdt. 6, 01.11.04]

***'True airspeed'**
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

Turbine Engines:–
Power/thrust definitions applicable to engines for aeroplanes and helicopters:–

a **'[2½-Minute OEI] Power and/or Thrust'**

b. **'[2½-Minute OEI] Power and/or Thrust Rating'**

c. **'Take-off Power and/or Thrust'**.

d. **'Take-off Power and/or Thrust Rating'**

e. **'[Continuous OEI] Power and/or Thrust'**.

f. **'[Continuous OEI] Power and/or Thrust Rating'**

g. **'30-Minute [OEI] Power'**

h. **'30-Minute [OEI] Power Rating'**

j. **'Maximum Continuous Power and/or Thrust'**.

k. **'Maximum Continuous Power and/or Thrust Rating'**
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

'Variable Pitch Propellers'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

JAR 1.2 Abbreviations and symbols

'ACJ' means Advisory Circular, Joint.

'APU'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'BTPS'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'BTPD'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'CAS'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'EAS'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'IAS'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'ICAO'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

#*'IFR'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'ILS'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'JAR' means Joint Aviation Requirements.

'LDP' with respect to rotorcraft means the landing decision point.

[Ch. 5, 15.7.96]

***'M'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'MIL Spec'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

‘NPA’
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80;Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

‘NTPD’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘OEI’**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

[‘PF’ means Pilot flying. **]**

[Amdt. 6, 01.11.04]

[‘PNF’ means Pilot not flying. **]**

[Amdt. 6, 01.11.04]

‘rpm’
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

‘STPD’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘TAS’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘TSO’ means Technical Standard Order.

[Ch. 2, 4.8.80]

‘TDP’
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

***‘V_A’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_B’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_C’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_D/M_D’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{DF}/M_{DF}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

['V_{EF}'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_F'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'V_{F1}'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{FC}/M_{FC}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{FE}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'V_{FTO}'
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

#*'V_{FR}'
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

'V_H'
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

***'VHF'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{LE}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{LO}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{LOF}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***'V_{MC}'**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{MCA}’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{MCG}’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{MCl}’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_{MO}/M_{MO}’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_{MU}**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_{NE}’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_R’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_{RA}’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{REF}’
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

‘V_S’
ref. EASA CS-Definitions.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

‘V_{SO}’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

[V_{SR}’
ref. EASA CS-Definitions. **]**

[Amdt. 6, 01.11.04]

[V_{SR0}’
ref. EASA CS-Definitions. **]**

[Amdt. 6, 01.11.04]

[V_{SR1}’
ref. EASA CS-Definitions. **]**

[Amdt. 6, 01.11.04]

[V_{Sw}’
ref. EASA CS-Definitions. **]**

[Amdt. 6, 01.11.04]

‘V_{S1}’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{S1g}’
ref. EASA CS-22.

[Ch. 4, 1.6.87; Amdt. 6, 01.11.04]

‘V_T’
ref. EASA CS-Definitions.

[Ch. 3, 1.7.81; Amdt. 6, 01.11.04]

‘V_T’
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_{Tmax}’
ref. EASA CS-Definitions.

[Ch. 1, 30.11.77; Amdt. 6, 01.11.04]

***‘V_{TOSS}’**
ref. EASA CS-Definitions.

[Ch. 5, 15.7.96; Amdt. 6, 01.11.04]

‘V_W’
ref. EASA CS-22.

[Ch. 3, 1.7.81; Amdt. 6, 01.11.04]

***‘V_Y’**
ref. EASA CS-Definitions.

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

[‘V_1’
ref. EASA CS-Definitions. **]**

[Ch. 2, 4.8.80; Amdt. 6, 01.11.04]

***‘V_2’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

***‘V_{2min}’**
ref. EASA CS-Definitions.

[Amdt. 6, 01.11.04]

‘V_3’
ref. EASA CS-Definitions.

[Ch. 1, 30.11.77; Amdt. 6, 01.11.04]

IEM 1.1
Authority
See JAR 1.1

In this context, 'regulation' means not only the drafting of requirements, but also, though not limited to, such activities as implementation, interpretation and application of the statutory aviation requirements.

[Ch. 5, 15.7.96]

[IEM 1.1
Class
See JAR 1.1

Aeroplane classes may comprise aeroplanes having different type certification bases or be variants of certificated types.

The establishment of class ratings for single pilot aeroplanes not requiring a type rating is set out in JAR–FCL 1.215(a). **]**

[Amdt. 6, 01.11.04

IEM to JAR 1.1
Climates, standard
ref. EASA CS-Definitions.

[Ch. 3, 1.7.81; Amdt. 6, 01.11.04]

[IEM 1.1
Commander
See JAR 1.1

The requirements for the commander's functions and responsibilities are found in JAR–OPS. **]**

[Amdt. 6, 01.11.04]

IEM 1.1
Commercial Air Transportation
See JAR 1.1

Commercial Air Transportation is not intended to cover Aerial Work or Corporate Aviation.

[Ch. 5, 15.7.96]

[IEM 1.1
Pilot flying
See JAR 1.1

This is a task assignment only and should not be confused with the command authority of the pilot-in-command. **]**

[Amdt. 6, 01.11.04]

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01 July 2007

JAR-OPS 3: Commercial Air Transportation (Helicopters)

Please find attached a copy of Amendment 5 to JAR-OPS 3, effective 1 July 2007.

Instructions on how to incorporate the affected pages are available at the end of this letter.

The associated Comment Response Document, detailing the comments made during consultation and the JAA response to those comments, is available on the JAA website (www.jaa.nl).

Customers who have purchased copies of JAR-OPS 3 and wish to receive future amendments, should ensure that they have made suitable arrangements with Information Handling Services, to whom any queries regarding the sale and distribution of JAA documents can be directed. Addresses of the worldwide IHS offices are listed on the JAA website (www.jaa.nl) and IHS's website (www.global.ihs.com).

Queries regarding the technical content of the code should be made to the JAA, using the following email address: publications@jaat.eu

Aysel Turfanda
NPA & Publications Manager

JAR-OPS 3, Amendment 5, 1 July 2007

Please replace and insert the following pages included in this package as follows:

Cover (2 pages)
Contents (pages C-1/ C-16)
Checklist (pages CL-1/ CL-8)
Preamble (new pages P-14 to P-18)

Section 1

Replace	Subpart B (pages 1-B-1 to 1-B-4/ 1-B-11 to 1-B-16/ 1-B-25 to 1-B-26)
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Section 2

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Joint Aviation Requirements

JAR–OPS 3

Commercial Air Transportation (Helicopters)

Joint Aviation Authorities

Joint Aviation Requirements

JAR–OPS 3

Commercial Air Transportation (Helicopters)

Amendment 5
1 July 2007

Printed and distributed by Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, U S A on behalf of the Joint Aviation Authorities Committee.

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JAR–OPS 3 COMMERCIAL AIR TRANSPORTATION (HELICOPTERS)

AMENDMENT 5 DATED 01.07.07

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1–B–10	Amendment 3	01.04.04
1–B–11	Amendment 5	01.07.07
1–B–12	Amendment 5	01.07.07
1–B–13	Amendment 5	01.07.07
1–B–14	Amendment 5	01.04.07
1–B–15	Amendment 5	01.07.07
1–B–16	Amendment 5	01.07.07
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1–B–24	Amendment 4	01.12.06
1–B–25	Amendment 5	01.07.07
1–B–26	Amendment 3	01.04.04
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1–C–4	Amendment 3	01.04.04
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1–D–16	Amendment 3	01.04.04
1–E–1	Amendment 2	01.01.02
1–E–2	Amendment 2	01.01.02
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1–E–4	Amendment 2	01.01.02

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1–E–9	Amendment 2	01.01.02
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1–E–16	Amendment 2	01.01.02
1–F–1	Amendment 5	01.07.07
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1–J–8	Amendment 5	01.07.07
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1–K–2	Amendment 5	01.07.07
1–K–3	Amendment 5	01.07.07
1–K–4	Amendment 5	01.07.07
1–K–5	Amendment 3	01.04.04
1–K–6	Amendment 4 *(edit. ch.)*	01.12.06
1–K–7	Amendment 4 *(edit. ch.)*	01.12.06
1–K–8	Amendment 3	01.04.04
1–K–9	Amendment 3	01.04.04
1–K–10	Amendment 5	01.07.07
1–K–11	Amendment 5	01.07.07
1–K–12	Amendment 3	01.04.04
1–K–13	Amendment 3	01.04.04
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1–L–2	Amendment 3	01.04.04
1–M–1	Amendment 4	01.12.06
1–M–2	Amendment 4	01.12.06
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1–P–1	Amendment 3 (Corrected)	01.04.04
1–P–2	Amendment 3	01.04.04
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1–P–4	Amendment 3	01.04.04
1–P–5	Amendment 3	01.04.04
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1–P–12	Amendment 3	01.04.04
1–P–13	Amendment 4	01.12.06
1–P–14	Amendment 4	01.12.06
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1–R–1	Amendment 2	01.01.02
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1–R–3	Amendment 2	01.01.02
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1–R–6	Amendment 2	01.01.02
1–S–1	Amendment 3	01.04.04
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2–B–1	Amendment 3 (Corrected)	01.04.04
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2–D–19	Amendment 3 (Corrected)	01.04.04
2–D–20	Amendment 3 (Corrected)	01.04.04
2–D–21	Amendment 3 (Corrected)	01.04.04
2–D–22	Amendment 3 (Corrected)	01.04.04
2–D–23	Amendment 3 (Corrected)	01.04.04
2–D–24	Amendment 5	01.07.07
2–E–1	Amendment 2	01.01.02
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2–K–13	Amendment 5	01.07.07
2–K–14	Amendment 5	01.07.07
2–L–1	Amendment 3	01.04.04
2–L–2	Amendment 3	01.04.04
2–M–1	Amendment 4	01.12.06
2–M–2	Amendment 4	01.12.06
2–N–1	Amendment 3	01.04.04
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2–R–1	Amendment 2	01.01.02
2–R–2	Amendment 2	01.01.02
2–R–3	Amendment 2	01.01.02
2–R–4	Amendment 2	01.01.02
2–R–5	Amendment 2	01.01.02
2–R–6	Amendment 2	01.01.02
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Issued **22.05.95**

PREAMBLE

JAR–OPS 3

JAR-OPS 3 consists of 19 Subparts. However, the published version does not contain Subpart Q (Flight and Duty Time Limitations and Rest Requirements) and where all Subpart Q material should be located is shown as 'Reserved'. Until, or unless, Subpart Q is adopted, the existing national regulations governing Flight and Duty Time Limitations and Rest Requirements will apply.

Where reference is made in JAR-OPS 3 to other JAR codes which have not yet been implemented (e.g. JAR-FCL) the equivalent existing national regulations will apply until such time as the referenced code has been implemented.

Change 1 **01.02.99**

This second Issue of JAR-OPS 3 contains a large number of amendments which reflect the results of NPA-OPS-8 and 9. It should be noted that JAR-OPS 3 is applicable 6 months after publication.

In addition to Subpart Q, it should be noted that JAR-OPS 3.720(a) is also 'Reserved'. The reason for this is that, following the comments received on this sub-paragraph during NPA-OPS-8, JAR-OPS 3.720(a) will have to be the subject of a future NPA (see JAR-OPS 3.720 (Note)).

SECTION 1

SUBPART B

Introduction of reference to Appendix 1 to JAR-OPS 3.005 sub-paragraph (c) arising from NPA-OPS-8.
Introduction of JAR-OPS 3.005 sub-paragraph (e) arising from NPA-OPS-8.
Introduction of JAR-OPS 3.005 sub-paragraph (f) arising from NPA-OPS-8.
Introduction of JAR-OPS 3.005 sub-paragraph (g) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.035 arising from NPA-OPS-8.
Introduction of JAR-OPS 3.037 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.050 arising from NPA-OPS-8.
Introduction of reference to IEM OPS 3.065 arising from NPA-OPS-8.
Introduction of reference to IEM OPS 3.070 arising from NPA-OPS 8.
Amendment of JAR-OPS 3.075 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.080 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.085 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.110 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.115 arising from NPA-OPS-8
Amendment of JAR-OPS 3.120 arising from NPA-OPS-8.
Introduction of Appendix 1 to JAR-OPS 3.005(c) arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.005(d) arising from NPA-OPS-8 (concerning the note and sub-paragraphs (a)(6), (a)(7), (c)(1), (c)(2)(i), (c)(3)(ii)(A2), (c)(iv)(A), table 1, (d)(3), (e)(4))
Introduction of Appendix 1 to JAR-OPS 3.005(e) arising from NPA-OPS-8.
Introduction of Appendix 1 to JAR-OPS 3.005(f) arising from NPA-OPS-8.
Introduction of Appendix 1 to JAR-OPS 3.005(g) arising from NPA-OPS-8.

SUBPART C

Amendment of Appendix 1 to JAR-OPS 3.175 arising from NPA-OPS-8.

SUBPART D

Introduction of reference to IEM OPS 3.210(b) arising from NPA-OPS-8.

Amendment of JAR OPS 3.212 arising from NPA-OPS-8.
Introduction of reference to AMC OPS 3.220 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.240 (a)(5) arising from NPA-OPS-8.
Introduction of JAR-OPS 3.243 arising from NPA-OPS-8.
Introduction of reference AMC OPS 3.270 arising from NPA-OPS-8.
Introduction of reference to AMC OPS 3.295(d) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.305 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.307 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.340(c) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.345 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.365 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.395 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.405 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.270 arising from NPA-OPS-8.

SUBPART E

Introduction of a note referring to JAR-STD, arising from NPA-OPS-8.
Amendment of JAR-OPS 3.435 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.465 (a)(2) and (a)(3) arising from NPA-OPS-8.
Amendment of sub-paragraphs (b)(4), (c)(4),(i)(2) and tables 3 and 4 of Appendix 1 to JAR-OPS 3.430 arising from NPA-OPS-8.
Amendment of Appendix 1 to 3.450 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.465 arising from NPA-OPS-8.
Introduction of Appendix 2 to JAR-OPS 3.465 arising from NPA-OPS-8.

SUBPART F

Amendment of JAR-OPS 3.470 arising from NPA-OPS-8.
Amendment of sub-paragraphs (a)(3) to (a)(6), (a)(9), (a)(12), (a)(18) and (a)(17) of JAR-OPS 3.480 arising from NPA-OPS-8.

SUBPART G

Deletion of JAR-OPS 3.487 arising from NPA-OPS-8..
Amendment of JAR-OPS 3.490 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.495 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.500 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.510 arising from NPA-OPS-8.

SUBPART H

Amendment of JAR-OPS 3.515 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.517 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.520 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.525 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.530 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.535 arising from NPA-OPS-8.
Introduction of Appendix 1 to JAR-OPS 3.517(a) arising from NPA-OPS-8.

SUBPART I

Amendment of JAR-OPS 3.540 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.545 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.550 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.555 arising from NPA-OPS-8.

SUBPART J

Amendment of JAR-OPS 3.607(d) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.615 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.620 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.625(a) arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.605 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.620(h) arising from NPA-OPS-8.

SUBPART K

Introduction of JAR-OPS 3.647 arising from NPA-OPS-8.
Introduction of JAR-OPS 3.650(l) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.652 (n) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.720(a) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.731 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.820 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.830 (a) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.835(b) arising from NPA-OPS-8.
Introduction of JAR-OPS 3.837 arising from NPA-OPS-8.

SUBPART L

Amendment of JAR-OPS 3.845(a)(2) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.865 arising from NPA-OPS-8.

SUBPART N

Introduction of a note referring to JAR-FCL, arising from NPA-OPS-8.
Introduction of a note referring to JAR-STD, arising from NPA-OPS-8.
Amendment of JAR-OPS 3.940 arising from NPA-OPS-8.
Introduction of a reference to AMC OPS 3.940(a)(4) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.950 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.960 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.965 arising from NPA-OPS-8.
Introduction of reference to AMC and IEM 3.965 in JAR-OPS 3.968, arising from NPA-OPS-8.
Amendment of JAR-OPS 3.970 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.975 arising from NPA-OPS-8.
Amendment of JAR-OPS 3.980 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.940(c) arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.965 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.968 arising from NPA-OPS-8.

SUBPART O

Amendement of JAR-OPS 3.1020 arising from NPA-OPS-8.
Introduction of reference to IEM OPS 3.1020 arising from NPA-OPS-8.
Introduction of reference to IEM OPS 3.1015/1020 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.1015 arising from NPA-OPS-8.

SUBPART P

Amendment of JAR-OPS 3.1040 (b), (c) and (f) arising from NPA-OPS-8.
Amendment of JAR-OPS 3.1045 arising from NPA-OPS-8.
Amendment of Appendix 1 to JAR-OPS 3.1045 arising from NPA-OPS-8.
Addition of table 6 in Appendix 1 to JAR-OPS 3.1065 arising from NPA-OPS-8.

SUBPART R

Introduction of reference to IEM OPS 3.1150(a)(3) and (a)(4) arising from NPA-OPS-8.
Introduction of reference to IEM OPS 3.1160(b)(3) arising from NPA-OPS-8.

SECTION 2

SUBPART B

Introduction of IEM to Appendix 1 to JAR-OPS 3.005(e) arising from NPA-OPS-8.
Introduction of IEM to Appendix 1 to JAR-OPS 3.005(f), sub-paragraph (b)(5) arising from NPA-OPS-8.
Introduction of IEM to Appendix 1 to JAR-OPS 3.005 (f), sub-paragraph (b)(13) arising from NPA-OPS-8.
Introduction of IEM to Appendix 1 to JAR-OPS 3.005(g), sub-paragraph (b)(5) arising from NPA-OPS-8.
Introduction of IEM to Appendix 1 to JAR-OPS 3.005(g), sub-paragraph (b)(12) arising from NPA-OPS-8.
Amendment of AMC OPS 3.035 and IEM OPS 3.035 arising from NPA-OPS-8.
Introduction of IEM OPS 3.037 arising from NPA-OPS-8.
Introduction of IEM OPS 3.065 arising from NPA-OPS-8.
Introduction of IEM OPS 3.070 arising from NPA-OPS-8.

SUBPART C

Introduction of IEM OPS 3.175(c)(2) arising from NPA-OPS-8.

SUBPART D

Introduction of IEM OPS 3.210(b) arising from NPA-OPS-8.
Introduction of AMC OPS 3.220 arising from NPA-OPS-8.
Introduction of IEM OPS 3.243 arising from NPA-OPS-8.
Introduction of AMC OPS 3.270 arising from NPA-OPS-8.
Introduction of AMC OPS 3.295(d) arising from NPA-OPS-8.
Deletion of IEM OPS 3.353, arising from NPA-OPS-8.
Introduction of IEM OPS 3.307 arising from NPA-OPS-8.

SUBPART E

Introduction of IEM to Appendix 1 to JAR-OPS 3.430, sub-paragraph (d) arising from NPA-OPS-8.

SUBPART F

Introduction of IEM OPS 3.480(a)(1) and (a)(2) arising from NPA-OPS-8.
Introduction of IEM OPS 3.480(a)(12) arising from NPA-OPS-8.

SUBPART G

Introduction of IEM OPS 3.490(a)(1) & 3.510(a)(1) arising from NPA-OPS-8.
Deletion of IEM OPS 3.490(a)(4)(iv) arising from NPA-OPS-8.
Deletion of IEM OPS 3.510(a)(4)(iv) arising from NPA-OPS-8.

SUBPART H

Introduction of AMC to Appendix 1 to JAR-OPS 3.517(a) arising from NPA-OPS-8.
Introduction of IEM to Appendix 1 to JAR-OPS 3.517(a) arising from NPA-OPS-8.
Introduction of IEM to JAR-OPS 3.520 arising from NPA-OPS-8.
Introduction of IEM to JAR-OPS 3.520(a)(2) arising from NPA-OPS-8.
Introduction of IEM to JAR-OPS 3.520 and JAR-OPS 3.535 arising from NPA-OPS-8.

SUBPART J

Introduction of IEM to Appendix 1 to JAR-OPS to 3.605, sub-paragraph (a)(2)(iii) arising from NPA-OPS-8.
Introduction of AMC OPS 3.620(a) arising from NPA-OPS-8.

SUBPART K

Introduction of IEM OPS 3.630 arising from NPA-OPS-8.
Introduction of IEM OPS 3.647 arising from NPA-OPS-8.
Introduction of AMC OPS 3.830(a)(3) arising from NPA-OPS-8.
Renumbering as AMC OPS 3.830 (a)(2)of AMC OPS 3.830 arising from NPA-OPS-8.
Introduction of IEM OPS 3.837(a)(2) arising from NPA-OPS-8.

SUBPART L

Introduction of IEM OPS 3.845 arising from NPA-OPS-8.

SUBPART N

Introduction of AMC OPS 3.940(a)(4) arising from NPA-OPS-8.
Introduction of AMC to Appendix 1 to JAR-OPS 3.965, sub-paragraph (a)(3)(iii)(D) arising from NPA-OPS-8.
Amendment of AMC OPS 3.975 arising from NPA-OPS-8.

SUBPART O

Amendment of AMC OPS 3.1010 arising from NPA-OPS-8.
Introduction of IEM OPS 3.1020 arising from NPA-OPS-8.
Introduction of IEM OPS 3.1015/3.1020 arising from NPA-OPS-8.

SUBPART P

Amendment of IEM OPS 3.1040(b) arising from NPA-OPS-8.
Introduction of IEM OPS 3.1040(c) arising from NPA-OPS-8.
Amendment of IEM OPS 3.1045(c) arising from NPA-OPS-8.

SUBPART R

Introduction of IEM OPS 3.1150(a)(3) and (a)(4) arising from NPA-OPS-8.
Introduction of IEM OPS 3.1160(b)(3) arising from NPA-OPS-8.

Amendment 2 **01.01.02**

Amendment 2 to JAR-OPS 3 contains a number of amendments, reflecting the results of NPA-OPS-11 (initially published in Orange Paper OPS 3/99/1), NPA-OPS-12, NPA-OPS-17 and NPA-OPS-18.
In addition to these amendments, the revision status of the individual paragraphs have been incorporated in the affected subparts (Section 1, Subparts A, B, C, D, E, G, H, I, K, L, M, N, O, P and R and Section 2, Subparts B, D, E, G, H, K, M, N, O and R). As and when other subparts are being revised, the amendment status of these will also be incorporated.

SECTION 1

Subpart A

(a) Amendment to JAR-OPS 3.001(a), arising from NPA-OPS-12 and NPA-OPS-18.

Subpart B

(a) Amendment to JAR-OPS 3.005, arising from NPA-OPS-18.

(b) Amendment to JAR-OPS 3.070, arising from NPA-OPS-17.

(c) Amendment to JAR-OPS 3.125, arising from NPA-OPS-12.

(d) Introduction of reference to IEM OPS 3.160(a) arising from NPA-OPS-18.

(e) Amendment to Appendix 1 to JAR-OPS 3.005(d), arising from NPA-OPS-18.

(f) Amendment to Appendix 1 to JAR-OPS 3.005(e), arising from NPA-OPS-18.

(g) Complete revision of Appendix 1 to JAR-OPS 3.005(f), arising from NPA-OPS-18.

(h) Complete revision of Appendix 1 to JAR-OPS 3.005(g), arising from NPA-OPS-18.

(i) Introduction of a new Appendix 1 to JAR-OPS 3.005(h), arising from NPA-OPS-18.

(j) Introduction of a new Appendix 1 to JAR-OPS 3.005(i), arising from NPA-OPS-18.

Subpart C

(a) Amendment to Appendix 1 to JAR-OPS 3.175, arising from NPA-OPS-18.

Subpart D

(a) Amendment to JAR-OPS 3.240, arising from NPA-OPS-18.

(b) Amendment to JAR-OPS 3.295, arising from NPA-OPS-18.

(c) Introduction of a new JAR-OPS 3.297, arising from NPA-OPS-18.

(d) Amendment to JAR-OPS 3.340(a), arising from NPA-OPS-18.

(e) Amendment to JAR-OPS 3.365, arising from NPA-OPS-18.

(f) Deletion of JAR-OPS 3.410, arising from NPA-OPS-18

(g) Introduction of reference to AMC OPS 3.420(e) arising from NPA-OPS-17.

Subpart E

(a) Amendment to JAR-OPS 3.435, arising from NPA-OPS-18.

(b) Amendment to JAR-OPS 3.465, arising from NPA-OPS-18.

(c) Amendment to Appendix 1 to JAR-OPS 3.430, arising from NPA-OPS-18.

(d) Amendment to Appendix 1 to JAR-OPS 3.465, arising from NPA-OPS-18.

Subpart G

(a) Amendment to JAR-OPS 3.490(a)(4), arising from NPA-OPS-18.

(b) Amendment to JAR-OPS 3.495(a)(4), arising from NPA-OPS-18.

(c) Introduction of reference to IEM OPS 3.500(a)(5) arising from NPA-OPS-18.

Subpart H

(a) Introduction of reference to IEM OPS 3.517(b) arising from NPA-OPS-18.

(b) Introduction of reference to IEM OPS 3.530(a)(5) arising from NPA-OPS-18.

(c) Amendment to JAR-OPS 3.535(a)(2), arising from NPA-OPS-18.

Subpart I

(a) Amendment to JAR-OPS 3.540(a)(2), arising from NPA-OPS-18.

Subpart K

(a) Amendment to JAR-OPS 3.640, arising from NPA-OPS-18.

(b) Amendment to JAR-OPS 3.650, arising from NPA-OPS-18.
(c) Amendment to JAR-OPS 3.652, arising from NPA-OPS-18.
(d) Amendment to JAR-OPS 3.655, arising from NPA-OPS-18.
(e) Amendment to JAR-OPS 3.660, arising from NPA-OPS-18.
(f) Amendment to JAR-OPS 3.670, arising from NPA-OPS-18.
(g) Amendment to JAR-OPS 3.690(b), arising from NPA-OPS-18.
(h) Amendment to JAR-OPS 3.695, arising from NPA-OPS-18.
(i) Amendment to JAR-OPS 3.700(a), arising from NPA-OPS-18.
(j) Amendment to JAR-OPS 3.705, arising from NPA-OPS-18.
(k) Amendment to JAR-OPS 3.715, arising from NPA-OPS-18.
(l) Amendment to JAR-OPS 3.720, arising from NPA-OPS-18.
(m) Amendment to JAR-OPS 3.810, arising from NPA-OPS-18.
(n) Amendment to JAR-OPS 3.815, arising from NPA-OPS-18.
(o) Amendment to JAR-OPS 3.827, arising from NPA-OPS-18.
(p) Amendment to JAR-OPS 3.830, arising from NPA-OPS-18.
(q) Amendment to JAR-OPS 3.837(a)(7), arising from NPA-OPS-18.
(r) Amendment to JAR-OPS 3.843, arising from NPA-OPS-18.

<u>Subpart L</u>

(a) Amendment to JAR-OPS 3.865(c), arising from NPA-OPS-18.

<u>Subpart M</u>

(a) Introduction of reference to AMC OPS 3.890(a)(2) arising from NPA-OPS-11.
(b) Introduction of reference to AMC OPS 3.890(a)(3) arising from NPA-OPS-11.
(c) Introduction of reference to IEM OPS 3.890(a)(5) arising from NPA-OPS-11.
(d) Amendment to JAR-OPS 3.895, arising from NPA-OPS-11.
(e) Introduction of reference to IEM OPS 3.920(b)(6) arising from NPA-OPS-11.
(f) Introduction of reference to AMC OPS 3.920(c) arising from NPA-OPS-11.

<u>Subpart N</u>

(a) Amendment to JAR-OPS 3.940(b), arising from NPA-OPS-18.
(b) Amendment to JAR-OPS 3.945(a)(8), arising from NPA-OPS-18.
(c) Amendment to JAR-OPS 3.965(a)(4)(i), arising from NPA-OPS-18.
(d) Amendment to JAR-OPS 3.970(a), arising from NPA-OPS-18.
(e) Amendment to Appendix 1 to JAR-OPS 3.965, arising from NPA-OPS-18.

<u>Subpart O</u>

(a) amendment to title
(b) Amendment to JAR-OPS 3.988, arising from NPA-OPS-18.
(c) Deletion of JAR-OPS 3.990, arising from NPA-OPS-18
(d) Amendment to JAR-OPS 3.995, arising from NPA-OPS-18.
(e) Deletion of JAR-OPS 3.1000, arising from NPA-OPS-18
(f) Introduction of a new JAR-OPS 3.1005, arising from NPA-OPS-18.
(g) Complete revision of JAR-OPS 3.1010, arising from NPA-OPS-18.
(h) Introduction of a new JAR-OPS 3.1012, arising from NPA-OPS-18.

(i) Amendment to JAR-OPS 3.1015, arising from NPA-OPS-18.

(j) Complete revision of JAR-OPS 3.1020, arising from NPA-OPS-18.

(k) Amendment to JAR-OPS 3.1025, arising from NPA-OPS-18.

(l) Amendment to JAR-OPS 3.1030, arising from NPA-OPS-18.

(m) Amendment to JAR-OPS 3.1035, arising from NPA-OPS-18.

(n) Introduction of a new Appendix 1 to JAR-OPS 3.988, arising from NPA-OPS-18.

(o) Deletion of Appendix 1 to JAR-OPS 3.1015, arising from NPA-OPS-18.

(p) Deletion of Appendix 1 to JAR-OPS 3.1020, arising from NPA-OPS-18.

<u>Subpart P</u>

(a) Amendment to table 1 and 6 of Appendix 1 to JAR-OPS 3.1065, arising from NPA-OPS-17.

<u>Subpart R</u>

(a) Amendment to JAR-OPS 3.1150, arising from NPA-OPS-17.

(b) Amendment to JAR-OPS 3.1160, arising from NPA-OPS-17.

(c) Amendment to JAR-OPS 3.1215, arising from NPA-OPS-17.

(d) Amendment to JAR-OPS 3.1220, arising from NPA-OPS-17.

(e) Amendment to JAR-OPS 3.1225, arising from NPA-OPS-17.

<u>SECTION 2</u>

<u>Subpart B</u>

(a) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d), arising from NPA-OPS-18.

(b) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (b), arising from NPA-OPS-18.

(c) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(B), arising from NPA-OPS-18.

(d) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(C), arising from NPA-OPS-18.

(e) Deletion of AMC to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(ii)(A)(A2), arising from NPA-OPS-18.

(f) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(ii)(B), arising from NPA-OPS-18.

(g) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(iii), arising from NPA-OPS-18.

(h) Replacement of AMC to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(iv)(A) by ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(iv), arising from NPA-OPS-18.

(i) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (e)(1)(ii)(B), arising from NPA-OPS-18.

(j) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(f) sub-paragraph (b)(3) and Appendix 1 to JAR-OPS 3.005(g) sub-paragraph (a)(3), arising from NPA-OPS-18.

(k) Introduction of a new IEM to Appendix 1 to JAR-OPS 3.005(f), arising from NPA-OPS-18.

(l) Deletion of IEM to Appendix 1 to JAR - OPS 3.005(f), sub-paragraph (b)(5), arising from NPA-OPS-18.

(m) Deletion of IEM to Appendix 1 to JAR-OPS 3.005(f), sub-paragraph (b)(13), arising from NPA-OPS-18.

(n) Deletion of IEM to Appendix 1 to JAR-OPS 3.005(g), subparagraph (b)(5), arising from NPA-OPS-18.

(o) Deletion of IEM to Appendix 1 to JAR-OPS 3.005(g), subparagraph (b)(12), arising from NPA-OPS-18.

(p) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(h), sub-paragraph (d)(2)(iv), arising from NPA-OPS-18.

(q) Introduction of a new ACJ OPS 3.125, arising from NPA-OPS-18.

(r) Introduction of a new IEM OPS 3.160(a), arising from NPA-OPS-18.

Subpart D

(a) Complete revision of AMC OPS 3.220, arising from NPA-OPS-18.

(b) Introduction of a new IEM OPS 3.240(a)(6), arising from NPA-OPS-18.

(c) Amendment to AMC OPS 3.255, arising from NPA-OPS-18.

(d) Introduction of a new AMC OPS 3.295(c)(1), arising from NPA-OPS-18.

(e) Introduction of a new IEM OPS 3.295(c)(1), arising from NPA-OPS-18.

(f) AMC OPS 3.295(d) renamed as AMC OPS 3.295(e), arising from NPA-OPS-18.

(g) IEM OPS 3.295(d) renamed as IEM OPS 3.295(e), arising from NPA-OPS-18.

(h) Introduction of a new IEM OPS 3.295(e)(4), arising from NPA-OPS-18.

(i) Introduction of a new AMC OPS 3.420(e), arising from NPA-OPS-17.

Subpart E

(a) Amendment to AMC OPS 3.430(b)(4), arising from NPA-OPS-18.

(b) Introduction of a new IEM to Appendix 1 to JAR-OPS 3.430, sub-paragraph (a)(3)(i), arising from NPA-OPS-18.

(c) Introduction of a new IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (i), arising from NPA-OPS-18.

(d) Introduction of a new ACJ OPS 3.465, arising from NPA-OPS-18.

Subpart G

(a) Introduction of a new IEM OPS 3.490(b)(4) & 3.495(b)(4), arising from NPA-OPS-18.

(b) Introduction of a new IEM OPS 3.500(a)(5), arising from NPA-OPS-18.

Subpart H

(a) Introduction of a new IEM OPS 3.517(b), arising from NPA-OPS-18.

(b) Introduction of a new IEM OPS 3.530(a)(5), arising from NPA-OPS-18.

Subpart K

(a) Amendment to IEM OPS 3.650/3.652, arising from NPA-OPS-18.

(b) Introduction of a new AMC OPS 3.655, arising from NPA-OPS-18.

(c) Amendment to AMC OPS 3.715(c)(3)/3.720(c)(3), renamed AMC OPS 3.715(c)(3), arising from NPA-OPS-18.

(d) Introduction of a new AMC OPS 3.720(c)(3), arising from NPA-OPS-18.

(e) Introduction of a new IEM OPS 3.843(c), arising from NPA-OPS-18.

Subpart M

(a) Amendment to IEM OPS 3.875, arising from NPA-OPS-11.

(b) Amendment to IEM OPS 3.885(a), arising from NPA-OPS-11.

(c) Amendment to AMC OPS 3.890(a)(1), arising from NPA-OPS-11.

(d) Introduction of a new IEM OPS 3.890(a)(1), arising from NPA-OPS-11.

(e) Introduction of a new AMC OPS 3.890(a)(2), arising from NPA-OPS-11.

(f) Introduction of a new AMC OPS 3.890(a)(3), arising from NPA-OPS-11.

(g) Introduction of a new IEM OPS 3.890(a)(5), arising from NPA-OPS-11.

(h) Amendment to AMC OPS 3.895(b), arising from NPA-OPS-11.

(i) Introduction of a new AMC OPS 3.895(c), arising from NPA-OPS-11.

(j) Introduction of a new IEM OPS 3.895(c), arising from NPA-OPS-11.

(k) Amendment to AMC OPS 3.895(c) and renamed AMC OPS 3.895(d), arising from NPA-OPS-11.

(l) Introduction of a new AMC OPS 3.895(e), arising from NPA-OPS-11.

(m) Introduction of a new IEM OPS 3.895(e), arising from NPA-OPS-11.

(n) Introduction of a new IEM OPS 3.895(f)&(g), arising from NPA-OPS-11.

(o) Amendment to AMC OPS 3.895(d) and renamed AMC OPS 3.895(h), arising from NPA-OPS-11.

(p) Amendment to AMC OPS 3.905(a), arising from NPA-OPS-11.

(q) Amendment to AMC OPS 3.910(a), arising from NPA-OPS-11.

(r) Amendment to AMC OPS 3.915, arising from NPA-OPS-11.

(s) Amendment to AMC OPS 3.920, arising from NPA-OPS-11.

(t) Introduction of a new IEM OPS 3.920(b)(6), arising from NPA-OPS-11.

(u) Introduction of a new AMC OPS 3.920(c), arising from NPA-OPS-11.

(v) Amendment to Appendix 1 to AMC OPS 3.905(a), arising from NPA-OPS-11.

(w) Amendment to Appendix 1 to AMC OPS 3.910(a)&(b), arising from NPA-OPS-11.

Subpart N

(a) Introduction of a new IEM OPS 3.940(b)(1), arising from NPA-OPS-18.

(b) Introduction of a new IEM OPS 3.945(a)(8), arising from NPA-OPS-18.

(c) Amendment to AMC to Appendix 1 to JAR-OPS 3.965 sub-paragraph (a)(3)(iii)(D), arising from NPA-OPS-18.

(d) Amendment to AMC OPS 3.980, arising from NPA-OPS-18.

Subpart O

(a) Deletion of all existing AMC's and IEM's, arising from NPA-OPS-18.

(b) Introduction of a new ACJ OPS 3.995(a)(2), arising from NPA-OPS-18.

(c) Introduction of a new ACJ OPS 3.1005, arising from NPA-OPS-18.

(d) Introduction of a new ACJ OPS 3.1010, arising from NPA-OPS-18.

(e) Introduction of a new ACJ OPS 3.1015, arising from NPA-OPS-18.

(f) Introduction of a new ACJ OPS 3.1020, arising from NPA-OPS-18.

(g) Introduction of a new ACJ OPS 3.1025, arising from NPA-OPS-18.

Subpart R

(a) Amendment to IEM OPS 3.1160(b)(5), arising from NPA-OPS-17.

(b) Amendment to IEM OPS 3.1165(b)(1), arising from NPA-OPS-17.

(c) Amendment to AMC OPS 3.1175, arising from NPA-OPS-17.

(d) Amendment to AMC OPS 3.1210(a), arising from NPA-OPS-17.

(e) Amendment to AMC OPS 3.1215(e), arising from NPA-OPS-17.

(f) Amendment to AMC OPS 3.1220, arising from NPA-OPS-17.

(g) Amendment to IEM OPS 3.1220, arising from NPA-OPS-17.

(h) Amendment to AMC OPS 3.1225, arising from NPA-OPS-17.

Amendment 3 **01.04.04**

Amendment 3 to JAR-OPS 3 contains a number of amendments, reflecting the results of NPA-OPS-27 and NPA-OPS-31.

SECTION 1

Subpart B

(a) Amendment to JAR-OPS 3.037, arising from NPA-OPS-27.

(b) Amendment to JAR-OPS 3.085, arising from NPA-OPS-27.

(c) Amendment to JAR-OPS 3.160, arising from NPA-OPS-27.

(d) Amendment to Appendix 1 to JAR-OPS 3.005(c), arising from NPA-OPS-31.

(e) Amendment to Appendix 1 to JAR-OPS 3.005(d), arising from NPA-OPS-31.

(f) Amendment to Appendix 1 to JAR-OPS 3.005(f), arising from NPA-OPS-27.

(g) Amendment to Appendix 1 to JAR-OPS 3.005(i), arising from NPA-OPS-31.

Subpart C

(a) Amendment to JAR-OPS 3.175, arising from NPA-OPS-27.

(b) Amendment to Appendix 2 to JAR-OPS 3.175, arising from NPA-OPS-27.

Subpart D

(a) Amendment to JAR-OPS 3.195, arising from NPA-OPS-27.

(b) Amendment to JAR-OPS 3.210, arising from NPA-OPS-27.

(c) Introduction of reference to AJC No.1 and 2 OPS 3.280 arising from NPA-OPS-27.

(d) Amendment of JAR-OPS 3.345, arising from NPA-OPS-27.

(e) Introduction of a new JAR-OPS 3.346, arising from NPA-OPS-27.

(f) Introduction of a new JAR-OPS 3.398, arising from NPA-OPS-27.

(g) Amendment to JAR-OPS 3.405, arising from NPA-OPS-27.

(h) Complete revision of JAR-OPS 3.420, arising from NPA-OPS-27

(i) Deletion of JAR-OPS 3.425, arising from NPA-OPS-27.

Subpart K

(a) Amendment to JAR-OPS 3.695, arising from NPA-OPS-27.

(b) Amendment to JAR-OPS 3.700, arising from NPA-OPS-27.

(c) Amendment to JAR-OPS 3.705, arising from NPA-OPS-27.

(d) Amendment to JAR-OPS 3.715, arising from NPA-OPS-27.

(e) Amendment to JAR-OPS 3.720, arising from NPA-OPS-27.

(f) Amendment to JAR-OPS 3.800, arising from NPA-OPS-27.

(g) Introduction of a new Appendix 1 to JAR-OPS 3.715/3.720, arising from NPA-OPS-27.

Subpart L

(a) Amendment to JAR-OPS 3.860, arising from NPA-OPS-27.

(b) Amendment to JAR-OPS 3.865, arising from NPA-OPS-27.

Subpart N

(a) Amendment to JAR-OPS 3.940, arising from NPA-OPS-27.

(b) Introduction of a new JAR-OPS 3.943, arising from NPA-OPS-27.

(c) Amendment to JAR-OPS 3.945, arising from NPA-OPS-27.

(d) Amendment to JAR-OPS 3.965, arising from NPA-OPS-27.

(e) Amendment to Appendix 1 to JAR-OPS 3.940(c), arising from NPA-OPS-27.

(f) Amendment to Appendix 1 to JAR-OPS 3.955, arising from NPA-OPS-27.

(g) Amendment to Appendix 1 to JAR-OPS 3.965, arising from NPA-OPS-27.

(h) Amendment to Appendix 1 to JAR-OPS 3.968, arising from NPA-OPS-27.

Subpart O

(a) Amendment to JAR-OPS 3.1005, arising from NPA-OPS-27

(b) Amendment to JAR-OPS 3.1010, arising from NPA-OPS-27.

(d) Amendment to JAR-OPS 3.1015, arising from NPA-OPS-27.

Subpart P

(a) Amendment to JAR-OPS 3.1040, arising from NPA-OPS-27.

(b) Amendment of paragraphs A2, A6 and A11 of Appendix 1 to JAR-OPS 3.1045, arising from NPA-OPS-27.

(c) Introduction of a new paragraph A13 into Appendix 1 to JAR-OPS 3.1045, arising from NPA-OPS-27.

(d) Amendment of paragraph B2 of Appendix 1 to JAR-OPS 3.1045, arising from NPA-OPS-27.

Subpart S

(a) Amendment to JAR-OPS 3.1250, arising from NPA-OPS-27.

SECTION 2

Subpart B

(a) Introduction of a new ACJ to JAR-OPS 3.037(a)(2), arising from NPA-OPS-27.

(b) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(f) paragraph (d)(19), arising from NPA-OPS-27.

(c) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(i), arising from NPA-OPS-31.

(d) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (a)(1), arising from NPA-OPS-31.

(e) Introduction of a new ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (d)(2), arising from NPA-OPS-31.

Subpart C

(a) Introduction of a new ACJ OPS 3.175(i), arising from NPA-OPS-27.

(b) Introduction of a new ACJ OPS 3.175(j), arising from NPA-OPS-27.

(c) Introduction of a new AMC OPS 3.175(j) & (k), arising from NPA-OPS-27.

Subpart D

(a) Introduction of a new ACJ OPS 3.195, arising from NPA-OPS-27.

(b) Deletion of IEM OPS 3.280 and introduction of new ACJs No.1 and 2 to JAR-OPS 3.280, arising from NPA-OPS-27.

(c) Introduction of a new ACJ to JAR-OPS 3.346, arising from NPA-OPS-27.

(d) Introduction of a new ACJ OPS 3.398, arising from NPA-OPS-27.

Subpart J

(a) Introduction of a new ACJ OPS 3.605, arising from NPA-OPS-27.

Subpart K

(a) Introduction of a new ACJ OPS 3.700(e), arising from NPA-OPS-27.

(b) Amendment of ACJ OPS 3.700, arising from NPA-OPS-27.

(c) Amendment of ACJ OPS 3.715/3.720, arising from NPA-OPS-27.

Subpart L

(a) Introduction of a new ACJ OPS 3.865(e), arising from NPA-OPS-27.

Subpart N

(a) Introduction of new ACJs No.1 and 2 to OPS 3.943, arising from NPA-OPS-27.

(b) Introduction of a new ACJ OPS 3.945(a)(9), arising from NPA-OPS-27.

(c) Deletion of IEM to Appendix 1 to JAR-OPS 3.955(a)(1)(v), arising from NPA-OPS-27.

(d) Amendment to AMC OPS 3.965, arising from NPA-OPS-27.

(e) Deletion of IEM OPS 3.965, arising from NPA-OPS-27.

(f) introduction of a new ACJ OPS 3.965(d), arising from NPA-OPS-27.

(e) Deletion of AMC OPS 3.965(e), arising from NPA-OPS-27.

Subpart O

(a) Amendment of ACJ OPS 3.1005, arising from NPA-OPS-27.

Amendment 4 **01.12.06**

Amendment 4 to JAR-OPS 3 contains a number of amendments, reflecting the results of NPA-OPS 56, and one editorial change.

SECTION 1

Subpart B

(a) Amendment to JAR-OPS 3.135(a)(2), arising from NPA-OPS 56

(b) Amendment to Appendix 1 to JAR-OPS 3.005(h) paragraph (c), arising from NPA-OPS 56

Subpart C

(a) Amendment to JAR-OPS 3.175(o), arising from NPA-OPS 56

(b) Amendment to JAR-OPS 3.180(a)(2), arising from NPA-OPS 56

Subpart E

(a) Amendment to Appendix 1 to JAR-OPS 3.440(i), arising from NPA-OPS 56

Subpart K

(a) Amendment to JAR-OPS 3.705, editorial change

Subpart M

(a) Amendment to JAR-OPS 3.875 and withdrawal of all other paragraphs, arising from NPA-OPS 56

Subpart P

(a) Amendment to Appendix 1 to JAR-OPS 3.1065, arising from NPA-OPS 56

(b) Amendment to JAR-OPS 3.1070, arising from NPA-OPS 56

(c) Amendment to JAR-OPS 3.1071, arising from NPA-OPS 56

SECTION 2

Subpart M

Withdrawal of whole Subpart M, arising from NPA-OPS 56

Amendment 5 **01.07.07**

Amendment 3 to JAR-OPS 3 contains a number of amendments, reflecting the result of NPA-OPS 38 and editorial changes.

SECTION 1

Subpart B

(a) Insertion of new paragraph into JAR-OPS 3.005, arising from NPA-OPS 38

(b) Amendment to Appendix 1 to JAR-OPS 3.005(d), arising from NPA-OPS 38

(c) Amendment to Appendix 1 to JAR-OPS 3.005(e), arising from NPA-OPS 38

(d) Amendment to Appendix 1 to JAR-OPS 3.005(i)(d), arising from NPA-OPS 38

Subpart D

(a) Amendment to JAR-OPS 3.210(d), arising from NPA-OPS 38

(b) Amendment to JAR-OPS 3.330, arising from NPA-OPS 38

(c) Introduction of JAR-OPS 3.426, arising from NPA-OPS 38

Subpart F

(a) Amendment to JAR-OPS 3.470, arising from NPA-OPS 38

(b) Amendment to JAR-OPS 3.475, arising from NPA-OPS 38

(c) Introduction of JAR-OPS 3.477, arising from NPA-OPS 38

(d) Amendment to JAR-OPS 3.480, arising from NPA-OPS 38

Subpart G

(a) Amendment to JAR-OPS 3.485, arising from NPA-OPS 38

(b) Amendment to JAR-OPS 3.490, arising from NPA-OPS 38

(c) Amendment to JAR-OPS 3.495, arising from NPA-OPS 38

(d) Amendment to JAR-OPS 3.500, arising from NPA-OPS 38

(e) Amendment to JAR-OPS 3.510, arising from NPA-OPS 38

Subpart H

(a) Amendment to JAR-OPS 3.515, arising from NPA-OPS 38

(b) Amendment and change of title to JAR-OPS 3.517, arising from NPA-OPS 38

(c) Amendment to JAR-OPS 3.520, arising from NPA-OPS 38

(d) Amendment to JAR-OPS 3.525, arising from NPA-OPS 38

(e) Amendment to JAR-OPS 3.530, arising from NPA-OPS 38

(f) Amendment to JAR-OPS 3.535, arising from NPA-OPS 38

(g) Amendment to title and content of Appendix 1 to JAR-OPS 3.517, arising from NPA-OPS 38

Subpart I

(a) Amendment to JAR-OPS 3.540, arising from NPA-OPS 38

(b) Amendment to JAR-OPS 3.545, arising from NPA-OPS 38

(c) Amendment to JAR-OPS 3.550, arising from NPA-OPS 38

(d) Amendment to JAR-OPS 3.555, arising from NPA-OPS 38

Subpart J

(a) Amendment to Appendix 1 to JAR-OPS 3.625, arising from NPA-OPS 38

Subpart K

(a) Amendment to JAR-OPS 3.650 arising from NPA-OPS 38

(b) Amendment to JAR-OPS 3.652 arising from NPA-OPS 38

(c) Amendment to JAR-OPS 3.820 arising from NPA-OPS 38

(d) Amendment to JAR-OPS 3.827 arising from NPA-OPS 38

(e) Amendment to JAR-OPS 3.830 arising from NPA-OPS 38

(f) Amendment to JAR-OPS 3.835 arising from NPA-OPS 38

(g) Introduction of Appendix 1 to JAR-OPS 3.830 arising from NPA-OPS 38

Subpart N

(a) Amendment to Appendix 1 to JAR-OPS 3.965 arising from NPA-OPS 38

SECTION 2

Subpart B

(a) Introduction of new ACJ to Appendix 1 to JAR-OPS 3.005(d) paragraph (a)(4), arising from NPA-OPS 38

Subpart D

(a) Introduction of ACJ OPS 3.210(d), arising from NPA-OPS 38

(b) Introduction of ACJ OPS 3.426, arising from NPA-OPS 38

Subpart F

(a) Introduction of ACJ OPS 3.475(c)(3)(ii), arising from NPA-OPS 38

(b) IEM OPS 3.480(a)(1) and (a)(2) renamed as ACJ OPS 3.480(a)(1) and (a)(2), arising from NPA-OPS 38

(c) IEM OPS 3.480(a)(12) renamed as IEM OPS 3.480(a)(13), arising from NPA-OPS 38

(d) Introduction of ACJ OPS 3.480(a)(32), arising from NPA-OPS 38

Subpart G

(a) Deletion of IEM OPS 3.490(a)(1) & 3.510(a)(1), arising from NPA-OPS 38

(b) Deletion of IEM OPS 3.490(a)(3)(ii), arising from NPA-OPS 38

(c) Introduction of ACJ OPS 3.490(d), arising from NPA-OPS 38

(d) Introduction of ACJ OPS 3.490 and 3.510, arising from NPA-OPS 38

(e) IEM OPS 3.490(b)(4) & 3.495(b)(4) renamed as ACJ OPS 3.475 and removed to Subpart F, arising from NPA-OPS 38

(f) IEM OPS 3.500(a)(5) renamed as ACJ OPS 3.500(b)(3), arising from NPA-OPS 38

(g) Deletion of IEM OPS 3.510(a)(3)(i), arising from NPA-OPS 38

Subpart H

(a) Introduction of ACJ to Subpart H, arising from NPA-OPS 38

(b) Deletion of AMC to Appendix 1 to JAR-OPS 3.517(a), arising from NPA-OPS 38

(c) Deletion of IEM OPS 3.517(a), arising from NPA-OPS 38

(d) Deletion of IEM to Appendix 1 to JAR-OPS 3.517(a), arising from NPA-OPS 38

(e) Introduction of ACJ-1 to Appendix 1 to JAR-OPS 3.517(a), arising from NPA-OPS 38

(f) Introduction of ACJ-2 to Appendix 1 to JAR-OPS 3.517(a), arising from NPA-OPS 38

(g) IEM OPS 3.517(b) renamed as ACJ OPS 3.520(a)(3) and 3.535(a)(3), arising from NPA-OPS 38

(h) Deletion of IEM OPS 3.520, arising from NPA-OPS 38

(i) Deletion of IEM OPS 3.520(a)(2), arising from NPA-OPS 38

(j) Amendment to IEM OPS 3.520 & 3.535, arising from NPA-OPS 38

(k) Deletion of IEM OPS 3.530(a)(5), arising from NPA-OPS 38

Subpart I

(a) Introduction of ACJ OPS 3.540(b), arising from NPA-OPS 38

Subpart J

(a) Amendment to IEM OPS 3.605(e), arising from NPA-OPS 38

Subpart K

(a) IEM OPS 3.650/3.652 renamed as ACJ OPS 3.650/3.652, text amended, arising from NPA-OPS 38

(b) IEM OPS 3.827 renamed as ACJ OPS 3.827, title and paragraphs amended, arising from NPA OPS 38

(c) Amendment to AMC OPS 3.830(a)(2) arising from NPA-OPS 38

Subpart N

(a) Amendment AMC OPS 3.945 arising from NPA-OPS 38

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SECTION 1 – REQUIREMENTS

1 *GENERAL*

This Section contains the Requirements for Air Operator Certificate Holders.

2 *PRESENTATION*

2.1 The requirements of JAR–OPS are presented in two columns on loose pages, each page being identified by the date of issue or the Change number under which it is amended or reissued.

2.2 Sub-headings are in italic typeface.

2.3 Explanatory Notes not forming part of the requirements appear in smaller typeface.

2.4 New, amended and corrected text will be enclosed within heavy brackets until a subsequent ‘Change’ is issued.

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SUBPART A – APPLICABILITY

JAR-OPS 3.001 Applicability
(See Appendix 1 to JAR-OPS 3.001)

(a) JAR-OPS Part 3 prescribes requirements applicable to the operation of any civil helicopter for the purpose of commercial air transportation by any operator whose principal place of business is in a JAA Member State. JAR-OPS **[**Part**]** 3 does not apply:

[(1)**]** To helicopters when used in military, customs**,** police services **[**and SAR; nor**]**

[(2) To parachute dropping and firefighting flights, and to associated positioning and return flights in which the only persons carried are those who would normally be carried on parachute dropping or firefighting flights; nor**]**

[(3) To flights immediately before, during, or immediately after an aerial work activity provided these flights are connected with that aerial work activity and in which, excluding crew members, no more than 6 persons indispensable to the aerial work activity are carried.**]**

(b) The requirements in JAR-OPS Part 3 are applicable no later than 1 August 1999 unless otherwise indicated.

[Amdt. 2, 01.01.02]

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Appendix 1 to JAR-OPS 3.001
Late compliance dates contained in JAR-OPS 3

Some of the provisions included in JAR-OPS 3 have dates of compliance which are later than the applicability date of JAR-OPS 3. The provisions where this is the case, and the associated later dates of compliance, are as follows:

JAR-OPS 3.517(a) - 31 December 2009	Page 1-H-1
JAR-OPS 3.517(b) - 31 March 2005	Page 1-H-1
JAR-OPS 3.540(a)(4) - 31 December 2009	Page 1-I-1
Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(2)(i)(A) - 31 December 2004	Pages 1-B-10/11

SUBPART B – GENERAL

JAR-OPS 3.005 General

(a) An operator shall not operate a helicopter for the purpose of commercial air transportation other than in accordance with JAR-OPS Part 3.

(b) An operator shall comply with the requirements in JAR-26 applicable to helicopters operated for the purpose of commercial air transportation. Until formal adoption of JAR-26, current national aviation regulations will apply.

(c) Each helicopter shall be operated in compliance with the terms of its Certificate of Airworthiness and within the approved limitations contained in its Helicopter Flight Manual. (See Appendix 1 to JAR-OPS 3.005(c).)

(d) Helicopter Emergency Medical Service (HEMS) operations shall be conducted in accordance with the requirements contained in JAR-OPS Part 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(d) for which a specific approval is required.

(e) Helicopter operations over a hostile environment located outside a congested area shall be conducted in accordance with the requirements contained in JAR-OPS Part 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(e) for which a specific approval is required. This Appendix does not apply to operations conducted in accordance with Appendix 1 to JAR-OPS 3.005(d).

(f) Operations with helicopters with a maximum certificated take-off mass (MCTOM) of 3 175 kg or less; with a maximum approved passenger seating configuration (MAPSC) of 9 or less; by day; and over routes navigated by reference to visual landmarks shall be conducted in accordance with the requirements contained in JAR-OPS Part 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(f) for which a specific approval is required.

(g) Operations with helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg and a maximum approved passenger seating configuration (MAPSC) of 9 or less; by day; over routes navigated by reference to visual landmarks; and conducted within a local and defined geographical area acceptable to the Authority, which are intended to start and end at the same location (or at another location acceptable to the Authority within the local area) on the same day, shall be conducted in accordance with the requirements contained in JAR-OPS Part 3 except for the variations contained in Appendix

JAR-OPS 3.005(g) (continued)

1 to JAR-OPS 3.005(g) for which a specific approval is required.

(h) Helicopter Hoist Operations shall be conducted in accordance with the requirements contained in JAR-OPS 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(h) for which a specific approval is required.

(i) Helicopter operations to/from a public interest site shall be conducted in accordance with the requirements contained in JAR-OPS 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(i) for which a specific approval is required.

[(j) Night VFR operations with the aid of Night Vision Imaging Systems (NVIS) shall only be conducted in accordance with JAR-OPS 3 and procedures contained in the Operations Manual for which a specific approval is required.]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.010 Exemptions

The Authority may exceptionally and temporarily grant an exemption from the provisions of JAR-OPS Part 3 when satisfied that there is a need and subject to compliance with any supplementary condition the Authority considers necessary in order to ensure an acceptable level of safety in the particular case.

JAR-OPS 3.015 Operational Directives

(a) The Authority may direct by means of an Operational Directive that an operation shall be prohibited, limited or subject to certain conditions, in the interests of safe operations.

(b) Operational Directives state:

(1) The reason for issue;

(2) Applicability and duration; and

(3) Action required by the operator(s).

(c) Operational Directives are supplementary to the provisions of JAR-OPS Part 3.

JAR-OPS 3.020 Laws, Regulations and Procedures - Operator's Responsibilities

(a) An operator must ensure that:

JAR-OPS 3.020(a) (continued)

(1) All employees are made aware that they shall comply with the laws, regulations and procedures of those States in which operations are conducted and which are pertinent to the performance of their duties; and

(2) All crew members are familiar with the laws, regulations and procedures pertinent to the performance of their duties.

JAR-OPS 3.025 Common Language

(a) An operator must ensure that all crew members can communicate in a common language or other means acceptable to the Authority.

(b) An operator must ensure that all operations personnel are able to understand the language in which those parts of the Operations Manual which pertain to their duties and responsibilities are written.

JAR-OPS 3.030 Minimum Equipment Lists - Operator's Responsibilities

(a) An operator shall establish, for each helicopter, a Minimum Equipment List (MEL) approved by the Authority. This shall be based upon, but no less restrictive than, the relevant Master Minimum Equipment List (MMEL) (if this exists) accepted by the Authority.

(b) An operator shall not operate a helicopter other than in accordance with the MEL unless permitted by the Authority. Any such permission will in no circumstances permit operation outside the constraints of the MMEL.

JAR-OPS 3.035 Quality System
(See AMC OPS 3.035)
(See IEM OPS 3.035)

(a) An operator shall establish one Quality System and designate one Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure safe operational practices and airworthy helicopters. Compliance monitoring must include a feed-back system to the Accountable Manager (See also JAR-OPS 3.175(h)) to ensure corrective action as necessary.

(b) The Quality System must include a Quality Assurance Programme that contains procedures designed to verify that all operations are being conducted in accordance with all applicable requirements, standards and procedures.

JAR-OPS 3.035 (continued)

(c) The Quality System and the Quality Manager must be acceptable to the Authority.

(d) The Quality System must be described in relevant documentation.

(e) Notwithstanding sub-paragraph (a) above, the Authority may accept the nomination of two Quality Managers, one for operations and one for maintenance, provided that the operator has designated one Quality Management Unit to ensure that the Quality System is applied uniformly throughout the entire operation.

[Ch. 1, 01.02.99]

JAR-OPS 3.037 Accident prevention and flight safety programme

(a) An operator shall establish an accident prevention and flight safety programme, which may be integrated with the Quality System, including:

(1) Programmes to achieve and maintain risk awareness by all persons involved in operations; and

[(2) An occurrence reporting scheme to enable the collation and assessment of relevant incident and accident reports in order to identify adverse trends or to address deficiencies in the interests of flight safety. The scheme shall protect the identity of the reporter and include the possibility that reports may be submitted anonymously (See ACJ OPS 3.037(a)(2).); and**]**

(**[**3**]**) Evaluation of relevant information relating to accidents and incidents and the promulgation of related information**[**, but not the attribution of blame; and

(4) The appointment of a person accountable for managing the programme.

(b) Proposals for corrective action resulting from the accident prevention and flight safety programme shall be the responsibility of the person accountable for managing the programme.

(c) The effectiveness of changes resulting from proposals for corrective action identified by the accident prevention and flight safety programme shall be monitored by the Quality Manager.**]**

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

JAR-OPS 3.040 Additional crew members

An operator shall ensure that crew members who are not required flight or cabin crew members, have also been trained in, and are proficient to perform, their assigned duties.

JAR-OPS 3.045 *Intentionally blank*

JAR-OPS 3.050 Search and rescue information

An operator shall ensure that essential information pertinent to the intended flight concerning search and rescue services is easily accessible in the cockpit.

[Ch. 1, 01.02.99]

JAR-OPS 3.055 Information on emergency and survival equipment carried

An operator shall ensure that there are available for immediate communication to rescue co-ordination centres, lists containing information on the emergency and survival equipment carried on board all of his helicopters. The information shall include, as applicable, the number, colour and type of life-rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of emergency portable radio equipment.

JAR-OPS 3.060 *Intentionally blank*

JAR-OPS 3.065 Carriage of weapons of war and munitions of war
(See IEM OPS 3.065)

(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 helicopter 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

JAR-OPS 3.065 (continued)

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 helicopter of any weapons of war and munitions of war intended to be carried.

[Ch. 1, 01.02.99]

JAR-OPS 3.070 Carriage of sporting weapons and ammunition
(See IEM OPS 3.070)

(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:

(1) They are stowed in the helicopter 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 3.1160(b)(5)) as defined in JAR-OPS 3.1150(a)(14).

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.075 Method of carriage of persons

(a) An operator shall take all reasonable measures to ensure that no person is in any part of a helicopter in flight which is not a part designed for the accommodation of persons unless temporary access has been granted by the commander to any part of the helicopter:

(1) For the purpose of taking action necessary for the safety of the helicopter 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 helicopter is in flight.

JAR-OPS 3.080 Offering dangerous goods for transport by air

An operator shall take all reasonable measures to ensure that no person offers or accepts dangerous goods for transport by air unless the person has been trained and the goods are properly classified, documented, certificated, described, packaged, marked, labelled and in a fit condition for transport as required by the Technical Instructions.

[Ch. 1, 01.02.99]

JAR-OPS 3.085 Crew responsibilities

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

(1) Are related to the safety of the helicopter 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 helicopter 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 scheme in accordance with [JAR-OPS 3.037(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 a helicopter:

(1) While under the influence of any drug [or psychoactive substances] that may affect his faculties in a manner contrary to safety [see also JAR-FCL Part 3 (medical) – 3.035 & 3.040];

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

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

JAR-OPS 3.085(d) (continued)

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

(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 safe operation of the helicopter and safety of its occupants when the rotors are turning;

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

(3) 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 helicopter or its occupants;

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

(5) 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 helicopter or its occupants;

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

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

(8) Not permit any crew member to perform any activity during a critical phase of flight except those duties required for the safe operation of the helicopter;

(9) Not permit:

(i) A flight data recorder to be disabled, switched off or erased during flight nor permit recorded data to be

JAR-OPS 3.085(f)(9)(i) (continued)

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;

(10) Decide whether or not to accept a helicopter with unserviceabilities allowed by the Configuration Deviation List (CDL) or Minimum Equipment List (MEL); and

(11) 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, 01.02.99, Amdt. 3, 01.04.04]

JAR-OPS 3.090 Authority of the commander

All persons carried in the helicopter shall obey all lawful commands given by the commander for the purpose of securing the safety of the helicopter and of persons or property carried therein.

JAR-OPS 3.095 *Intentionally blank*

JAR-OPS 3.100 Admission to cockpit

(a) An operator must ensure that no person, other than a flight crew member assigned to a flight, is admitted to, or carried in, the cockpit unless that person is:

(1) An operating crew member;

(2) A representative of the Authority responsible for certification, licensing or inspection if this is required for the performance of his official duties; or

JAR-OPS 3.100 (continued)

(3) Permitted by, and carried in accordance with instructions contained in the Operations Manual.

(b) The commander shall ensure that:

(1) In the interests of safety, admission to the cockpit does not cause distraction and/or interfere with the flight's operation; and

(2) All persons carried on the cockpit are made familiar with the relevant safety procedures.

(c) The final decision regarding the admission to the cockpit shall be the responsibility of the commander.

JAR-OPS 3.105 Unauthorised carriage

(a) An operator shall take all reasonable measures to ensure that no person secretes himself or secretes cargo on board a helicopter.

JAR-OPS 3.110 Portable electronic devices

An operator shall not permit any person to use, and take all reasonable measures to ensure that no person does use, on board a helicopter a portable electronic device that can adversely affect the performance of the helicopter‘s systems and equipment.

[Ch. 1, 01.02.99]

JAR-OPS 3.115 Alcohol and drugs

An operator shall not permit any person to enter or be in, and take all reasonable measures to ensure that no person enters or is in, a helicopter when under the influence of alcohol or drugs to the extent that the safety of the helicopter or its occupants is likely to be endangered.

[Ch. 1, 01.02.99]

JAR-OPS 3.120 Endangering safety

(a) An operator shall take all reasonable measures to ensure that no person recklessly or negligently acts or omits to act:

(1) So as to endanger a helicopter or person therein;

(2) So as to cause or permit a helicopter to endanger any person or property.

[Ch. 1, 01.02.99]

JAR-OPS 3.125 Documents to be carried
(See ACJ OPS 3.125)

(a) An operator shall ensure that the following are carried on each flight:

(1) The Certificate of Registration;

(2) The Certificate of Airworthiness;

(3) The original or copy of the Noise Certificate (if applicable);

(4) The original or copy of the Air Operator Certificate;

(5) The Aircraft Radio Licence; and

(6) The original or copy of the Third party liability Insurance Certificate(s).

(b) Each flight crew member shall, on each flight when practicable, carry a valid flight crew licence with appropriate rating(s) for the purpose of the flight.

[Amdt. 2, 01.01.02]

JAR-OPS 3.130 Manuals to be carried

(a) An operator shall ensure that:

(1) The current parts of the Operations Manual relevant to the duties of the crew are carried on each flight;

(2) Those parts of the Operations Manual which are required for the conduct of a flight are easily accessible to the crew on board the helicopter; and

(3) The current Helicopter Flight Manual is carried in the helicopter unless the Authority has accepted that the Operations Manual prescribed in JAR-OPS 3.1045, Appendix 1, Part B, contains relevant information for that helicopter.

JAR-OPS 3.135 Additional information and forms to be carried

(a) An operator shall ensure that, in addition to the documents and manuals prescribed in JAR-OPS 3.125 and JAR-OPS 3.130, the following information and forms, relevant to the type and area of operation, are carried on each flight:

JAR-OPS 3.135(a) (continued)

(1) Operational Flight Plan containing at least the information required in JAR-OPS 3.1060;

(2) Helicopter Technical Log containing at least the information required in [Part-M – M.A.306 Operator's technical log system];

(3) Details of the filed ATS flight plan;

(4) Appropriate NOTAM/AIS briefing documentation;

(5) Appropriate meteorological information;

(6) Mass and balance documentation as specified in JAR-OPS Part 3 Subpart J;

(7) Notification of special categories of passenger such as security personnel, if not considered as crew, handicapped persons, inadmissible passengers, deportees and persons in custody;

(8) Notification of special loads including dangerous goods including written information to the commander as prescribed in JAR-OPS 3.1215(d);

(9) Current maps and charts and associated documents as prescribed in JAR-OPS 3.290(b)(7);

(10) Any other documentation which may be required by the States concerned with this flight, such as cargo manifest, passenger manifest etc; and

(11) Forms to comply with the reporting requirements of the Authority and the operator.

(b) The Authority may permit the information detailed in sub-paragraph (a) above, or parts thereof, to be presented in a form other than on printed paper. An acceptable standard of accessibility, usability and reliability must be assured.

[Amdt. 4, 01.12.06]

JAR-OPS 3.140 Information retained on the ground

(a) An operator shall ensure that:

(1) At least for the duration of each flight or series of flights;

(i) Information relevant to the flight and appropriate for the type of operation is preserved on the ground; and

JAR-OPS 3.140(a)(1) (continued)

(ii) The information is retained until it has been duplicated at the place at which it will be stored in accordance with JAR-OPS 3.1065; or, if this is impracticable,

(iii) The same information is carried in a fireproof container in the helicopter.

(b) The information referred to in sub-paragraph (a) above includes:

(1) A copy of the operational flight plan where appropriate;

(2) Copies of the relevant part(s) of the helicopter technical log;

(3) Route specific NOTAM documentation if specifically edited by the operator;

(4) Mass and balance documentation if required (JAR-OPS 3.625 refers); and

(5) Special loads notification.

JAR-OPS 3.145 Power to inspect

An operator shall ensure that any person authorised by the Authority is permitted at any time to board and fly in any helicopter operated in accordance with an AOC issued by that Authority and to enter and remain in the cockpit provided that the commander may refuse access to the cockpit if, in his opinion, the safety of the helicopter would thereby be endangered.

JAR-OPS 3.150 Production of documentation and records

(a) An operator shall:

(1) Give any person authorised by the Authority access to any documents and records which are related to flight operations or maintenance; and

(2) Produce all such documents and records, when requested to do so by the Authority, within a reasonable period of time.

(b) The commander shall, within a reasonable time of being requested to do so by a person authorised by an Authority, produce to that person the documentation required to be carried on board.

JAR-OPS 3.155 Preservation of documentation

(a) An operator shall ensure that:

(1) Any original documentation, or copies thereof, that he is required to preserve is preserved for the required retention period even if he ceases to be the operator of the helicopter; and

(2) Where a crew member, in respect of whom an operator has kept a record in accordance with Subpart Q, becomes a crew member for another operator, that record is made available to the new operator.

JAR-OPS 3.160 Preservation, production and use of flight recorder recordings

(a) *Preservation of recordings* (See IEM OPS 3.160(a)).

(1) Following an accident, the operator of a helicopter on which a flight recorder is carried shall, to the extent possible, preserve the original recorded data pertaining to that accident, as retained by the recorder for a period of 60 days unless otherwise directed by the investigating authority.

(2) Unless prior permission has been granted by the Authority, following an incident that is subject to mandatory reporting, the operator of a helicopter on which a flight recorder is carried shall, to the extent possible, preserve the original recorded data pertaining to that incident, as retained by the recorder for a period of 60 days unless otherwise directed by the investigating authority.

(3) Additionally, when the Authority so directs, the operator of a helicopter on which a flight recorder is carried shall preserve the original recorded data for a period of 60 days unless otherwise directed by the investigating authority.

(4) When a flight data recorder is required to be carried aboard a helicopter, the operator of that helicopter shall:

(i) Save the recordings for the period of operating time as required by JAR-OPS 3.715 and 3.720 except that, for the purpose of testing and maintaining flight data recorders, up to one hour of the oldest recorded material at the time of testing may be erased; and

JAR-OPS 3.160(a)(4) (continued)

(ii) Keep a document which presents the information necessary to retrieve and convert the stored data into engineering units.

[(iii) At all times preserve a record of not less than one representative flight, that is to say, a recording of a flight] [made within the last 12 months which includes a take-off, climb, cruise, descent, approach to landing and landing, together with a means of identifying the record with the flight to which it relates.]

(b) *Production of recordings*. The operator of a helicopter on which a flight recorder is carried shall, within a reasonable time after being requested to do so by the Authority, produce any recording made by a flight recorder which is available or has been preserved.

(c) *Use of recordings*

(1) The cockpit voice recorder recordings may not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except with the consent of all crew members concerned.

(2) The flight data recorder recordings may not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except when such records are:

(i) Used by the operator for airworthiness or maintenance purposes only; or

(ii) De-identified; or

(iii) Disclosed under secure procedures.

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.165 Leasing

(a) *Terminology*

Terms used in this sub-paragraph have the following meaning:

(1) *Dry lease* - Is when the helicopter is operated under the AOC of the lessee.

(2) *Wet lease* - Is when the helicopter is operated under the AOC of the lessor.

(3) *JAA operator* - An operator certificated under JAR-OPS Part 3 by one of the JAA Member States.

JAR-OPS 3.165(a) (continued)

(b) *Leasing of helicopters between JAA operators*

(1) *Wet lease-out*. A JAA operator providing a helicopter and complete crew to another JAA operator, and retaining all the functions and responsibilities prescribed in Subpart C, shall remain the operator of the helicopter.

(2) *All leases except wet lease-out*

(i) Except as provided by sub-paragraph (b)(1) above, a JAA operator utilising a helicopter from, or providing it to, another JAA operator, must obtain prior approval for the operation from his respective Authority. Any conditions which are part of this approval must be included in the lease agreement.

(ii) Those elements of lease agreements which are approved by the Authority, other than lease agreements in which a helicopter and complete crew are involved and no transfer of functions and responsibilities is intended, are all to be regarded, with respect to the leased helicopter, as variations of the AOC under which the flights will be operated.

(c) *Leasing of helicopters between a JAA operator and any entity other than a JAA operator*

(1) *Dry lease-in*

(i) A JAA operator shall not dry lease-in a helicopter from an entity other than a JAA operator, unless approved by the Authority. Any conditions which are part of this approval must be included in the lease agreement.

(ii) A JAA operator shall ensure that, with regard to helicopters that are dry leased-in, any differences from the requirements prescribed in Subparts K, L, and/or JAR-26, are notified to and are acceptable to the Authority.

(2) *Wet lease-in*

(i) A JAA operator shall not wet lease-in a helicopter for more than 3 consecutive months in any 12 consecutive months from an entity other than a JAA operator without the approval of the Authority.

(ii) A JAA operator shall ensure that, with regard to helicopters that are wet leased-in:

JAR-OPS 3.165(c)(2) (continued)

(A) The safety standards of the lessor with respect to maintenance and operation are equivalent to JARs;

(B) The lessor is an operator holding an AOC issued by a State which is a signatory to the Chicago Convention:

(C) The helicopter has a standard Certificate of Airworthiness issued in accordance with ICAO Annex 8. Standard Certificates of Airworthiness issued by a JAA Member State other than the State responsible for issuing the AOC, will be accepted when issued in accordance with JAR-21; and

(D) Any JAA requirement made applicable by the lessee's Authority is complied with.

(3) *Dry lease-out*

(i) A JAA operator may dry lease-out a helicopter for the purpose of commercial air transportation to any operator of a State which is signatory to the Chicago Convention provided that the following conditions are met:

(A) The Authority has exempted the JAA operator from the relevant provisions of JAR-OPS Part 3 and, after the foreign regulatory authority has accepted responsibility in writing for surveillance of the maintenance and operation of the helicopter(s), has removed the helicopter from its AOC; and

(B) The helicopter is maintained according to an approved maintenance programme.

(4) *Wet lease-out*. A JAA operator providing a helicopter and complete crew to another entity and retaining all the functions and responsibilities prescribed in Subpart C, shall remain the operator of the helicopter.

(d) *Leasing of helicopters at short notice*. In circumstances where a JAA operator is faced with an immediate, urgent and unforeseen need for a replacement helicopter, the approval required by sub-paragraph (c)(2)(i) above may be deemed to have been given provided that:

JAR-OPS 3.165(d) (continued)

(1) The lessor is an operator holding an AOC issued by a State which is a signatory to the Chicago Convention; and

(2) The lease-in period does not exceed 14 consecutive days; and

(3) The Authority is immediately notified of the use of this provision.

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Appendix 1 to JAR-OPS 3.005(c)
Helicopter Flight Manual limitations

(a) For helicopters certificated in Category A, a momentary flight through the height velocity (HV) envelope is allowed during the take-off and landing phases, when the helicopter is operated according to any of the following requirements:

(1) JAR-OPS 3.517; or

(2) **[**Appendix 1 to JAR-OPS 3.005(i); or**]**

(3) Appendix 1 to JAR-OPS 3.005(e).

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

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Appendix 1 to JAR-OPS 3.005(d)
Helicopter Emergency Medical Service
(See ACJ Appendix 1 to JAR-OPS 3.005(d))

Note: The Authority is empowered to decide which operation is a HEMS operation in the sense of this Appendix.

(a) *Terminology*

[ ]

([1]) *Ground emergency service personnel*. Any ground emergency service personnel (such as policemen, firemen, etc.) involved with HEMS and whose tasks are to any extent pertinent to helicopter operations.

([2]) *HEMS crew member*. A person who is assigned to a HEMS flight for the purpose of attending to any person in need of medical assistance carried in the helicopter and assisting the pilot during the mission. This person is subject to specific training as detailed in sub-paragraph (e)(2) below.

([3]) *Helicopter Emergency Medical Service (HEMS) flight*. A flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:

(i) Medical personnel; or

(ii) Medical supplies (equipment, blood, organs, drugs); or

(iii) Ill or injured persons and other persons directly involved.

[See also ACJ to Appendix 1 to JAR-OPS 3.005(d), paragraph (a)(4).)]

[(4) *HEMS dispatch centre*. A place where, if established, the coordination or control of the HEMS flight takes place. It may be located in a HEMS Operating Base.]

([5]) *HEMS operating base*. A heliport at which the HEMS crew members and the HEMS helicopter may be on stand-by for HEMS operations.

([6]) *HEMS operating site*. A site selected by the commander during a HEMS flight for HHO, landing and take off (See ACJ to Appendix 1 to 3.005(d), sub-paragraph 7).

([7]) *Medical passenger*. A medical person carried in a helicopter during a HEMS flight, including but not limited to doctors, nurses and paramedics. This passenger shall receive a briefing as detailed in sub-paragraph (e)(3) below.

(b) *Operations Manual*. An operator must ensure that the Operations Manual includes a supplement specifying operational considerations specific to HEMS operations. Relevant extracts from the Operations Manual shall be made available to the organisation for which the HEMS is being provided. (See ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (b).)

(c) *Operating requirements*

(1) *The helicopter*. Performance Class 3 operations shall not be conducted over a hostile environment.

(2) *Performance requirements*

(i) *Take-off and landing - helicopters with a MTOM of 5 700 kg or less*

(A) Helicopters conducting operations to/from a heliport at a hospital which is located in a hostile environment, shall be operated in accordance with Subpart G (Performance Class 1); except when the operator holds an Approval to operate under Appendix 1 to JAR-OPS 3.005(i).

(B) Helicopters conducting operations to/from a HEMS operating site located in a hostile environment shall as far as possible be operated in accordance with Subpart G (Performance Class 1). The commander shall make every reasonable effort to minimise the period during which there would be danger to helicopter occupants and persons on the surface in the event of failure of a power unit (See ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(B)).

(C) The HEMS operating site must be big enough to provide adequate clearance from all obstructions. For night operations, the site must be illuminated (from the ground or from the helicopter) to enable the site and any obstructions to be identified. (See ACJ to Appendix 1 to 3.005(d), sub-paragraph (c)(2)(i)(C).)

(D) Guidance on take-off and landing procedures at previously unsurveyed HEMS operating sites shall be contained in the Operations Manual.

Appendix 1 to JAR-OPS 3.005(d) (continued)

(ii) *Take-off and landing - helicopters with a MTOM exceeding 5 700 kg.* Helicopters conducting HEMS shall be operated in accordance with Performance Class 1.

(3) *The crew*. Notwithstanding the requirements prescribed in Subpart N, the following apply to HEMS operations:

(i) *Selection*. The Operations Manual shall contain specific criteria for the selection of flight crew members for the HEMS task, taking previous experience into account.

(ii) *Experience*. The minimum experience level for commanders conducting HEMS flights shall not be less than:

(A) Either:

(A1) 1 000 hours pilot in command of aircraft of which 500 hours is as pilot-in-command on helicopters; or

(A2) 1 000 hours as co-pilot in HEMS operations of which 500 hours is as pilot-in-command under supervision; and, 100 hours pilot-in-command of helicopters.

(B) 500 hours operating experience in helicopters gained in an operational environment similar to the intended operation (See ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(ii)(B)); and

(C) For pilots engaged in night operations, 20 hours VMC at night as pilot-in-command; and

(D) Successful completion of training in accordance with sub-paragraph (e) of this Appendix.

(iii) *Recency*. All pilots conducting HEMS operations shall have completed a minimum of 30 minutes flight by sole reference to instruments in a helicopter or in a synthetic training device (STD) within the last 6 months. (See ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(iii).)

(iv) *Crew composition* See ACJ to Appendix 1 to JAR-OPS 3.005(d), subparagraph (c)(3)(iv)

Appendix 1 to JAR-OPS 3.005(d) (continued)

(A) *Day flight*. The minimum crew by day shall be one pilot and one HEMS crew member. This can be reduced to one pilot only in exceptional circumstances.

(B) *Night flight*. The minimum crew by night shall be two pilots. However, one pilot and one HEMS crew member may be employed in specific geographical areas defined by the operator in the Operations Manual to the satisfaction of the Authority taking into account the following:

(B1) Adequate ground reference;

(B2) Flight following system for the duration of the HEMS mission (see AMC to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(3)(iv)(B)(B2));

(B3) Reliability of weather reporting facilities;

(B4) HEMS minimum equipment list;

(B5) Continuity of a crew concept;

(B6) Minimum crew qualification, initial and recurrent training;

(B7) Operating procedures, including crew co-ordination;

(B8) Weather minima;

(B9) Additional considerations due to specific local conditions.

(4) *HEMS operating minima.*

(i) *Performance Class 1 and 2 operations*. The weather minima for the despatch and en-route phase of a HEMS flight are shown in the following Table. In the event that during the en-route phase the weather conditions fall below the cloud base or visibility minima shown, VMC only capable helicopters must abandon the flight or return to base. Helicopters equipped and certificated for IMC Operations may abandon the flight, return to base or convert in all respects to a flight conducted under IFR, provided the flight crew are suitably qualified.

Appendix 1 to JAR-OPS 3.005(d) (continued)

Table 1 - HEMS operating minima

2 PILOTS		1 PILOTS	
DAY			
Ceiling	Visibility	Ceiling	Visibility
500 ft and above	(See JAR-OPS 3.465)	500 ft and above	(See JAR-OPS 3.465)
499–400 ft	1 000 m (Note 1)	499–400 ft	2 000 m
399–300 ft	2 000 m	399–300 ft	3 000 m
NIGHT			
Cloud base	Visibility	Cloud base	Visibility
1 200 ft (Note 2)	2 500 m	1 200 ft (Note 2)	3 000 m

Note 1: Visibility may be reduced to 800 m for short periods when in sight of land if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe any obstacles in time to avoid a collision. (See ACJ OPS 3.465.)

Note 2: Cloud base may be reduced to 1 000 ft for short periods.

(ii) *Performance Class 3 operations*. The weather minima for the despatch and en-route phase of a HEMS flight shall be a cloud ceiling of 600 ft and a visibility of 1 500 m. Visibility may be reduced to 800 m for short periods when in sight of land if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe any obstacle and avoid a collision. (See ACJ OPS 3.465.)

(d) *Additional requirements*

(1) *Helicopter medical equipment*

(i) The installation of all helicopter dedicated medical equipment and, where appropriate, its operation including any subsequent modifications shall be approved.

(ii) An operator shall ensure that procedures are established for the use of portable equipment on board.

(2) *Helicopter communication and navigation equipment*. Helicopters conducting HEMS flights shall be provided with communications equipment, in addition to that required by JAR-OPS 3, Subpart L, capable of conducting two-way communication with the organisation for which the HEMS is being provided and, where possible, to communicate with ground emergency service personnel. Any such additional equipment will require airworthiness approval.

Appendix 1 to JAR-OPS 3.005(d) (continued)

(3) *HEMS operating base facilities*

(i) If crew members are required to be on standby with a reaction time of less than 45 minutes, dedicated suitable accommodation shall be provided close to each operating base.

(ii) At each operating base the pilots shall be provided with facilities for obtaining current and forecast weather information and shall be provided with satisfactory communications with the appropriate ATS unit. Satisfactory facilities shall be available for the planning of all tasks.

(4) *Refuelling with passengers on board*. When the commander considers refuelling with passengers on board to be necessary, it can be undertaken either rotors stopped or rotors turning provided the following requirements are met:

(i) Door(s) on the refuelling side of the helicopter shall remain closed;

(ii) Door(s) on the non-refuelling side of the helicopter shall remain open, weather permitting;

(iii) Fire fighting facilities of the appropriate scale shall be positioned so as to be immediately available in the event of a fire; and

(iv) Sufficient personnel shall be immediately available to move patients clear of the helicopter in the event of a fire.

(e) *Training and checking*

(1) *Flight crew members*

(i) JAR-OPS Part 3 Subpart N training with the following additional items:

(A) Meteorological training concentrating on the understanding and interpretation of available weather information;

(B) Preparing the helicopter and specialist medical equipment for subsequent HEMS departure;

(C) Practice of HEMS departures;

(D) The assessment from the air of the suitability of HEMS operating sites; and

Appendix 1 to JAR-OPS 3.005(d) (continued)

(E) The medical effects air transport may have on the patient.

(ii) JAR-OPS Part 3 Subpart N checking with the following additional items:

(A) VMC proficiency day and/or night checks as appropriate including flying landing and take-off profiles likely to be used at HEMS operating sites.

(B) Line checks with special emphasis on the following (See ACJ to Appendix 1 to JAR-OPS 3.005(d) (e)(1)(ii)(B):

(B1) Local area meteorology;

(B2) HEMS flight planning;

(B3) HEMS departures;

(B4) The selection from the air of HEMS operating sites;

(B5) Low level flight in poor weather; and

(B6) Familiarity with established HEMS operating sites in operators local area register.

(2) *HEMS crew member*. The HEMS crew member shall be trained in accordance with the requirements of Subpart O with the following additional items:

(i) Duties in the HEMS role;

(ii) Navigation (map reading, navigation aid principles and use);

(iii) Operation of radio equipment;

(iv) Use of onboard medical equipment;

(v) Preparing the helicopter and specialist medical equipment for subsequent HEMS departure;

(vi) Instrument reading, warnings, use of normal and emergency check lists in assistance of the pilot as required;

(vii) Basic understanding of the helicopter type in terms of location and design of normal and emergency systems and equipment;

(viii) Crew coordination;

Appendix 1 to JAR-OPS 3.005(d) (continued)

(ix) Practice of response to HEMS call out;

(x) Conducting refuelling and rotors running refuelling;

(xi) HEMS operating site selection and use;

(xii) Techniques for handling patients, the medical consequences of air transport and some knowledge of hospital casualty reception;

(xiii) Marshalling signals;

(xiv) Underslung load operations as appropriate;

(xv) Winch operations as appropriate;

(xvi) The dangers to self and others of rotor running helicopters including loading of patients;

(xvii) The use of the helicopter inter-communications system.

(3) *Medical passengers*. Prior to any HEMS flight, or series of flights, medical passengers shall be briefed on the following:

(i) Familiarisation with the helicopter type(s) operated;

(ii) Entry and exit under normal and emergency conditions both for self and patients;

(iii) Use of the relevant onboard specialist medical equipment;

(iv) The need for the commander's approval prior to use of specialised equipment;

(v) Method of supervision of other medical staff;

(vi) The use of helicopter inter-communication systems; and

(vii) Location and use of onboard fire extinguishers.

(4) *Ground emergency service personnel*. An operator shall take all reasonable measures to ensure that ground emergency service personnel are familiar with the following (see IEM to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (e)(4)):

(i) Two way radio communication procedures with helicopters;

Appendix 1 to JAR-OPS 3.005(d) (continued)

(ii) The selection of suitable HEMS operating sites for HEMS flights;

(iii) The physical danger areas of helicopters;

(iv) Crowd control in respect of helicopter operations; and

(v) The evacuation of helicopter occupants following an on-site helicopter accident.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04; Amdt. 5, 01.07.07]

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Appendix 1 to JAR-OPS 3.005(e)
Helicopter operations over a hostile environment located outside a congested area
(See IEM to Appendix 1 to JAR-OPS 3.005(e))

(a) *Approval.* An operator wishing to conduct operations in accordance with this Appendix must have the prior approval of the Authority issuing the AOC and the Authority of the State in which it is intended to conduct such operations. Such an approval will specify:

(1) The type of helicopter; and

(2) The type of operation.

(b) *Applicability*. This Appendix shall only be applicable to turbine-powered helicopters operating over a hostile environment located outside a congested area where it has been substantiated that helicopter limitations, or other justifiable considerations, preclude the use of the appropriate performance criteria.

(c) *Performance Class 2 alleviation.* Helicopters operating in Performance Class 2 over a hostile environment located outside a congested area and with a maximum approved passenger seating configuration (MAPSC) of 9 or less passengers are exempt from the following requirements of JAR-OPS Part 3, Subpart H:

(1) JAR-OPS 3.520(a)(2)**[ ]**;

(2) JAR-OPS 3.535(a)(2)**[ ]**.

(d) *Performance Class 3 alleviation.* Helicopters operating in Performance Class 3 over a hostile environment located outside a congested area and with a maximum approved passenger seating configuration (MAPSC) of 6 or less are exempt from the requirement of JAR-OPS 3.240(a)(5) provided that the operator complies with Appendix 1 to JAR-OPS 3.517(a), sub-paragraphs (a)(2)(**[**i**]**) & **[**(ii)**]**.

(e) *Operation*. Specific procedures to be followed in the event of a power unit failure during take-off and landing must be established in the Operations Manual.

(f) *Supplemental Oxygen for non-pressurised helicopters.* Operations may be conducted with non-pressurised helicopters at pressure altitudes above 10 000 ft without the provision of supplemental oxygen equipment capable of storing and dispensing the oxygen supplies required, provided the cabin altitude does not exceed 10 000 ft for a period in excess of 30 minutes and never exceeds 13 000 ft pressure altitude.

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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Appendix 1 to JAR-OPS 3.005(f)
Operations for small helicopters (VFR day only)

(a) *Terminology.*

(1) Local Operations. Flight conducted within a local and defined geographical area acceptable to the Authority, which start and end at the same location on the same day.

(b) *Approval*. An operator wishing to conduct operations in accordance with this Appendix must have the prior approval of the Authority issuing the AOC. Such an approval shall specify:

(1) The type of helicopter; and

(2) The type of operation.

(3) The geographical limitations of local operations in the context of this appendix (see ACJ to Appendix 1 to JAR-OPS 3.005(f) paragraph (b)(3)).

(c) *Prohibition.* The following activities are prohibited:

(1) JAR-OPS 3.065. Carriage of weapons of war and munitions of war.

(2) JAR-OPS 3.265. Carriage of inadmissible passengers, deportees or persons in custody.

(3) JAR-OPS 3.305. Refuelling/ defuelling with passengers embarking, on board or disembarking.

(4) JAR-OPS 3.335. Smoking on board.

(d) *Alleviation.* The following rules are alleviated:

(1) JAR-OPS 3.100 Admission to cockpit:

(i) An operator must establish rules for the carriage of passengers in a pilot seat, if applicable.

(ii) The commander must ensure that:

(A) carriage of passengers in the pilot seat does not cause distraction and/or interference with the flight's operation; and

(B) the passenger occupying a pilot seat is made familiar with the relevant restrictions and safety procedures.

Appendix 1 to JAR-OPS 3.005(f) (continued)

(2) JAR-OPS 3.135 Additional information and forms to be carried.

(i) For local operations the following documents need not be carried:

(A) JAR-OPS 3.135(a)(1) - Operational Flight Plan

(B) JAR-OPS 3.135(a)(2) - Technical Log (except where required for land-away)

(C) JAR-OPS 3.135(a)(4) - Notam/AIS documentation

(D) JAR-OPS 3.135(a)(5) - Meteorological information

(E) JAR-OPS 3.135(a)(7) - Notification of special passengers, etc.

(F) JAR-OPS 3.135(a)(8) - Notification of special loads, etc.

(ii) For non-local operations:

(A) JAR-OPS 3.135(a)(1) - Operational Flight Plan. The flight plan may be in a simplified form, relevant to the kind of operations conducted and acceptable to the Authority.

(B) JAR-OPS 3.135(a)(7) - Notification of special passengers. Is not required.

(3) JAR-OPS 3.140 Information retained on the ground. Information need not be retained on the ground when other methods of recording are employed.

(4) JAR-OPS 3.165 Leasing. Applicable only where formal leasing agreement exists.

Note: The case where the contract to carry the passengers are transferred to another operator to whom the passengers will pay for the transport, is not considered as leasing.

(5) JAR-OPS 3.215 Use of Air Traffic Services. Not applicable unless mandated by air space requirements and providing search and rescue service arrangements are acceptable to the Authority.

(6) JAR-OPS 3.220 Authorisation of Heliports by the operator. An operator shall establish a procedure to qualify the Commanders for the selection of heliports or landing sites, suitable for the type of helicopter and the type of operation.

(7) JAR-OPS 3.255 Fuel policy. Subparagraphs (b) to (d) are not applicable

Appendix 1 to JAR-OPS 3.005(f) (continued)

when the fuel policy prescribed in JAR-OPS 3.255(a) ensures that, on completion of the flight, or series of flights, the fuel remaining is not less than an amount of fuel sufficient for 30 minutes flying time at normal cruising (this may be reduced to 20 minutes when operating within an area providing continuous and suitable precautionary landing sites). Final reserve fuel must be specified in the operations manual in order to be able to comply with JAR-OPS 3.375(c).

(8) JAR-OPS 3.280 Passenger seating. Procedures are not required to be established.

Note: The intent of this paragraph is achieved by the pilot using normal judgement. JAR-OPS 3.260 is applicable and is considered to address the need for procedures.

(9) JAR-OPS 3.285 Passenger briefing.

(i) Paragraph (a)(1). Unless to do so would be unsafe, passengers are verbally briefed about safety matters, parts or all of which may be given by an audio-visual presentation. Prior approval must be given for the use of portable electronic devices.

(10) JAR-OPS 3.290 Flight preparation.

(i) For local operations:

(A) JAR-OPS 3.290(a). An operational flight plan is not required.

(ii) For non-local operations:

(A) JAR-OPS 3.290(a). An operational flight plan may be prepared in a simplified form relevant to the kind of operation.

(11) JAR-OPS 3.375 In-flight fuel management. Appendix 1 to JAR-OPS 3.375 need not be applied (see (d)(14) below).

(12) JAR-OPS 3.385 Use of supplemental oxygen. With prior approval of the authority, excursions between 10 000 ft and 16 000 ft for a short duration may be undertaken without the use of supplemental oxygen in accordance with procedures contained in the Operations Manual. (In such circumstances, the operator must ensure that the passengers are informed before departure that supplemental oxygen will not be provided.)

(13) Appendix 1 to JAR-OPS 3.270 Stowage of baggage and cargo. As appropriate to the type of operation and helicopter.

Appendix 1 to JAR-OPS 3.005(f) (continued)

(14) Appendix 1 to JAR-OPS 3.375 In-flight fuel management. Not applicable.

(15) JAR-OPS 3.630 General Introduction. Instruments and Equipment. Alternative equipment that does not meet current JTSO standards but does meet the safety standard of the original equipment may be acceptable to the Authority.

(16) JAR-OPS 3.775 Supplemental Oxygen - Non pressurised helicopters. With prior approval of the authority, excursions of a short duration between 10 000 ft and 16 000 ft may be undertaken without supplemental oxygen, in accordance with procedures contained in the Operations Manual.

(17) Appendix 1 to JAR-OPS 3.775 Supplemental oxygen for non-pressurised helicopters. Not applicable in accordance with (12) & (16) above.

(18) JAR-OPS 3.955(b) Upgrading to Commander. The Authority may accept an abbreviated command course relevant to the type of operation to be undertaken.

[(19) JAR-OPS 3.970(a) Recent Experience. As an alternative to the requirement of JAR-OPS 3.970(a), with prior approval of the Authority, the 90 day recency may be satisfied if a pilot has performed 3 take-offs, 3 circuits and 3 landings on any helicopter in the same designated group in the preceding 90 days (see ACJ to Appendix 1 to JAR-OPS 3.005(f) paragraph (d)(19)). The recency qualification for the helicopter type to be operated is conditional upon:

(i) the Type Rating Proficiency Check (TRPC) on the type being valid; and

(ii) the achievement of 2 flying hours on the type or variant within the last 6 months; and

(iii) an OPC being valid on one of the helicopters in the designated group; and

(iv) a strict rotation of OPCs for all helicopters being flown in the designated group; and

(v) the composition of designated groups and the procedure for validation of TRPCs, OPCs and recency, being contained in the operations manual.**]**

(**[**20**]**) Appendix 1 to JAR-OPS 3.965 Recurrent Training and checking. A syllabus

Appendix 1 to JAR-OPS 3.005(f) (continued)

applicable to the type of operation may be accepted by the Authority.

([21]) JAR-OPS 3.1060 Operational flight plan. See (2)(i)(A) & (2)(ii)(A) above.

([22]) JAR-OPS 3.1235 Security requirements. Applicable only when operating in States where the national security program applies to the operations covered in this Appendix.

([23]) JAR-OPS 3.1240 Training programs. Training programs shall be adapted to the kind of operations performed. A suitable self-study training program may be acceptable to the Authority.

([24]) JAR-OPS 3.1250 Helicopter search procedure checklist. No checklist is required.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

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Appendix 1 to JAR-OPS 3.005(g)
Local area operations (VFR day only)

(a) *Approval*. An operator wishing to conduct operations in accordance with this Appendix must have the prior approval of the Authority issuing the AOC. Such an approval will specify:

(1) The type of helicopter

(2) Type of operation

(3) The geographical limitations of operations in the context of this appendix (see ACJ to Appendix 1 to JAR-OPS 3.005(g) paragraph (a)(3)).

(b) *Prohibition*. The following activities are prohibited:

(1) JAR-OPS 3.065. Carriage of weapons of war and munitions of war.

(2) JAR-OPS 3.265. Carriage of inadmissible passengers, deportees or persons in custody.

(3) JAR-OPS 3.305. Refuelling/ defuelling with passengers embarking, on board or disembarking.

(4) JAR-OPS 3.335. Smoking on board.

(c) *Alleviation*. The following rules are alleviated:

(1) JAR-OPS 3.135 Additional information and forms to be carried.

(i) JAR-OPS 3.135(a)(1) - Operational Flight Plan. The flight plan may be in a simplified form, relevant to the kind of operations conducted and acceptable to the Authority.

(ii) JAR-OPS 3.135(a)(4) - Notam/AIS documentation. Are not required.

(iii) JAR-OPS 3.135(a)(5) - Meteorological information. Is not required.

(iv) JAR-OPS 3.135(a)(7) - Notification of special passengers, etc. Is not required.

(v) JAR-OPS 3.135(a)(8) - Notification of special loads, etc. Is not required.

(2) JAR-OPS 3.140 Information retained on the ground. Information need not be retained on the ground when other methods of recording are employed.

(3) JAR-OPS 3.165 Leasing. Applicable only where a formal leasing agreement exists.

Note: The case where the contract to carry the passengers are transferred to another operator to whom the passengers will pay for the transport, is not considered as leasing.

(4) JAR-OPS 3.215 Use of Air Traffic Services. Not applicable unless mandated by air space requirements and providing search and rescue service arrangements are acceptable to the Authority.

(5) JAR-OPS 3.220 Authorisation of Heliports by the operator. An operator shall establish a procedure to qualify the Commanders for the selection of heliports or landing sites, suitable for the type of helicopter and the type of operation.

(6) JAR-OPS 3.255 Fuel policy. Subparagraphs (b) to (d) are not applicable when the fuel policy prescribed in JAR-OPS 3.255(a) ensures that, on completion of the flight, or series of flights, the fuel remaining is not less than an amount of fuel sufficient for 30 minutes flying time at normal cruising (this may be reduced to 20 minutes when operating within an area providing continuous and suitable precautionary landing sites). Final reserve fuel must be established in the operations manual in order to be able to comply with JAR-OPS 3.375(c).

(7) JAR-OPS 3.290(a). See (C)(1)(i) above.

(8) JAR-OPS 3.375 In-flight fuel management. Appendix 1 to JAR-OPS 3.375 need not be applied (see (c)(10) below).

(9) JAR-OPS 3.385 Use of supplemental oxygen. With prior approval of the authority excursions between 10 000 ft and 13 000 ft for a short duration may be undertaken without the use of supplemental oxygen in accordance with procedures contained in the Operations Manual. (In such circumstances, the operator must ensure that passengers are informed before departure that supplemental oxygen will not be provided.)

(10) Appendix 1 to JAR-OPS 3.375 In-flight fuel management. Not applicable.

(11) JAR-OPS 3.630 General Introduction. Instruments and Equipment. Alternative equipment that does not meet current JTSO standards but does meet the safety standard of the original equipment may be acceptable to the Authority.

Appendix 1 to JAR-OPS 3.005(g) (continued)

(12) JAR-OPS 3.775 Supplemental Oxygen - Non pressurised helicopters. With prior approval of the authority, excursions of a short duration between 10 000 ft and 16 000 ft may be undertaken without supplemental oxygen, in accordance with procedures contained in the Operations Manual.

(13) Appendix 1 to JAR-OPS 3.775 Supplemental oxygen for non-pressurised helicopters. Not applicable in accordance with (9) & (12) above.

(14) JAR-OPS 3.1060 Operational flight plan. See (C)(1)(i) above.

(15) JAR-OPS 3.1235 Security requirements. Applicable only in States where the national security program applies to the operations covered in this Appendix.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

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Appendix 1 to JAR-OPS 3.005(h)
Helicopter Hoist Operations (HHO)

Note: The Authority is empowered to decide which operation is a HHO operation in the sense of this Appendix.

(a) *Terminology*

(1) *Helicopter Hoist Operations (HHO) Flight*. A flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist.

(2) *HHO Crew Member*. A crew member who performs assigned duties relating to the operation of a hoist.

(3) *HHO Offshore*. A flight by a helicopter operating under a HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist from or to a vessel or structure in a sea area.

(4) *Hoist Cycle*. For the purpose of the setting of crew qualifications of this appendix; is one down-and-up cycle of the hoist hook.

(5) *HHO Site*. A specified area at which a helicopter performs a hoist transfer.

(6) *HHO Passenger*. A person who is to be transferred by means of a helicopter hoist.

(b) *Operations Manual*. An operator must ensure that the Operations Manual includes a supplement containing material specific to HHO. In particular it will address:

(1) Performance criteria.

(2) If required, the conditions under which offshore HHO transfer may be conducted including the relevant limitations on vessel movement and wind speed.

(3) The weather limitations for HHO.

(4) The criteria for determining the minimum size of the HHO site - appropriate to the task.

(5) The procedures for determining minimum crew.

(6) The method by which crew members record hoist cycles.

When required, relevant extracts from the Operations Manual supplement shall be made available to the organisation for which the HHO is being provided.

(c) *Maintenance of HHO equipment*. Maintenance instructions for HHO systems must be established by the operator, in liaison with the

manufacturer, included in the operator's helicopter maintenance programme prescribed in [Part-M – M.A.302 Maintenance programme], and be approved by the Authority.

(d) *Operating requirements*

(1) *The Helicopter*. During HHO, the helicopter must be capable of sustaining a critical power unit failure with the remaining engine(s) at the appropriate power setting, without hazard to the suspended person(s)/cargo, third parties, or property. (Except for HEMS HHO at a HEMS operating site where the requirement need not be applied.)

(2) *The Crew*. Notwithstanding the requirements prescribed in Subpart N, the following apply to HHO operations:

(i) *Selection*. The Operations Manual shall contain criteria for the selection of flight crew members for the HHO task, taking previous experience into account.

(ii) *Experience*. The minimum experience level for commanders conducting HHO flights shall not be less than:

(A) *Offshore*:

(A1) 1 000 hours pilot-in-command of helicopters or 1 000 hours as co-pilot in HHO operations of which 200 hours is as pilot-in-command under supervision; and

(A2) 50 hoist cycles conducted offshore, of which 20 cycles shall be at night if night operations are being conducted.

(B) *Onshore*:

(B1) 500 hours pilot-in-command of helicopters or 500 hours as co-pilot in HHO operations of which 100 hours is as pilot-in-command under supervision;

(B2) 200 hours operating experience in helicopters gained in an operational environment similar to the intended operation (see IEM to Appendix 1 to JAR-OPS 3.005(d), paragraph (c)(3)(ii)(B)); and

Appendix 1 to JAR-OPS 3.005(h) (continued)

(B3) 50 hoist cycles, of which 20 cycles shall be at night if night operations are being conducted.

(C) Successful completion of training in accordance with the procedures contained in the Operations Manual and relevant experience in the role and environment under which HHO conducted.

(iii) *Recency*. All pilots and HHO crew members conducting HHO shall, in addition to the requirements of JAR-OPS 3.970(a), have completed in the last 90 days:

(A) When operating by day: Any combination of 3 day or night hoist cycles, each of which shall include a transition to and from the hover.

(B) When operating by night: 3 night hoist cycles, each of which shall include a transition to and from the hover.

(iv) *Crew Composition*. The minimum crew for day or night operations shall be as stated in the Operations Manual supplement and will be dependent on the type of helicopter, the weather conditions, the type of task, and, in addition for offshore operations, the HHO site environment, the sea state and the movement of the vessel but, in no case will be less than one pilot and one HHO crew member. (See ACJ to Appendix 1 to JAR-OPS 3.005(h) paragraph (d)(2)(iv).)

(e) *Additional Requirements*

(1) *HHO Equipment*. The installation of all helicopter hoist equipment including any subsequent modifications and where appropriate, its operation, shall have an airworthiness approval appropriate to the intended function. Ancillary equipment must be designed and tested to the appropriate standard and acceptable to the Authority.

(2) *Helicopter Communication Equipment.* Radio equipment, in addition to that required by Subpart L, will require airworthiness approval. The following shall require two-way communication with the organisation for which the HHO is being provided and, where possible, communication with ground personnel:

(i) Day and night offshore operations; or

(ii) Night onshore operations,

(f) *Training and Checking*.

(1) *Flight Crew Members*. The Flight crew member shall be trained in the following subjects:

(i) Subpart N training with the following additional items:

(A) Fitting and use of the hoist;

(B) Preparing the helicopter and hoist equipment for HHO;

(C) Normal and emergency hoist procedures by day and, when required, by night;

(D) Crew co-ordination concept specific to HHO;

(E) Practice of HHO procedures; and

(F) The dangers of static electricity discharge.

(ii) Subpart N checking with the following additional items:

(A) Proficiency checks, as appropriate to day operations which must also be conducted by night if such operations are undertaken by the operator. The checks should include procedures likely to be used at HHO sites with special emphasis on:

(A1) Local area meteorology;

(A2) HHO flight planning;

(A3) HHO departures;

(A4) A transition to and from the hover at the HHO site;

(A5) Normal and simulated emergency HHO procedures; and

(A6) Crew co-ordination.

(2) *HHO Crew Member*. The HHO crew member shall be trained in accordance with the requirements of Subpart O with the following additional items:

Appendix 1 to JAR-OPS 3.005(h) (continued)

(i) Duties in the HHO role;

(ii) Fitting and use of the hoist;

(iii) Operation of hoist equipment;

(iv) Preparing the helicopter and specialist equipment for HHO;

(v) Normal and emergency procedures;

(vi) Crew co-ordination concepts specific to HHO;

(vii) Operation of inter-communications and radio equipment;

(viii) Knowledge of emergency hoist equipment;

(ix) Techniques for handling HHO passengers;

(x) Effect of the movement of personnel on the centre of gravity and mass during HHO;

(xi) Effect of the movement of personnel on performance during normal and emergency flight conditions;

(xii) Techniques for guiding pilots over HHO sites;

(xiii) Awareness of specific dangers relating to the operating environment; and

(xiv) The dangers of static electricity discharge.

(3) *HHO Passengers*. Prior to any HHO flight, or series of flights, HHO passengers shall be briefed and made aware of the dangers of static electricity discharge and other HHO considerations.

[Amdt. 2, 01.01.02; Amdt. 4, 01.12.06]

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Appendix 1 to JAR-OPS 3.005(i)
Helicopter operations at a public interest site

(a) *Approval* - An operator wishing to conduct operations in accordance with this Appendix must have the prior approval of the Authority issuing the AOC and the Authority of the State in which it is intended to conduct such operations. Such an approval shall specify:

(1) The public interest site(s) see ACJ to Appendix 1 to 3.005(i) paragraph (a)(1);

(2) The type(s) of helicopter; and

(3) The type of operation.

(b) *Terminology*

(1) Public interest site: A site, used exclusively for operations in the public interest.

(c) *Applicability*: This Appendix shall only be applicable to multi-turbine powered helicopter types, with a maximum approved passenger seating configuration (MAPSC) of six or less, operation to/from public interest sites:

(1) located in a hostile environment; and

(2) which were established as heliports before the 1 of July 2002

(d) *Alleviation*:

(1) Operations to/from a public interest site, may be conducted in accordance with Subpart H (Performance Class 2) and are exempt from the following requirements:

(i) the requirement of JAR-OPS 3.520(a)(2); and

(ii) the requirement of JAR-OPS 3.535(a)(2);

until 31 December 2004, provided that the operator has been granted a relevant approval by the Authority (See Appendix 1 to JAR-OPS 3.517(a) subparagraphs (a)(2)([i]) and ([ii])] [ ].

(2) From 1 January 2005, where the size of the public interest site or its obstacle environment does not allow the helicopter to be operated in accordance with Subpart G (Performance Class 1), the exemption specified in sub-paragraph (d)(1) above may be approved by the Authority beyond 31 December 2004 provided:

(i) for operations in a non-congested hostile environment, the helicopter mass does not exceed the maximum mass specified in the Helicopter Flight Manual for an AEO OGE hover in still air with all power units

operating at an appropriate power rating; and

(ii) for operations in a congested hostile environment, the helicopter mass does not exceed the maximum mass specified in the Helicopter Flight Manual for a climb gradient of 8% in still air; at the appropriate take-off safety speed (Vtoss) with the critical power unit inoperative and the remaining power units operating at an appropriate power rating (See ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (d)(2)).

(e) *Operation*. Site specific procedures must be established in the Operations Manual to minimise the period during which there would be danger to helicopter occupants and persons on the surface in the event of a power unit failure during take-off and landing at a public interest site. Part C of the Operations Manual shall contain for each public interest site; a diagram or annotated photograph showing the main aspects, the dimensions, the non-conformance with Subpart G (Performance Class 1), the main risks and the contingency plan should an incident occur.

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04; Amdt. 5, 01.07.07]

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SUBPART C – OPERATOR CERTIFICATION AND SUPERVISION

JAR-OPS 3.175 General rules for Air Operator Certification and Supervision

Note 1: Appendix 1 to this paragraph specifies the contents and conditions of the AOC.
Note 2: Appendix 2 to this paragraph specifies the management and organisation requirements.

(a) An operator shall not operate a helicopter for the purpose of commercial air transportation otherwise than under, and in accordance with, the terms and conditions of an Air Operator Certificate (AOC).

(b) An applicant for an AOC, or variation of an AOC, shall allow the Authority to examine all safety aspects of the proposed operation.

(c) An applicant for an AOC must:

(1) Not hold an AOC issued by another Authority unless specifically approved by the Authorities concerned;

(2) Have his principal place of business and, if any, his registered office located in the State responsible for issuing the AOC (see IEM OPS 3.175(c)(2));

(3) Have registered the helicopters which are to be operated under the AOC in the State responsible for issuing the AOC; and

(4) Satisfy the Authority that he is able to conduct safe operations.

(d) Notwithstanding sub-paragraph (c)(3) above, an operator may operate, with the mutual agreement of the Authority issuing the AOC and another Authority, helicopters registered on the national register of the second-named Authority.

(e) An operator shall grant the Authority access to his organisation and helicopters and shall ensure that, with respect to maintenance, access is granted to any associated JAR-145 maintenance organisation, to determine continued compliance with JAR-OPS.

(f) An AOC will be varied, suspended or revoked if the Authority is no longer satisfied that the operator can maintain safe operations.

(g) The operator must satisfy the Authority that:

(1) Its organisation and management are suitable and properly matched to the scale and scope of the operation; and

(2) Procedures for the supervision of operations have been defined.

JAR-OPS 3.175 (continued)

(h) The operator must have nominated an accountable manager acceptable to the Authority who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the Authority.

(i) The operator must have nominated post holders, acceptable to the Authority, who are responsible for the management and supervision of the following areas,

(1) Flight operations;

(2) The maintenance system;

(3) Crew training; and

(4) Ground operations.

(see ACJ OPS 3.175(i)).

(j) A person may hold more than one of the nominated posts if acceptable to the Authority but, for operators who employ 21 or more full time staff, a minimum of two persons are required to cover the four areas of responsibility. (See ACJ OPS 3.175(j) &(k).)

(k) For operators who employ 20 or less full time staff, one or more of the nominated posts may be filled by the accountable manager if acceptable to the Authority. (See ACJ OPS 3.175(j) & (k).)

(l) The operator must ensure that every flight is conducted in accordance with the provisions of the Operations Manual.

(m) The operator must arrange appropriate ground handling facilities to ensure the safe handling of its flights.

(n) The operator must ensure that its helicopters are equipped and its crews are qualified, as required for the area and type of operation.

(o) The operator must comply with the maintenance requirements, in accordance with [Part-M], for all helicopters operated under the terms of its AOC.

(p) The operator must provide the Authority with a copy of the Operations Manual, as specified in Subpart P and all amendments or revisions to it.

(q) The operator must maintain operational support facilities at the main operating base, appropriate for the area and type of operation.

[Amdt. 3, 01.04.04; Amdt. 4, 01.12.06]

JAR-OPS 3.180 Issue, variation and continued validity of an AOC

(a) An operator will not be granted an AOC, or a variation to an AOC, and that AOC will not remain valid unless:

(1) Helicopters operated have a standard Certificate of Airworthiness issued in accordance with ICAO Annex 8 by a JAA Member State. Standard Certificates of Airworthiness issued by a JAA Member State other than the State responsible for issuing the AOC, will be accepted without further showing when issued in accordance with JAR-21;

(2) The maintenance system has been approved by the Authority in accordance with [Part-M]; and

(3) He has satisfied the Authority that he has the ability to:

(i) Establish and maintain an adequate organisation;

(ii) Establish and maintain a quality system in accordance with JAR-OPS 3.035;

(iii) Comply with required training programmes;

(iv) Comply with maintenance requirements, consistent with the nature and extent of the operations specified, including the relevant items prescribed in JAR-OPS 3.175(g) to (o); and

(v) Comply with JAR-OPS 3.175.

(b) Notwithstanding the provisions of JAR-OPS 3.185(f), the operator must notify the Authority as soon as practicable of any changes to the information submitted in accordance with sub-paragraph JAR-OPS 3.185(a) below.

(c) If the Authority is not satisfied that the requirements of sub-paragraph (a) above have been met, the Authority may require the conduct of one or more demonstration flights, operated as if they were commercial air transport flights.

[Amdt. 3, 01.04.04; Amdt. 4, 01.12.06]

JAR-OPS 3.185 Administrative requirements

(a) An operator shall ensure that the following information is included in the initial application for an AOC and, when applicable, any variation or renewal applied for:

JAR-OPS 3.185(a) (continued)

(1) The official name and business name, address and mailing address of the applicant;

(2) A description of the proposed operation;

(3) A description of the management organisation;

(4) The name of the accountable manager;

(5) The names of major post holders, including those responsible for flight operations, the maintenance system, crew training and ground operations together with their qualifications and experience; and

(6) The Operations Manual.

(b) In respect of the operator's maintenance system only, the following information must be included in the initial application for an AOC and, when applicable, any variation or renewal applied for, and for each helicopter type to be operated (see IEM OPS 3.185(b)):

(1) The maintenance management exposition;

(2) The operator's helicopter maintenance programme(s);

(3) The helicopter technical log;

(4) Where appropriate, the technical specification(s) of the maintenance contract(s) between the operator and any JAR-145 approved maintenance organisation;

(5) The number of helicopters;

(c) The application for an initial issue of an AOC must be submitted at least 90 days before the date of intended operation except that the Operations Manual may be submitted later but not less than 60 days before the date of intended operation.

(d) The application for the variation of an AOC must be submitted at least 30 days, or as otherwise agreed, before the date of intended operation.

(e) The application for the renewal of an AOC must be submitted at least 30 days, or as otherwise agreed, before the end of the existing period of validity.

(f) Other than in exceptional circumstances, the Authority must be given at least 10 days prior notice of a proposed change of a nominated post holder.

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Appendix 1 to JAR-OPS 3.175
Contents and conditions of the Air Operator Certificate

An AOC specifies the:

(a) Name and location (main place of business) of the operator;

(b) Date of issue and period of validity;

(c) Description of the type of operations authorised;

(d) Type(s) of helicopter(s) authorised for use;

(e) Registration markings of the authorized helicopter(s) except that operators may obtain approval for a system to inform the Authority about the registration markings for helicopters operated under its AOC;

(f) Authorised areas of operation;

(g) Special limitations (e.g. VFR only); and

(h) Special authorisations/approvals e.g.;

CAT II/CAT III (including approved minima)
Offshore Operations
HEMS (See Appendix 1 to JAR-OPS 3.005(d)
Transportation of Dangerous Goods (See JAR-OPS 3.1155)
Helicopter operations over a hostile environment located outside a congested area (See Appendix 1 to JAR-OPS 3.005(e)).
Operations for small helicopters (VFR Day only) (See Appendix 1 to JAR-OPS 3.005(f)).
Local Area Operations (VFR Day only) (See Appendix 1 to JAR-OPS 3.005(g))
Helicopter Hoist Operations (See Appendix 1 to JAR-OPS 3.005(h)
Operations to Public Interest Sites (See Appendix 1 to JAR-OPS 3.005(i)
Helicopter operations with an exposure time to a power unit failure during take-off or landing. (See JAR-OPS 3.517 and JAR-OPS 3.540(a)(4).)

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

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Appendix 2 to JAR-OPS 3.175
The management and organisation of an AOC holder

(a) *General* [ ] An operator must have a sound and effective management structure in order to ensure the safe conduct of air operations. Nominated post holders must have [managerial] competency [together with appropriate technical/operational qualifications (see also ACJ OPS 3.175 (i))] in [ ] aviation.

[ ]

(b) *Nominated post holders*

(1) A description of the functions and the responsibilities of the nominated post holders, including their names, must be contained in the Operations Manual and the Authority must be given notice in writing of any intended or actual change in appointments or functions.

(2) The operator must make arrangements to ensure continuity of supervision in the absence of nominated post holders.

([3]) A person nominated as a post holder by the holder of an AOC must not be nominated as a post holder by the holder of any other AOC, unless acceptable to the [Authorities concerned].

[(4) Persons nominated as post holders must be contracted to work sufficient hours to fulfil the management functions associated with the scale and scope of the operation.]

[ ]

(c) *Adequacy and supervision of staff*

(1) *Crew members*. The operator must employ sufficient flight and cabin crew for the planned operation, trained and checked in accordance with Subpart N and Subpart O as appropriate.

(2) *Ground Staff*

(i) The number of ground staff is dependent upon the nature and the scale of operations. Operations and ground handling departments, in particular, must be staffed by trained personnel who have a thorough understanding of their responsibilities within the organisation.

(ii) An operator contracting other organisations to provide certain services, retains responsibility for the maintenance of proper standards. In such circumstances, a nominated post holder must be given the task of ensuring that any contractor employed meets the required standards.

(3) *Supervision*

(i) The number of supervisors to be appointed is dependent upon the structure of the operator and the number of staff employed.

([ii]) The duties and responsibilities of these supervisors must be defined, and any [other] commitments arranged so that they can discharge their supervisory responsibilities.

([iii]) The supervision of [ ] crew members [and ground staff] must be exercised by individuals possessing experience and personal qualities sufficient to ensure the attainment of the standards specified in the operations manual.

(d) *Accommodation facilities*

(1) An operator must ensure that working space available at each operating base is sufficient for personnel pertaining to the safety of flight operations. Consideration must be given to the needs of ground staff, those concerned with operational control, the storage and display of essential records, and flight planning by crews.

(2) Office services must be capable, without delay, of distributing operational instructions and other information to all concerned.

(e) *Documentation*. The operator must make arrangements for the production of manuals, amendments and other documentation.

[Amdt. 3, 01.04.04]

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SUBPART D – OPERATIONAL PROCEDURES

JAR-OPS 3.195 Operational Control [ ] [(See ACJ OPS 3.195)]

An operator shall:

[(a)] [E]stablish and maintain a method of [exercising operational control] approved by the Authority[; and

(b) Exercise operational control over any flight operated under the terms of his AOC.]

[Amdt. 3, 01.04.04]

JAR-OPS 3.200 Operations Manual

An operator shall provide an Operations Manual in accordance with JAR-OPS Part 3, Subpart P for the use and guidance of operations personnel.

JAR-OPS 3.205 Competence of operations personnel

An operator shall ensure that all personnel assigned to, or directly involved in, ground and flight operations are properly instructed, have demonstrated their abilities in their particular duties and are aware of their responsibilities and the relationship of such duties to the operation as a whole.

JAR-OPS 3.210 Establishment of Procedures

(a) An operator shall establish procedures and instructions, for each helicopter type, containing ground staff and crew members' duties for all types of operation on the ground and in flight. (See AMC OPS 3.210(a).)

(b) An operator shall establish a checklist system to be used by crew members for all phases of operation with the helicopter under normal, abnormal and emergency conditions as applicable, to ensure that the operating procedures in the Operations Manual are followed (see IEM OPS 3.210(b)). [The design and utilisation of checklists shall observe human factors and CRM principles.]

(c) An operator shall not require a crew member to perform any activities during critical phases of the flight other than those required for the safe operation of the helicopter.

JAR-OPS 3.210 (continued)

(d) An operator shall not permit a helicopter rotor to be turned under power [for the purpose of flight] without a qualified pilot at the controls [(see ACJ OPS 3.210(d))].

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04; Amdt. 5, 01.07.07]

JAR-OPS 3.215 Use of Air Traffic Services

An operator shall ensure that Air Traffic Services are used for all flights whenever available.

JAR-OPS 3.220 Authorisation of Heliports by the Operator (See AMC OPS 3.220)

An operator shall only authorise use of heliports that are adequate for the type(s) of helicopter and operation(s) concerned.

[Ch. 1, 01.02.99]

JAR-OPS 3.225 Heliport Operating Minima

(a) An operator shall specify heliport operating minima, established in accordance with JAR-OPS 3.430 for each departure, destination or alternate heliport authorised to be used in accordance with JAR-OPS 3.220.

(b) These minima must take into account any increment to the specified values imposed by the Authority.

(c) The minima for a specific type of approach and landing procedure are considered applicable if:

(1) The ground equipment shown on the respective chart required for the intended procedure is operative;

(2) The helicopter systems required for the type of approach are operative;

(3) The required helicopter performance criteria are met; and

(4) The crew is qualified accordingly.

JAR-OPS 3.230 Departure and Approach Procedures

(a) An operator shall use departure and approach procedures if specified by the State in which the heliport is located.

JAR-OPS 3.230 (continued)

(b) Notwithstanding sub-paragraph (a) above, a commander may accept an ATC clearance to deviate from a published departure or arrival route, provided obstacle clearance criteria are observed and full account is taken of the operating conditions. The final approach must be flown visually or in accordance with the established instrument approach procedure.

(c) Different procedures to those required to be used in accordance with sub-paragraph (a) above may only be implemented by an operator provided they have been approved by the State in which the heliport is located, if required, and accepted by the Authority.

JAR-OPS 3.235 Noise abatement procedures

An operator shall ensure that take-off and landing procedures take into account the need to minimise the effect of helicopter noise.

JAR-OPS 3.240 Routes and areas of operation

(a) An operator shall ensure that operations are only conducted along such routes or within such areas, for which:

(1) Ground facilities and services, including meteorological services, are provided which are adequate for the planned operation;

(2) The performance of the helicopter intended to be used is adequate to comply with minimum flight altitude requirements;

(3) The equipment of the helicopter intended to be used meets the minimum requirements for the planned operation;

(4) Appropriate maps and charts are available (JAR-OPS 3.135(a)(9) refers);

(5) For helicopters operated in Performance Class 3, surfaces are available which permit a safe forced landing to be executed, except when the helicopter has an approval to operate in accordance with Appendix 1 to JAR-OPS 3.005(e).

(6) For helicopters operated in Performance Class 3 and conducting Coastal Transit operations, Part C of the Operations Manual contains procedures to ensure that the width of the Coastal Corridor, and the equipment carried, is consistent with the conditions prevailing at the time (See IEM OPS 3.240(a)(6)).

JAR-OPS 3.240 (continued)

(b) An operator shall ensure that operations are conducted in accordance with any restriction on the routes or the areas of operation, imposed by the Authority.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.243 Operations in areas with specific navigation performance requirements
(See IEM OPS 3.243)

(a) An operator shall not operate a helicopter in defined areas, or a defined portion of specified airspace, based on Regional Air Navigation Agreements where minimum navigation performance specifications are prescribed unless approved to do so by the Authority (RNP/RNAV Approval). (See also JAR-OPS 3.865(c)(2).)

[Ch. 1, 01.02.99]

JAR-OPS 3.245 *Intentionally blank*

JAR-OPS 3.250 Establishment of minimum flight altitudes
(See IEM OPS 3.250)

(a) An operator shall establish minimum flight altitudes and the methods to determine those altitudes for all route segments to be flown which provide the required terrain clearance taking into account the requirements of JAR-OPS Part 3, Subparts F to I.

(b) The method for establishing minimum flight altitudes must be approved by the Authority.

(c) Where minimum flight altitudes established by States overflown are higher than those established by the operator, the higher values shall apply.

(d) An operator shall take into account the following factors when establishing minimum flight altitudes:

(1) The accuracy with which the position of the helicopter can be determined;

(2) The probable inaccuracies in the indications of the altimeters used;

(3) The characteristics of the terrain (e.g. sudden changes in the elevation) along the routes or in the areas where operations are to be conducted.

JAR-OPS 3.250(d) (continued)

(4) The probability of encountering unfavourable meteorological conditions (e.g. severe turbulence and descending air currents); and

(5) Possible inaccuracies in aeronautical charts.

(e) In fulfilling the requirements prescribed in sub-paragraph (d) above due consideration shall be given to:

(1) Corrections for temperature and pressure variations from standard values;

(2) The ATC requirements; and

(3) Any contingencies along the planned route.

JAR-OPS 3.255 Fuel policy
(See AMC OPS 3.255)

(a) An operator must establish a fuel policy for the purpose of flight planning and in-flight replanning to ensure that every flight carries sufficient fuel for the planned operation and reserves to cover deviations from the planned operation.

(b) An operator shall ensure that the planning of flights is only based upon:

(1) Procedures and data contained in or derived from the Operations Manual or current helicopter specific data; and

(2) The operating conditions under which the flight is to be conducted including:

(i) Realistic helicopter fuel consumption data;

(ii) Anticipated masses;

(iii) Expected meteorological conditions; and

(iv) Air Traffic Services procedures and restrictions.

(c) An operator shall ensure that the pre-flight calculation of usable fuel required for a flight includes:

(1) Taxy fuel;

(2) Trip fuel;

(3) Reserve fuel consisting of:

(i) Contingency fuel (see IEM OPS 3.255(c)(3)(i));

(ii) Alternate fuel, if a destination alternate is required (This does not preclude selection of the departure heliport as the destination alternate);

JAR-OPS 3.255(c)(3)(ii) (continued)

(iii) Final reserve fuel; and

(iv) Additional fuel, if required by the type of operation (e.g. isolated heliports); and

(4) Extra fuel if required by the commander.

(d) An operator shall ensure that in-flight replanning procedures for calculating usable fuel required when a flight has to proceed along a route or to a destination other than originally planned include:

(1) Trip fuel for the remainder of the flight;

(2) Reserve fuel consisting of:

(i) Contingency fuel;

(ii) Alternate fuel, if a destination alternate is required. (This does not preclude selection of the departure heliport as the destination alternate);

(iii) Final reserve fuel; and

(iv) Additional fuel, if required by the type of operation (e.g. isolated heliports); and

(3) Extra fuel if required by the commander.

JAR-OPS 3.260 Carriage of Persons with Reduced Mobility
(See IEM OPS 3.260)

(a) An operator shall establish procedures for the carriage of Persons with Reduced Mobility (PRMs).

(b) An operator shall ensure that PRMs are not allocated, nor occupy, seats where their presence could:

(1) Impede the crew in their duties;

(2) Obstruct access to emergency equipment; or

(3) Impede the emergency evacuation of the helicopter.

(c) The commander must be notified when PRMs are to be carried on board.

JAR-OPS 3.265 Carriage of inadmissible passengers, deportees or persons in custody

An operator shall establish procedures for the transportation of inadmissible passengers, deportees or persons in custody to ensure the safety of the helicopter and its occupants. The commander must be notified when the above-mentioned persons are to be carried on board.

JAR-OPS 3.270 Stowage of baggage and cargo
(See Appendix 1 to JAR-OPS 3.270)
(See AMC OPS 3.270)

(a) An operator shall establish procedures to ensure that only such hand baggage and cargo is carried into a helicopter and taken into the passenger cabin as can be adequately and securely stowed.

(b) An operator shall establish procedures to ensure that all baggage and cargo on board, which might cause injury or damage, or obstruct aisles and exits if displaced, is stowed so as to prevent movement.

[Ch. 1, 01.02.99]

JAR-OPS 3.275 *Intentionally blank*

JAR-OPS 3.280 Passenger Seating
(See IEM OPS 3.280)
[(See ACJ No. 1 to JAR-OPS 3.280)
(See ACJ No. 2 to JAR-OPS 3.280)**]**

An operator shall establish procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the helicopter.

[Amdt. 3, 01.04.04]

JAR-OPS 3.285 Passenger briefing

An operator shall ensure that:

(a) *General.*

(1) Passengers are verbally briefed about safety matters, parts or all of which may be given by an audio-visual presentation.

JAR-OPS 3.285(a) (continued)

(2) Passengers are provided with a safety briefing card on which picture type instructions indicate the operation of emergency equipment and exits likely to be used by passengers.

(b) *Before take-off*

(1) Passengers are briefed on the following items if applicable:

(i) Smoking regulations;

(ii) Back of the seat to be in the upright position and tray table stowed;

(iii) Location of emergency exits;

(iv) Location and use of floor proximity escape path markings;

(v) Stowage of hand baggage;

(vi) Restrictions on the use of portable electronic devices; and

(vii) The location and the contents of the safety briefing card, and,

(2) Passengers receive a demonstration of the following:

(i) The use of safety belts and/or safety harnesses, including how to fasten and unfasten the safety belts and/or safety harnesses;

(ii) The location and use of oxygen equipment if required (JAR-OPS 3.770 and JAR-OPS 3.775 refer). Passengers must also be briefed to extinguish all smoking materials when oxygen is being used; and

(iii) The location and use of life jackets, life-rafts and survival suits if required (JAR-OPS 3.825, 3.827 and 3.830 refer).

(c) *After take-off*

(1) Passengers are reminded of the following if applicable:

(i) Smoking regulations; and

(ii) Use of safety belts and/or safety harnesses.

(d) *Before landing*

(1) Passengers are reminded of the following if applicable:

(i) Smoking regulations;

(ii) Use of safety belts and/or safety harnesses;

JAR-OPS 3.285(d)(1) (continued)

(iii) Back of the seat to be in the upright position and tray table stowed;

(iv) Re-stowage of hand baggage; and

(v) Restrictions on the use of portable electronic devices.

(e) *After landing*

(1) Passengers are reminded of the following:

(i) Smoking regulations; and

(ii) Use of safety belts and/or safety harnesses.

(f) In an emergency during flight, passengers are instructed in such emergency action as may be appropriate to the circumstances.

JAR-OPS 3.290 Flight preparation

(a) An operator shall ensure that an operational flight plan is completed for each intended flight.

(b) The commander shall not commence a flight unless he is satisfied that:

(1) The helicopter is airworthy;

(2) The helicopter configuration is in accordance with the Configuration Deviation List (CDL);

(3) The instruments and equipment required for the flight to be conducted, in accordance with JAR-OPS Part 3, Subparts K and L, are available;

(4) The instruments and equipment are in operable condition except as provided in the MEL;

(5) Those parts of the operations manual which are required for the conduct of the flight are available;

(6) The documents, additional information and forms required to be available by JAR-OPS 3.125 and JAR-OPS 3.135 are on board;

(7) Current maps, charts and associated documents or equivalent data are available to cover the intended operation of the helicopter including any diversion which may reasonably be expected;

(8) Ground facilities and services required for the planned flight are available and adequate;

JAR-OPS 3.290(b) (continued)

(9) The provisions specified in the operations manual in respect of fuel, oil and oxygen requirements, minimum safe altitudes, heliport operating minima and availability of alternate heliports, where required, can be complied with for the planned flight;

(10) The load is properly distributed and safely secured;

(11) The mass of the helicopter, at the commencement of take-off, will be such that the flight can be conducted in compliance with JAR-OPS Part 3, Subparts F to I as applicable; and

(12) Any operational limitation in addition to those covered by sub-paragraphs (9) and (11) above can be complied with.

JAR-OPS 3.295 Selection of heliports

(a) An operator shall establish procedures for the selection of destination and/or alternate heliports in accordance with JAR-OPS 3.220 when planning a flight.

(b) The commander must select a take-off alternate within one hour flight time at normal cruise speed for a flight under instrument meteorological conditions if it would not be possible to return to the heliport of departure due to meteorological reasons.

(c) For a flight to be conducted in accordance with the Instrument Flight Rules or when flying VFR and navigating by means other than by reference to visual landmarks, the commander shall specify at least one alternate in the operational flight plan unless:

(1) The destination is a coastal heliport (See AMC OPS 3.295(c)(1) and IEM OPS 3.295(c)(1)); or

(2) For a flight to [any other] land destination, the duration of the flight and the meteorological conditions prevailing are such that, at the estimated time of arrival at the heliport of intended landing, an approach and landing may be made under visual meteorological conditions as prescribed by the Authority; or

(3) The heliport of intended landing is isolated and no alternate is available. A Point of No Return (PNR) shall be determined.

(d) An operator must select two destination alternatives when:

JAR-OPS 3.295(d) (continued)

(1) The appropriate weather reports or forecasts for the destination, or any combination thereof, indicate that during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival the weather conditions will be below the applicable planning minima; or

(2) no meteorological information is available for the destination.

(e) Off-shore alternates may be specified subject to the following (see AMC OPS 3.295(e) and IEM OPS 3.295(e)):

(1) An off-shore alternate shall be used only after a Point of No Return (PNR). Prior to PNR, on-shore alternates shall be used.

(2) One engine inoperative landing capability shall be attainable at the alternate.

(3) Deck availability shall be guaranteed. The dimensions, configuration and obstacle clearance of individual helidecks or other sites shall be assessed in order to establish operational suitability for use as an alternate by each helicopter type proposed to be used.

(4) Weather minima shall be established taking accuracy and reliability of meteorological information into account (see IEM OPS 3.295(e)(4)).

(5) The Minimum Equipment List shall reflect essential requirements for this type of operation.

(6) An off-shore alternate shall not be selected unless the operator has published a procedure in the Operations Manual approved by the Authority.

(f) An operator shall specify any required alternate(s) in the operational flight plan.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.297 Planning minima for IFR flights

(a) Planning minima for take-off alternates. An operator shall not select a heliport as a take-off alternate heliport unless the appropriate weather reports or forecasts and aerodrome or landing forecasts, or any combination thereof indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the take-off alternate heliport, the weather conditions will be at or above the applicable landing minima specified in accordance

JAR-OPS 3.297(a) (continued)

with JAR-OPS 3.225. The ceiling must be taken into account when the only approaches available are non-precision approaches. Any limitation related to one engine inoperative operations must be taken into account.

(b) Planning minima for destination and destination alternate heliports. An operator shall only select the destination heliport and/or destination alternate heliport(s) when the appropriate weather reports or forecasts and aerodrome or landing forecasts, or any combination thereof, indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the heliport, the weather conditions will be at or above the applicable planning minima as follows:

(1) Except as provided in JAR-OPS 3.295(e), planning minima for a destination heliport will be:

(i) RVR/visibility specified in accordance with JAR-OPS 3.225; and

(ii) For a non-precision approach, the ceiling at or above MDH; and

(2) Planning minima for destination alternate heliport(s):

Table 1 Planning minima destination alternates

Type of Approach	Planning Minima
Cat II and III	Cat I (Note 1)
Cat I	Plus 200ft/400m visibility
Non-Precision	Non-Precision (Note 2) plus 200ft/400 m visibility

Note 1 RVR.
Note 2 The ceiling must be at or above the MDH.

[Amdt. 2, 01.01.02]

JAR-OPS 3.300 Submission of ATS Flight Plan
(See AMC OPS 3.300)

An operator shall ensure that a flight is not commenced unless an ATS flight plan has been submitted, or adequate information has been deposited, or transmitted as soon as possible after take-off, in order to permit alerting services to be activated if required.

JAR-OPS 3.305 Refuelling/defuelling with passengers embarking, on board or disembarking
(See Appendix 1 to JAR-OPS 3.305)
(See IEM OPS 3.305)

An operator shall ensure that no helicopter is re/defuelled with Avgas or wide-cut type fuel (e.g. Jet-B or equivalent) or when a mixture of these types of fuel might occur, when passengers are embarking, on board or disembarking. In all other cases necessary precautions must be taken and the helicopter must be properly manned by qualified personnel ready to initiate and direct an evacuation of the helicopter by the most practical and expeditious means available.

[Ch. 1, 01.02.99]

JAR-OPS 3.307 Refuelling/defuelling with wide-cut fuel
(See IEM OPS 3.307)

An operator shall establish procedures for refuelling/defuelling with wide-cut fuel (e.g. Jet-B or equivalent) if this is required.

[Ch. 1, 01.02.99]

JAR-OPS 3.310 Crew Members at stations

(a) *Flight crew members*

(1) During taxy, take-off and landing each flight crew member required to be on duty in the cockpit shall be at his station.

(2) During all other phases of flight each flight crew member required to be on duty shall remain at his station unless his absence is necessary for the performance of his duties in connection with the operation, or for physiological needs, provided at least one suitably qualified pilot remains at the controls of the helicopter at all times.

(b) *Cabin crew members*. On all the decks of the helicopter that are occupied by passengers, required cabin crew members shall be seated at their assigned stations during taxy, take-off and landing, and whenever deemed necessary by the commander in the interest of safety. (See IEM OPS 3.310(b).)

JAR-OPS 3.315 *Intentionally blank*

JAR-OPS 3.320 Seats, safety belts and harnesses

(a) *Crew members*

(1) During taxy, take-off and landing, and whenever deemed necessary by the commander in the interest of safety, each crew member shall be properly secured by all safety belts and harnesses provided.

(2) During other phases of the flight each flight crew member in the cockpit shall keep his safety belt fastened while at his station.

(b) *Passengers*

(1) Before take-off and landing, and during taxying, and whenever deemed necessary in the interest of safety, the commander shall ensure that each passenger on board occupies a seat or berth with his safety belt, or harness where provided, properly secured.

(2) An operator shall make provision for, and the commander shall ensure that multiple occupancy of helicopter seats may only be allowed on specified seats and does not occur other than by one adult and one infant who is properly secured by a supplementary loop belt or other restraint device.

JAR-OPS 3.325 Securing of passenger cabin and galley(s)

(a) An operator shall establish procedures to ensure that before taxying, take-off and landing all exits and escape paths are unobstructed.

(b) The commander shall ensure that before take-off and landing, and whenever deemed necessary in the interest of safety, all equipment and baggage is properly secured.

JAR-OPS 3.330 Accessibility of emergency equipment

[(a) The operator shall establish procedures to ensure that when operating overwater in Performance Class 3, account is taken of the duration of the flight and conditions to be encountered when deciding if the lifejackets should be worn by all occupants.**]**

[(b)**]** The commander shall ensure that relevant emergency equipment remains easily accessible for immediate use.

[Amdt. 5, 01.07.07]

JAR-OPS 3.335 Smoking on board

(a) The commander shall ensure that no person on board is allowed to smoke:

(1) Whenever deemed necessary in the interest of safety;

(2) While the helicopter is on the ground unless specifically permitted in accordance with procedures defined in the Operations Manual;

(3) Outside designated smoking areas, in the aisle(s) and in the toilet(s);

(4) In cargo compartments and/or other areas where cargo is carried which is not stored in flame resistant containers or covered by flame resistant canvas; and

(5) In those areas of the cabin where oxygen is being supplied.

JAR-OPS 3.340 Meteorological Conditions

(a) On an IFR flight a commander shall not:

(1) Commence take-off; nor

(2) Continue beyond the point from which a revised flight plan applies in the event of in-flight replanning,

unless information is available indicating that the expected weather conditions at the destination and/or required alternate heliport(s) prescribed in JAR-OPS 3.295 are at or above the planning minima, prescribed in JAR-OPS 3.297.

(b) On a VFR flight a commander shall not commence take-off unless current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions along the route or that part of the route to be flown under VFR will, at the appropriate time, be such as to render compliance with these rules possible.

(c) On an IFR flight, a commander shall not continue towards the planned destination heliport unless the latest information available indicates that, at the expected time of arrival, the weather conditions at the destination, or at least one destination alternate heliport, if required, are at or above the applicable heliport operating minima, prescribed in sub-paragraph (a) above.

(d) A flight to a helideck or elevated heliport shall not be operated when the mean wind speed at the helideck or elevated heliport is reported as 60 knots or more.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.345 Ice and other contaminants [— ground procedures]

(a) An operator shall establish procedures to be followed when ground de-icing and anti-icing and related inspections of the helicopter(s) are necessary.

(b) A commander shall not commence take-off unless the external surfaces are clear of any deposit which might adversely affect the performance and/or controllability of the helicopter except as permitted in the Helicopter Flight Manual.

[ ]

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

[JAR-OPS 3.346 Ice and other contaminants – flight procedures

(a) When appropriate, an operator shall establish procedures for flights in expected or actual icing conditions. (See ACJ OPS 3.346 and JAR-OPS 3.675)

(b) A commander shall not commence a flight nor intentionally fly into expected or actual icing conditions unless the helicopter is certificated and equipped to cope with such conditions.**]**

[Amdt. 3, 01.04.04]

JAR-OPS 3.350 Fuel and oil supply

A commander shall not commence a flight unless he is satisfied that the helicopter carries at least the planned amount of fuel and oil to complete the flight safely, taking into account the expected operating conditions.

JAR-OPS 3.355 Take-off conditions

Before commencing take-off, a commander must satisfy himself that, according to the information available to him, the weather at the heliport and the condition of the FATO intended to be used should not prevent a safe take-off and departure.

JAR-OPS 3.360 Application of take-off minima

Before commencing take-off, a commander must satisfy himself that the RVR/visibility and

JAR-OPS 3.360 (continued)

the ceiling in the take-off direction of the helicopter is equal to or better than the applicable minimum.

JAR-OPS 3.365 Minimum flight altitudes
(See IEM OPS 3.250)

The pilot flying shall not descend below specified minimum altitudes except when necessary for take-off or landing, or when descending in accordance with procedures approved by the Authority.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.370 Simulated abnormal - situations in flight

An operator shall establish procedures to ensure that abnormal or emergency situations requiring the application of part or all of abnormal or emergency procedures and simulation of IMC by artificial means, are not simulated during commercial air transportation flights.

JAR-OPS 3.375 In-flight fuel management
(See Appendix 1 to JAR-OPS 3.375)

(a) An operator shall establish a procedure to ensure that in-flight fuel checks and fuel management are carried out.

(b) A commander shall ensure that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to a heliport where a safe landing can be made, with final reserve fuel remaining.

(c) The commander shall declare an emergency when the actual usable fuel on board is less than final reserve fuel.

JAR-OPS 3.380 *Intentionally blank*

JAR-OPS 3.385 Use of supplemental oxygen

A commander shall ensure that flight crew members engaged in performing duties essential to the safe operation of a helicopter in flight use supplemental oxygen continuously whenever cabin altitude exceeds 10 000 ft for a period in excess of 30 minutes and whenever the cabin altitude exceeds 13 000 ft.

JAR-OPS 3.385 (continued)

JAR-OPS 3.390 *Intentionally blank*

JAR-OPS 3.395 Ground proximity detection

When undue proximity to the ground is detected by any flight crew member or by a ground proximity warning system, the commander or the pilot to whom conduct of the flight has been delegated shall ensure that corrective action is initiated immediately to establish safe flight conditions.

[Ch. 1, 01.02.99]

[JAR-OPS 3.398 Use of Airborne Collision Avoidance System (ACAS)
(See ACJ OPS 3.400)

(a) An operator shall establish procedures to ensure that when ACAS is installed and serviceable, it shall be used in flight in a mode that enables Traffic Advisories (TA) to be displayed.

(b) Operators of aircraft equipped with ACAS shall establish standards of training and operation before authorising crews to use ACAS.**]**

[Amdt. 3, 01.04.04]

JAR-OPS 3.400 Approach and landing - conditions
(See IEM OPS 3.400)

Before commencing an approach to land, the commander must satisfy himself that, according to the information available to him, the weather at the heliport and the condition of the FATO intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the Operations Manual.

JAR-OPS 3.405 Commencement and continuation of approach

(a) The commander or the pilot to whom conduct of the flight has been delegated may commence an instrument approach regardless of the reported RVR/Visibility but the approach shall

JAR-OPS 3.405(a) (continued)

not be continued beyond the outer marker, or equivalent position, if the reported RVR/Visibility is less than the applicable minima. (See IEM OPS 3.405(a).)

(b) Where RVR is not available, RVR values may be derived by converting the reported visibility in accordance with Appendix 1 to JAR-OPS 3.430, sub-paragraph (h).

(c) If, after passing the outer marker or equivalent position in accordance with (a) above, the reported RVR/visibility falls below the applicable minimum, the approach may continue to DA/H or MDA/H.

(d) Where no outer marker or equivalent position exists, the commander or the pilot to whom the conduct of the flight has been delegated shall make the decision to continue or abandon the approach before descending below 1 000 ft above the **[**heliport**]** on the final approach segment. **[**If the MDA/H is at or above 1 000 ft above the heliport, the operator shall establish a height, for each approach procedure, below which the approach shall not be continued if the RVR/visibility is less than the applicable minima.**]**

(e) The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the required visual reference is established at the DA/H or MDA/H and is maintained.

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

JAR-OPS 3.410 *Intentionally Blank*

[Amdt. 2, 01.01.02]

JAR-OPS 3.415 Journey log

A commander shall ensure that the Journey log is completed.

JAR-OPS 3.420 Occurrence reporting

[(a) Terminology

(1) *Incident.* An occurrence, other than an accident, associated with the operation of a helicopter which affects or could affect the safety of operation

(2) *Serious Incident.* An incident involving circumstances indicating that an accident nearly occurred.

JAR-OPS 3.420(a) (continued)

(3) *Accident.* An occurrence associated with the operation of a helicopter which takes place between the time any person boards the helicopter with the intention of flight until such time as all persons have disembarked, in which:

(i) a person is fatally or seriously injured as a result of:

(A) being in the helicopter;

(B) direct contact with any part of the helicopter, including parts which have become detached from the helicopter; or,

(C) direct exposure to jet blast or rotor downwash;

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew: or

(ii) the helicopter sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics; and would normally require major repair or replacement of the affected component; except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to, antennas, tyres, brakes, fairings, small dents or puncture holes in the helicopter skin: or

(iii) the helicopter is missing or is completely inaccessible.

(b) *Incident Reporting.* An operator shall establish procedures for reporting incidents taking into account responsibilities described below and circumstances described in sub-paragraph (d) below.

(1) JAR-OPS 3.085(b) specifies the responsibilities of crew members for reporting incidents that endanger, or could endanger, the safety of operation.

(2) The commander or the operator of a helicopter shall submit a report to the Authority of any incident that endangers or could endanger the safety of operation.

(3) Reports shall be despatched within 72 hours of the time when the incident was identified unless exceptional circumstances prevent this. **]**

JAR-OPS 3.420(b) (continued)

[(4) A commander shall ensure that all known or suspected technical defects and all exceedences of technical limitations occurring while he was responsible for the flight are recorded in the helicopter technical log. If the deficiency or exceedence of technical limitations endangers or could endanger the safety of operation, the commander must in addition initiate the submission of a report to the Authority in accordance with paragraph (b)(2) above.

(5) In the case of incidents reported in accordance with sub- paragraphs (b)(1), (b)(2) and (b)(3) above, arising from, or relating to, any failure, malfunction or defect in the helicopter, its equipment or any item of ground support equipment, or which cause or might cause adverse effects on the continuing airworthiness of the helicopter, the operator must also inform the organisation responsible for the design or the supplier or, if applicable, the organisation responsible for continued airworthiness, at the same time as a report is submitted to the Authority.

(c) *Accident and Serious Incident Reporting.* An operator shall establish procedures for reporting accidents and serious incidents taking into account responsibilities described below and circumstances described in sub-paragraph (d) below.

(1) A commander shall notify the operator of any accident or serious incident occurring while he was responsible for the flight. In the event that the commander is incapable of providing such notification, this task shall be undertaken by any other member of the crew if they are able to do so, note being taken of the succession of command specified by the operator.

(2) An operator shall ensure that the Authority in the State of the operator, the nearest appropriate Authority (if not the Authority in the State of the operator), and any other organisation required by the State of the operator to be informed, are notified by the quickest means available of any accident or serious incident and - in the case of accidents only - at least before the helicopter is moved unless exceptional circumstances prevent this.

(3) The commander or the operator of a helicopter shall submit a report to the Authority in the State of the operator within 72 hours of the time when the accident or serious incident occurred.

JAR-OPS 3.420 (continued)

(d) *Specific Reports*. Occurrences for which specific notification and reporting methods must be used are described below;

(1) *Air Traffic Incidents*. A commander shall without delay notify the air traffic service unit concerned of the incident and shall inform them of his intention to submit an air traffic incident report after the flight has ended whenever a helicopter in flight has been endangered by:

(i) A near collision with any other flying device;

(ii) Faulty air traffic procedures or lack of compliance with applicable procedures by air traffic services or by the flight crew;

(iii) Failure of air traffic services facilities.

In addition, the commander shall notify the Authority of the incident.

(2) *Airborne Collision Avoidance System Resolution Advisory.* A commander shall notify the air traffic service unit concerned and submit an ACAS report to the Authority whenever a helicopter in flight has manoeuvred in response to an ACAS Resolution Advisory.

(3) *Bird Hazards and Strikes*

(i) A commander shall immediately inform the local air traffic service unit whenever a potential bird hazard is observed.

(ii) If he is aware that a bird strike has occurred, a commander shall submit a written bird strike report after landing to the Authority whenever a helicopter for which he is responsible suffers a bird strike that results in significant damage to the helicopter or the loss or malfunction of any essential service. If the bird strike is discovered when the commander is not available, the operator is responsible for submitting the report.

(4) *In-flight Emergencies with Dangerous Goods on Board* If an in-flight emergency occurs and the situation permits, a commander shall inform the appropriate air traffic service unit of any dangerous goods on board. After the helicopter has landed, the commander shall, if the occurrence has been associated with and was related to the transport of dangerous goods, comply also with the]

JAR-OPS 3.420(d)(4) (continued)

[reporting requirements specified in JAR-OPS 3.1225.

(5) *Unlawful Interference* Following an act of unlawful interference on board a helicopter, the commander or, in his absence, the operator shall submit a report as soon as practicable to the local Authority and to the Authority in the State of the operator. (See also JAR-OPS 3.1245)

(6) *Encountering Potential Hazardous Conditions.* A commander shall notify the appropriate air traffic services unit as soon as practicable whenever a potentially hazardous condition such as an irregularity in a ground or navigational facility, a meteorological phenomenon or a volcanic ash cloud is encountered during flight.**]**

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

[JAR-OPS 3.426 Flight hours reporting (See ACJ OPS 3.426)

(a) An operator shall make available to the Authority the hours flown for each helicopter operated during the previous calendar year.**]**

[Amdt. 5, 01.07.07]

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Appendix 1 to JAR-OPS 3.270
Stowage of baggage and cargo

(a) Procedures established by an operator to ensure that hand baggage and cargo is adequately and securely stowed must take account of the following:

(1) Each item carried in a cabin must be stowed only in a location that is capable of restraining it;

(2) Mass limitations placarded on or adjacent to stowages must not be exceeded;

(3) Underseat stowages must not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment;

(4) Items must not be stowed in toilets or against bulkheads that are incapable of restraining articles against movement forwards, sideways or upwards and unless the bulkheads carry a placard specifying the greatest mass that may be placed there;

(5) Baggage and cargo placed in lockers must not be of such size that they prevent latched doors from being closed securely;

(6) Baggage and cargo must not be placed where it can impede access to emergency equipment; and

(7) Checks must be made before take-off, before landing, and whenever the fasten seat belts signs are illuminated or it is otherwise so ordered to ensure that baggage is stowed where it cannot impede evacuation from the aircraft or cause injury by falling (or other movement) as may be appropriate to the phase of flight.

[Ch. 1, 01.02.99]

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Appendix 1 to JAR-OPS 3.305
Refuelling/defuelling with passengers embarking, on board or disembarking

(a) An operator must establish operational procedures for re/defuelling with passengers on board, either rotors stopped or rotors turning, to ensure that the following precautions are taken:

(1) Door(s) on the refuelling side of the helicopter shall remain closed;

(2) Door(s) on the non-refuelling side of the helicopter shall remain open, weather permitting;

(3) Fire fighting facilities of the appropriate scale shall be positioned so as to be immediately available in the event of a fire; and

(4) Sufficient personnel shall be immediately available to move passengers clear of the helicopter in the event of a fire.

(5) Sufficient qualified personnel must be on board and be prepared for an immediate emergency evacuation;

(6) If the presence of fuel vapour is detected inside the helicopter, or any other hazard arises during re/defuelling, fuelling must be stopped immediately;

(7) The ground area beneath the exits intended for emergency evacuation and slide deployment areas must be kept clear; and

(8) Provision is made for a safe and rapid evacuation.

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Appendix 1 to JAR-OPS 3.375
In-flight fuel management

(a) *In-flight fuel checks.*

(1) A commander must ensure that fuel checks are carried out in flight at regular intervals. The remaining fuel must be recorded and evaluated to:

(i) Compare actual consumption with planned consumption;

(ii) Check that the remaining fuel is sufficient to complete the flight; and

(iii) Determine the expected fuel remaining on arrival at the destination.

(2) The relevant fuel data must be recorded.

(b) *In-flight fuel management.*

(1) If, as a result of an in-flight fuel check, the expected fuel remaining on arrival at the destination is less than the required alternate fuel plus final reserve fuel, the commander must:

(i) Divert; or

(ii) Replan the flight in accordance with JAR-OPS 3.295(e)(1) unless he considers it safer to continue to the destination provided that,

(2) At an on-shore destination, when two suitable, separate touchdown and lift-off areas are available and the weather conditions at the destination comply with those specified for planning in JAR-OPS 3.340(a)(2), the commander may permit alternate fuel to be used before landing at the destination.

(c) If, as a result of an in-flight fuel check on a flight to an isolated destination heliport, planned in accordance with AMC OPS 3.255 paragraph 3, the expected fuel remaining at the point of last possible diversion is less than the sum of:

(1) Fuel to divert to a heliport selected in accordance with JAR-OPS 3.295(b);

(2) Contingency fuel; and

(3) Final reserve fuel, a commander must:

(4) Divert; or

(5) Proceed to the destination provided that at on-shore destinations, two suitable, separate touchdown and lift-off areas are available at the destination and the expected weather conditions at the destination comply

with those specified for planning in JAR-OPS 3.340(a)(2).

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SUBPART E – ALL WEATHER OPERATIONS

Note: Whenever the use of flight simulator or Synthetic Training Device is required by this Subpart, it shall be approved in accordance with the requirements of JAR-STD.

JAR-OPS 3.430 Heliport Operating minima - General
(See Appendix 1 to JAR-OPS 3.430)

(a) An operator shall establish, for each heliport planned to be used, heliport operating minima that are not lower than the values given in Appendix 1. The method of determination of such minima must be acceptable to the Authority. Such minima shall not be lower than any that may be established for such heliports by the State in which the heliport is located, except when specifically approved by that State.

Note: The above paragraph does not prohibit in-flight calculation of minima for a non-planned alternate heliport if carried out in accordance with an accepted method.

(b) In establishing the heliport operating minima which will apply to any particular operation, an operator must take full account of:

(1) The type, performance and handling characteristics of the helicopter;

(2) The composition of the flight crew, their competence and experience;

(3) The dimensions and characteristics of the FATOs/runways which may be selected for use;

(4) The adequacy and performance of the available visual and non-visual ground aids; (see AMC OPS 3.430(b)(4))

(5) The equipment available on the helicopter for the purpose of navigation and/or control of the flight path, as appropriate, during the take-off, the approach, the flare, the hover, the landing, roll-out and the missed approach;

(6) The obstacles in the approach, missed approach and the climb-out areas required for the execution of contingency procedures and necessary clearance;

(7) The obstacle clearance altitude/height for the instrument approach procedures; and

(8) The means to determine and report meteorological conditions.

JAR-OPS 3.435 Terminology

(a) Terms used in this Subpart and not defined in JAR-1 have the following meaning:

(1) *Circling*. The visual phase of an instrument approach to bring an aircraft into position for landing which is not suitably located for a straight-in approach.

(2) *Low Visibility Procedures (LVP)*. Procedures applied at a heliport for the purpose of ensuring safe operations during Category II and III approaches and Low Visibility Take-offs.

(3) *Low Visibility Take-Off (LVTO)*. A take-off where the Runway Visual Range (RVR) is less than 400 m.

(4) *Final Approach and Take-Off area (FATO)*. A defined area over which the final phase of the approach manoeuvre to hover or landing is completed and from which the take-off manoeuvre is commenced and, where the FATO is to be used by helicopters operated in Performance Class 1, includes the rejected take-off area available.

(5) *Visual Approach.* An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain.

[(6) *Cloud base.* The height of the base of the lowest observed, or forecast, cloud element in the vicinity of an aerodrome, or heliport, or within a specified area of operations. The height of the cloud base is normally measured above aerodrome elevation, but in the case of offshore operations cloud base in measured above mean sea level.**]**

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.440 Low visibility operations - General operating rules
(See Appendix 1 to JAR-OPS 3.440)

(a) An operator shall not conduct Category II or III operations unless:

(1) Each helicopter concerned is certificated for operations with decision heights below 200 ft, or no decision height, and equipped in accordance with JAR-AWO or an equivalent accepted by the Authority;

JAR-OPS 3.440(a) (continued)

(2) A suitable system for recording approach and/or automatic landing success and failure is established and maintained to monitor the overall safety of the operation;

(3) The operations are approved by the Authority;

(4) The flight crew consists of at least 2 pilots; and

(5) Decision Height is determined by means of a radio altimeter.

(b) An operator shall not conduct low visibility take-offs in less than 150 m RVR unless approved by the Authority.

JAR-OPS 3.445 Low visibility operations - Heliport considerations

(a) An operator shall not use an heliport for Category II or III operations unless the heliport is approved for such operations by the State in which the heliport is located.

(b) An operator shall verify that Low Visibility Procedures (LVP) have been established, and will be enforced, at those heliports where low visibility operations are to be conducted.

JAR-OPS 3.450 Low visibility operations - Training and Qualifications
(See Appendix 1 to JAR-OPS 3.450)

(a) An operator shall ensure that, prior to conducting Low Visibility Take-Off, Category II and III operations:

(1) Each flight crew member:

(i) Completes the training and checking requirements prescribed in Appendix 1 including flight simulator training in operating to the limiting values of RVR and Decision Height appropriate to the operator's Category II/III approval; and

(ii) Is qualified in accordance with Appendix 1;

(2) The training and checking is conducted in accordance with a detailed syllabus approved by the Authority and included in the Operations Manual. This training is in addition to that prescribed in JAR-OPS Part 3, Subpart N; and

JAR-OPS 3.450(a) (continued)

(3) The flight crew qualification is specific to the operation and the helicopter type.

JAR-OPS 3.455 Low Visibility operations - Operating Procedures (LVPs)
(See Appendix 1 to JAR-OPS 3.455)

(a) An operator must establish procedures and instructions to be used for Low Visibility Take-Off and Category II and III operations. These procedures must be included in the Operations Manual and contain the duties of flight crew members during taxying, take-off, approach, flare, the hover, landing, roll-out and missed approach as appropriate.

(b) The commander shall satisfy himself that:

(1) The status of the visual and non-visual facilities is sufficient prior to commencing a Low Visibility Take-Off or a Category II or III approach;

(2) Appropriate LVPs are in force according to information received from Air Traffic Services, before commencing a Low Visibility Take-Off or a Category II or III approach; and

(3) The flight crew members are properly qualified prior to commencing a Low Visibility Take-off in an RVR of less than 150 m or a Category II or III approach.

JAR-OPS 3.460 Low visibility operations - Minimum equipment

(a) An operator must include in the Operations Manual the minimum equipment that has to be serviceable at the commencement of a Low Visibility Take-off or a Category II or III approach in accordance with the HFM or other approved document.

(b) The commander shall satisfy himself that the status of the helicopter and of the relevant airborne systems is appropriate for the specific operation to be conducted.

JAR-OPS 3.465 VFR Operating minima
(See Appendices 1 and 2 to JAR-OPS 3.465)

(a) An operator shall ensure that:

(1) VFR flights are conducted in accordance with the Visual Flight Rules and in accordance with the Table in Appendix 1 to JAR-OPS 3.465;

(2) Subject to sub-paragraph (3) and (4) below, **[ ]** helicopters are operated in a flight visibility of not less than 1 500 m during daylight and not less than 5 km by night. Flight visibility may be reduced to 800 m for short periods during daylight, when in sight of land, if the helicopter is manoeuvred at a speed that will give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision **[**(see ACJ OPS 3.456.)**]**. Low level overwater flights out of sight of land are only to be conducted under VFR when the cloud ceiling is greater than 600 ft by day and 1 200 ft by night.

(3) In Class G airspace, when flying between helidecks where the overwater sector is less than 10 nm, VFR flights are conducted in accordance with Appendix 2 to JAR-OPS 3.465; and

(4) **[**Special VFR flights comply with any State or Zone minima in force.**]**

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Appendix 1 to JAR-OPS 3.430 Heliport Operating Minima
(See IEM to Appendix 1 to JAR-OPS 3.430)

(a) *Take-off Minima*

(1) *General*

(i) Take-off minima established by the operator must be expressed as visibility or RVR limits, taking into account all relevant factors for each heliport planned to be used and the helicopter characteristics. Where there is a specific need to see and avoid obstacles on departure and/or for a forced landing, additional conditions (e.g. ceiling) must be specified.

(ii) The commander shall not commence take-off unless the weather conditions at the heliport of departure are equal to or better than applicable minima for landing at that heliport unless a suitable take-off alternate heliport is available.

(iii) When the reported meteorological visibility is below that required for take-off and RVR is not reported, a take-off may only be commenced if the commander can determine that the RVR/Visibility along the take-off FATO/runway is equal to or better than the required minimum.

(iv) When no reported meteorological visibility or RVR is available, a take-off may only be commenced if the commander can determine that the RVR/Visibility along the take-off FATO/runway is equal to or better than the required minimum.

(2) *Visual reference*.

(i) The take-off minima must be selected to ensure sufficient guidance to control the helicopter in the event of both a discontinued take-off in adverse circumstances and a continued take-off after failure of the critical power unit.

(ii) For night operations ground lighting must be available to illuminate the FATO/runway and any obstacles unless otherwise agreed by the Authority.

(3) *Required RVR/Visibility*

(i) For Performance Class 1 operations, an operator must establish an RVR and visibility respectively (RVR/VIS) as take-off minima in accordance with the following table [(See IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (a)(3)(i):]

[Table 1 - RVR/Visibility for take-off

Onshore heliports with IFR departure procedures	**RVR/Visibility**
No lighting and no markings (Day)	250m or the rejected take-off distance, whichever is greater
No markings (Night)	800m
Runway edge/FATO lighting and centre line marking	200m
Runway edge/FATO lighting, centre line marking and RVR information	150m
Offshore Helideck	
Two pilot operations	250m (1)
Single pilot operations	500m (1)

Note 1: The commander must establish that the take-off flight path is free of obstacles.]

(ii) For Performance Class 2 operations [onshore, the commander] must operate to take-off minima of 800 m RVR/VIS and remain clear of cloud during the take-off manoeuvre [ ] until reaching Performance Class 1 capabilities.

[(iii) For Performance Class 2 operations offshore, the commander must operate to minima not less that that for Class 1 and remain clear of cloud during the take-off manoeuvre until reaching Performance Class 1 capabilities. (See note 1 to Table 1 above.)]

(iv) Table 6 below, for converting reported meteorological visibility to RVR, must not be used for calculating take-off minima.

(b) *Non-Precision approach*

(1) *System minima*

(i) An operator must ensure that system minima for non-precision approach procedures, which are based upon the use of ILS without glidepath (LLZ only), VOR, NDB, SRA and VDF are not lower than the MDH values given in Table 2 below.

Appendix 1 to JAR-OPS 3.430 (continued)

Table 2 – System minima for non-precision approach aids

System minima	
Facility	**Lowest MDH**
ILS (no glide path – LLZ)	250 ft
SRA (terminating at ½ nm)	250 ft
SRA (terminating at 1 nm)	300 ft
SRA (terminating at 2 nm)	350 ft
VOR	300 ft
VOR/DME	250 ft
NDB	300 ft
VDF (QDM & QCH)	300 ft

(2) *Minimum Descent Height*. An operator must ensure that the minimum descent height for a non-precision approach is not lower than either:

(i) The OCH/OCL for the category of helicopter; or

(ii) The system minimum.

(3) *Visual Reference*. A pilot may not continue an approach below MDA/MDH unless at least one of the following visual references for the intended FATO/runway is distinctly visible and identifiable to the pilot:

(i) Elements of the approach light system;

(ii) The threshold;

(iii) The threshold markings;

(iv) The threshold lights;

(v) The threshold identification lights;

(vi) The visual glide slope indicator;

(vii) The touchdown zone or touchdown zone markings;

(viii) The touchdown zone lights;

(ix) FATO/Runway edge lights; or

(x) Other visual references accepted by the Authority.

(4) *Required RVR*. (See AMC OPS 3.430(b)(4).)

(i) For non-precision approaches by helicopters operated in Performance Class 1 or 2, the minima given in the following Table shall apply:

Appendix 1 to JAR-OPS 3.430 (continued)

Table 3 – Onshore non-precision approach minima

Onshore Non-Precision Approach Minima (5)(6)(7)				
MDH (ft)	**Facilities/RVR**			
	Full (1)	**Intermediate (2)**	**Basic (3)**	**Nil (4)**
250-299 ft	600 m	800 m	1 000 m	1 000 m
300-449 ft	800 m	1 000 m	1 000 m	1 000 m
450 ft and above	1 000 m	1 000 m	1 000 m	1 000 m

Note 1: Full facilities comprise FATO/runway markings, 720 m or more of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 2: Intermediate facilities comprise FATO/runway markings, 420 - 719 m of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 3: Basic facilities comprise FATO/runway markings, <420 m HI/MI approach lights, any length of LI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 4: Nil approach light facilities comprise FATO/runway markings, FATO/runway edge lights, threshold lights, FATO/runway end lights or no lights at all.

Note 5: The tables are only applicable to conventional approaches with a nominal descent slope of not greater than 4°. Greater descent slopes will usually require that visual glide slope guidance (e.g. PAPI) is also visible at the Minimum Descent Height.

Note 6: The above figures are either reported RVR or meteorological visibility converted to RVR as in sub-paragraph (h) below.

Note 7: The MDH mentioned in Table 3 refers to the initial calculation of MDH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, e.g. conversion to MDA.

(ii) Where the missed approach point is within ½ nm of the landing threshold, the approach minima given for full facilities may be used regardless of the length of approach lighting available. However, FATO/runway edge lights, threshold lights, end lights and FATO/runway markings are still required.

(iii) *Night operations*. For night operations ground lighting must be available to illuminate the FATO/runway and any obstacles unless otherwise agreed by the Authority.

[Appendix 1 to JAR-OPS 3.430 (continued)

(iv) *Single pilot operations*. For single pilot operations the minimum RVR is 800 m or the Table 3 minima whichever is higher.

(c) *Precision approach - Category I operations*

(1) *General*. A Category I operation is a precision instrument approach and landing using ILS, MLS or PAR with a decision height not lower than 200 ft and with a runway visual range not less than 500 m.

(2) *Decision Height*. An operator must ensure that the decision height to be used for a Category I precision approach is not lower than:

(i) The minimum decision height specified in the Helicopter Flight Manual (HFM) if stated;

(ii) The minimum height to which the precision approach aid can be used without the required visual reference;

(iii) The OCH/OCL for the category of helicopter; or

(iv) 200 ft.

(3) *Visual Reference*. A pilot may not continue an approach below the Category I decision height, determined in accordance with sub-paragraph (c)(2) above, unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) Elements of the approach light system;

(ii) The threshold;

(iii) The threshold markings;

(iv) The threshold lights;

(v) The threshold identification lights;

(vi) The visual glide slope indicator;

(vii) The touchdown zone or touchdown zone markings;

(viii) The touchdown zone lights; or

(ix) FATO/runway edge lights.

(4) *Required RVR*. For Category I operations by Performance Class 1 and 2 helicopters the following minima shall apply:

Appendix 1 to JAR-OPS 3.430 (continued)]

Table 4 - Onshore Precision Approach Minima - Category I

Onshore [ ] Precision Approach Minima Category I (5)(6)(7)				
DH (ft)	**Facilities/RVR**			
	Full (1)	**Intermediate (2)**	**Basic (3)**	**Nil (4)**
200 ft	500 m	600 m	700 m	1 000 m
201-250 ft	550 m	650 m	750 m	1 000 m
251-300 ft	600 m	700 m	800 m	1 000 m
301 ft & above	750 m	800 m	900 m	1 000 m

Note 1: Full facilities comprise FATO/runway markings, 720 m or more of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 2: Intermediate facilities comprise FATO/runway markings, 420 - 719 m of HI/MI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 3: Basic facilities comprise FATO/runway markings, <420 m of HI/MI approach lights, any length of LI approach lights, FATO/runway edge lights, threshold lights and FATO/runway end lights. Lights must be on.

Note 4: Nil approach light facilities comprise FATO/runway markings, FATO/runway edge lights, threshold lights, FATO/runway end lights or no lights at all.

Note 5: The above figures are either the reported RVR or meteorological visibility converted to RVR in accordance with paragraph (h).

Note 6: The Table is applicable to conventional approaches with a glide slope angle up to and including 4°.

Note 7: The DH mentioned in the Table 4 refers to the initial calculation of DH. When selecting the associated RVR, there is no need to take account of a rounding up to the nearest ten feet, which may be done for operational purposes, (e.g. conversion to DA).

(i) *Night operations*. For night operations ground lighting must be available to illuminate the FATO/runway and any obstacles unless otherwise agreed by the Authority.

(ii) *Single pilot operations*. For single pilot operations, an operator must calculate the minimum RVR for all approaches in accordance with JAR-OPS 3.430 and this Appendix. An RVR of less than 800 m is not permitted except when using a suitable autopilot coupled to an ILS or MLS, in which case normal minima apply. The Decision Height applied must not be less than 1·25 x the minimum use height for the autopilot.

Appendix 1 to JAR-OPS 3.430 (continued)

(d) *Onshore precision approach - Category II operations* (See IEM to JAR-OPS 3.430, sub-paragraph (d))

(1) *General*. A Category II operation is a precision instrument approach and landing using ILS or MLS with:

(i) A decision height below 200 ft but not lower than 100 ft; and

(ii) A runway visual range of not less than 300 m.

(2) *Decision Height*. An operator must ensure that the decision height for a Category II operation is not lower than:

(i) The minimum decision height specified in the HFM;

(ii) The minimum height to which the precision approach aid can be used without the required visual reference;

(iii) The OCH/OCL for the category of helicopter;

(iv) The decision height to which the flight crew is authorised to operate; or

(v) 100 ft.

(3) *Visual reference*. A pilot may not continue an approach below the Category II decision height determined in accordance with sub-paragraph (d)(2) above unless visual reference containing a segment of at least 3 consecutive lights being the centre line of the approach lights, or touchdown zone lights, or FATO/runway centre line lights, or FATO/runway edge lights, or a combination of these is attained and can be maintained. This visual reference must include a lateral element of the ground pattern, i.e. an approach lighting crossbar or the landing threshold or a barette of the touchdown zone lighting.

(4) *Required RVR*. For Category II approaches by performance class 1 helicopters the following minima shall apply:

Table 5 - RVR for Category II approach vs. DH

Onshore Precision Approach Minima – Category II	
Decision height	**Auto-coupled to below DH (1) RVR**
100 - 120 ft	300 m
121 - 140 ft	400 m
141 ft and above	450 m

Note 1: The reference to 'auto-coupled to below DH' in this table means continued use of the automatic flight control system down to a height which is not greater than 80% of the applicable DH. Thus airworthiness requirements may, through minimum engagement height for the automatic flight control system, affect the DH to be applied.

Appendix 1 to JAR-OPS 3.430 (continued)

(e) *Intentionally blank*

(f) *Onshore circling*

(1) Circling is the term used to describe the visual phase of an instrument approach, to bring an aircraft into position for landing on a FATO/runway which is not suitably located for a straight in approach.

(2) For circling the specified MDH shall not be less than 250 ft, and the meteorological visibility shall not be less than 800 m.

Note: Visual manoeuvring (circling) with prescribed tracks is an accepted procedure within the meaning of this paragraph.

(g) *Visual Approach*. An operator shall not use an RVR of less than 800 m for a visual approach.

(h) *Conversion of Reported Meteorological Visibility to RVR*

(1) An operator must ensure that a meteorological visibility to RVR conversion is not used for calculating take-off minima, Category II or III minima or when a reported RVR is available.

(2) When converting meteorological visibility to RVR in all other circumstances than those in sub-paragraph (h)(1) above, an operator must ensure that the following Table is used:

Table 6 - Conversion of visibility to RVR

Lighting elements in operation	RVR = met. visibility multiplied by:	
	Day	Night
Hi approach and runway lighting	1·5	2·0
Any type of lighting	1·0	1·5
No lighting	1·0	Not applicable

(i) *Airborne Radar Approach (ARA) for overwater operations* [(See IEM to Appendix 1 to JAR-OPS 3.430, sub-paragraph (i)]

(1) *General*

(i) An operator shall not conduct ARAs unless authorised by the Authority.

Appendix 1 to JAR-OPS 3.430 (continued)

(ii) Airborne Radar Approaches are only permitted to rigs or vessels under way when a multi-crew concept is used.

(iii) A commander shall not undertake an Airborne Radar Approach unless the radar can provide course guidance to ensure obstacle clearance.

(iv) Before commencing the final approach the commander shall ensure that a clear path exists on the radar screen for the final and missed approach segments. If lateral clearance from any obstacle will be less than 1.0 nm, the commander shall:

(A) Approach to a nearby target structure and thereafter proceed visually to the destination structure; or

(B) Make the approach from another direction leading to a circling manoeuvre.

(v) The Commander shall ensure that the cloud ceiling is sufficiently clear above the helideck to permit a safe landing.

(2) *Minimum Descent Height (MDH)*. Notwithstanding the minima at sub-paragraphs (i) and (ii) below, the MDH shall not be less than 50 ft above the elevation of the helideck.

(i) The MDH is determined from a radio altimeter. The MDH for an airborne radar approach shall not be lower than:

(A) 200 ft by day;

(B) 300 ft by night.

(ii) The MDH for an approach leading to a circling manoeuvre shall not be lower than:

(A) 300 ft by day;

(B) 500 ft by night.

(3) *Minimum descent altitude (MDA)*. An MDA may only be used if the radio altimeter is unserviceable. The MDA shall be a minimum of MDH +200 ft and shall be based on a calibrated barometer at the destination or on the lowest forecast QNH for the region.

(4) *Decision range*. The Decision Range shall not be less than 0·75 nm unless an operator has demonstrated to the Authority that a lesser Decision Range can be used at an acceptable level of safety.

Appendix 1 to JAR-OPS 3.430 (continued)

(5) *Visual reference*. No pilot may continue an approach beyond Decision Range or below MDH/MDA unless he is visual with the destination.

(6) *Single pilot operations*. The MDH/MDA for a single pilot ARA shall be 100 ft higher than that calculated using sub-paragraphs (2) and (3) above. The Decision Range shall not be less than 1·0 nm.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

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Appendix 1 to JAR-OPS 3.440
Low Visibility Operations - General Operating Rules

(a) *General*. The following procedures apply to the introduction and approval of low visibility operations.

(b) *Airborne Systems Operational Demonstration*. An operator must comply with the requirements prescribed in sub-paragraph (c) below when introducing a helicopter type which is new to the JAA into Category II or III service.

NOTE: For helicopter types already used for Category II or III operations in another JAA State, the in-service proving programme in paragraph (f) applies instead.

(1) *Operational reliability*. The Category II and III success rate must not be less than that required by JAR-AWO.

(2) *Criteria for a successful approach*. An approach is regarded as successful if:

(i) The criteria are as specified in JAR-AWO or its equivalent;

(ii) No relevant helicopter system failure occurs.

(c) *Data Collection during Airborne System Demonstration*. General

(1) An operator must establish a reporting system to enable checks and periodic reviews to be made during the operational evaluation period before the operator is authorised to conduct Category II or III operations. The reporting system must cover all successful and unsuccessful approaches, with reasons for the latter, and include a record of system component failures. This reporting system must be based upon flight crew reports and automatic recordings as prescribed in paragraphs (d) and (e) below.

(2) The recordings of approaches may be made during normal line flights or during other flights performed by the operator.

(d) *Data Collection during Airborne System Demonstration - Operations with DH not less than 50 ft.*

(1) For operations with DH not less than 50 ft, data must be recorded and evaluated by the operator and evaluated by the Authority when necessary.

(2) It is sufficient for the following data to be recorded by the flight crew:

(i) Heliport and runway used;

(ii) Weather conditions;

Appendix 1 to JAR-OPS 3.440 (continued)

(iii) Time;

(iv) Reason for failure leading to an aborted approach;

(v) Adequacy of speed control;

(vi) Trim at time of automatic flight control system disengagement;

(vii) Compatibility of automatic flight control system, flight director and raw data;

(viii) An indication of the position of the helicopter relative to the ILS centreline when descending through 30 m (100 ft); and

(ix) Touchdown position.

(3) The number of approaches, as approved by the Authority, made during the initial evaluation must be sufficient to demonstrate that the performance of the system in actual airline service is such that a 90% confidence and a 95% approach success will result.

(e) *Data Collection during Airborne System Demonstration - Operations with DH less than 50 ft or no DH*

(1) For operations with DH less than 50 ft or no DH, a flight data recorder, or other equipment giving the appropriate information, must be used in addition to the flight crew reports to confirm that the system performs as designed in actual airline service. The following data is required:

(i) Distribution of ILS deviations at 30 m (100 ft), at touchdown and, if appropriate, at disconnection of the roll-out control system and the maximum values of the deviations between those points; and

(ii) Sink rate at touchdown.

(2) Any landing irregularity must be fully investigated using all available data to determine its cause.

(f) *In-service proving*

Note: An operator fulfilling the requirements of sub-paragraph (b) above will be deemed to have satisfied the in-service proving requirements contained in this paragraph.

(1) The system must demonstrate reliability and performance in line operations consistent with the operational concepts. A sufficient number of successful landings, as determined by the Authority, must be accomplished in line operations, including

Appendix 1 to JAR-OPS 3.440 (continued)

training flights, using the autoland and roll-out system installed in each helicopter type.

(2) The demonstration must be accomplished using a Category II or Category III ILS. However, if the operator chooses to do so, demonstrations may be made on other ILS facilities if sufficient data is recorded to determine the cause of unsatisfactory performance.

(3) If an operator has different variants of the same type of helicopter utilising the same basic flight control and display systems, or different basic flight control and display systems on the same type of helicopter, the operator shall show that the variants comply with the basic system performance criteria, but the operator need not conduct a full operational demonstration for each variant.

(4) Where an operator introduces a helicopter type which has already been approved by the Authority of any JAA State for Category II and/or III operations a reduced proving programme may be approved.

(g) *Continuous Monitoring*

(1) After obtaining the initial authorisation, the operations must be continuously monitored by the operator to detect any undesirable trends before they become hazardous. Flight crew reports may be used to achieve this.

(2) The following information must be retained for a period of 12 months:

(i) The total number of approaches, by helicopter type, where the airborne Category II or III equipment was utilised to make satisfactory, actual or practice, approaches to the applicable Category II or III minima; and

(ii) Reports of unsatisfactory approaches and/or automatic landings, by heliport and helicopter registration, in the following categories:

(A) Airborne equipment faults;

(B) Ground facility difficulties;

(C) Missed approaches because of ATC instructions; or

(D) Other reasons.

(3) An operator must establish a procedure to monitor the performance of the automatic landing system of each helicopter.

(h) *Transitional periods*

Appendix 1 to JAR-OPS 3.440 (continued)

(1) *Operators with no previous Category II or III experience*

(i) An operator without previous Category II or III operational experience may be approved for Category II or IIIA operations, having gained a minimum experience of 6 months of Category I operations on the helicopter type.

(ii) On completing 6 months of Category II or IIIA operations on the helicopter type the operator may be approved for Category IIIB operations. When granting such an approval, the Authority may impose higher minima than the lowest applicable for an additional period. The increase in minima will normally only refer to RVR and/or a restriction against operations with no decision height and must be selected such that they will not require any change of the operational procedures.

(2) *Operators with previous Category II or III experience*. An operator with previous Category II or III experience may obtain authorisation for a reduced transition period by application to the Authority.

(i) *Maintenance of Category II, Category III and LVTO equipment*. Maintenance instructions for the on-board guidance systems must be established by the operator, in liaison with the manufacturer, and included in the operator' s helicopter maintenance programme prescribed in **[**Part-M – M.A.302 Maintenance Programme**]** which must be approved by the Authority.

[Amdt. 4, 01.12.06]

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Appendix 1 to JAR-OPS 3.450
Low Visibility Operations - Training & Qualifications

(a) *General*. An operator must ensure that flight crew member training programmes for Low Visibility Operations include structured courses of ground, flight simulator and/or flight training. The operator may abbreviate the course content as prescribed by sub-paragraphs (2) and (3) below provided the content of the abbreviated course is acceptable to the authority.

(1) Flight crew members with no Category II or Category III experience must complete the full training programme prescribed in sub-paragraphs (b), (c) and (d) below.

(2) Flight crew members with Category II or Category III experience with another JAA operator may undertake an abbreviated ground training course.

(3) Flight crew members with Category II or Category III experience with the operator may undertake an abbreviated ground, flight simulator and/or flight training course. The abbreviated course is to include at least the requirements of sub-paragraphs (d)(1), (d)(2)(i) or (d)(2)(ii) as appropriate and (d)(3)(i).

(b) *Ground Training*. An operator must ensure that the initial ground training course for Low Visibility Operations covers at least:

(1) The characteristics and limitations of the ILS and/or MLS;

(2) The characteristics of the visual aids;

(3) The characteristics of fog;

(4) The operational capabilities and limitations of the particular airborne system;

(5) The effects of precipitation, ice accretion, low level wind shear and turbulence;

(6) The effect of specific helicopter malfunctions;

(7) The use and limitations of RVR assessment systems;

(8) The principles of obstacle clearance requirements;

(9) Recognition of and action to be taken in the event of failure of ground equipment;

(10) The procedures and precautions to be followed with regard to surface movement during operations when the RVR is 400 m or

less and any additional procedures required for take-off in conditions below 150 m;

(11) The significance of decision heights based upon radio altimeters and the effect of terrain profile in the approach area on radio altimeter readings and on the automatic approach/landing systems;

(12) The importance and significance of Alert Height if applicable and the action in the event of any failure above and below the Alert Height;

(13) The qualification requirements for pilots to obtain and retain approval to conduct Low Visibility Take-offs and Category II or III operations; and

(14) The importance of correct seating and eye position.

(c) *Flight Simulator training and/or flight training*

(1) An operator must ensure that flight simulator and/or flight training for Low Visibility Operations includes:

(i) Checks of satisfactory functioning of equipment, both on the ground and in flight;

(ii) Effect on minima caused by changes in the status of ground installations;

(iii) Monitoring of automatic flight control systems and autoland status annunciators with emphasis on the action to be taken in the event of failures of such systems;

(iv) Actions to be taken in the event of failures such as engines, electrical systems, hydraulics or flight control systems;

(v) The effect of known unserviceabilities and use of minimum equipment lists;

(vi) Operating limitations resulting from airworthiness certification;

(vii) Guidance on the visual cues required at decision height together with information on maximum deviation allowed from glidepath or localiser; and

(viii) The importance and significance of Alert Height if applicable and the action in the event of any failure above and below the Alert Height.

Appendix 1 to JAR-OPS 3.450 (continued)

(2) An operator must ensure that each flight crew member is trained to carry out his duties and instructed on the coordination required with other crew members. Maximum use should be made of suitably equipped flight simulators for this purpose.

(3) Training must be divided into phases covering normal operation with no helicopter or equipment failures but including all weather conditions which may be encountered and detailed scenarios of helicopter and equipment failure which could affect Category II or III operations. If the helicopter system involves the use of hybrid or other special systems (such as head up displays or enhanced vision equipment) then flight crew members must practise the use of these systems in normal and abnormal modes during the flight simulator phase of training.

(4) Incapacitation procedures appropriate to Low Visibility Take-offs and Category II and III operations shall be practised.

(5) For helicopters with no type specific flight simulator, operators must ensure that the flight training phase specific to the visual scenarios of Category II operations is conducted in a flight simulator approved for that purpose by the Authority. Such training must include a minimum of 4 approaches. The training and procedures that are type specific shall be practised in the helicopter.

(6) Category II and III training shall include at least the following exercises:

(i) Approach using the appropriate flight guidance, autopilots and control systems installed in the helicopter, to the appropriate decision height and to include transition to visual flight and landing;

(ii) Approach with all engines operating using the appropriate flight guidance systems, autopilots and control systems installed in the helicopter down to the appropriate decision height followed by missed approach; all without external visual reference;

(iii) Where appropriate, approaches utilising automatic flight systems to provide automatic flare, hover, landing and roll-out; and

(iv) Normal operation of the applicable system both with and without acquisition of visual cues at decision height.

Appendix 1 to JAR-OPS 3.450 (continued)

(7) Subsequent phases of training must include at least:

(i) Approaches with engine failure at various stages on the approach;

(ii) Approaches with critical equipment failures (e.g. electrical systems, autoflight systems, ground and/or airborne ILS/MLS systems and status monitors);

(iii) Approaches where failures of autoflight equipment at low level require either;

(A) Reversion to manual flight to control flare, hover, landing and roll out or missed approach; or

(B) Reversion to manual flight or a downgraded automatic mode to control missed approaches from, at or below decision height including those which may result in a touchdown on the runway;

(iv) Failures of the systems which will result in excessive localiser and/or glideslope deviation, both above and below decision height, in the minimum visual conditions authorised for the operation. In addition, a continuation to a manual landing must be practised if a head-up display forms a downgraded mode of the automatic system or the head-up display forms the only flare mode; and

(v) Failures and procedures specific to helicopter type or variant.

(8) The training programme must provide practice in handling faults which require a reversion to higher minima.

(9) The training programme must include the handling of the helicopter when, during a fail passive Category III approach, the fault causes the autopilot to disconnect at or below decision height when the last reported RVR is 300 m or less.

(10) Where take-offs are conducted in RVRs of 400 m and below, training must be established to cover systems failures and engine failure resulting in continued as well as rejected take-offs.

Appendix 1 to JAR-OPS 3.450 (continued)

(d) *Conversion Training Requirements to conduct Low Visibility Take-off and Category II and III Operations*. An operator shall ensure that each flight crew member completes the following Low Visibility Procedures training if converting to a new type or variant of helicopter in which Low Visibility Take-off and Category II and III Operations will be conducted. The flight crew member experience requirements to undertake an abbreviated course are prescribed in sub-paragraphs (a)(2) and (a)(3), above;

(1) *Ground Training*. The appropriate requirements prescribed in sub-paragraph (b) above, taking into account the flight crew member' s Category II and Category III training and experience.

(2) *Simulator Training and/or Flight training.*

(i) A minimum of 8 approaches and/or landings in a flight simulator approved for the purpose.

(ii) Where no type-specific flight simulator is available, a minimum of 3 approaches including at least 1 go-around is required on the helicopter.

(iii) Appropriate additional training if any special equipment is required such as head-up displays or enhanced vision equipment.

(3) *Flight Crew Qualification*. The flight crew qualification requirements are specific to the operator and the type of helicopter operated.

(i) The operator must ensure that each flight crew member completes a check before conducting Category II or III operations.

(ii) The check prescribed in sub-paragraph (i) above may be replaced by successful completion of the flight simulator and/or flight training prescribed in sub-paragraph (d)(2) above.

(4) *Line Flying under Supervision*. An operator must ensure that each flight crew member undergoes the following line flying under supervision:

(i) For Category II when a manual landing is required, a minimum of 3 landings from autopilot disconnect;

(ii) For Category III, a minimum of 3 autolands except that only 1 autoland is required when the training required in sub-paragraph (d)(2) above has been carried out in a full flight simulator usable for zero flight time training.

Appendix 1 to JAR-OPS 3.450 (continued)

(e) *Type and command experience*. The following additional requirements are applicable to commanders who are new to the helicopter type:

(1) 50 hours or 20 sectors as pilot-in-command on the type before performing any Category II or Category III operation; and

(2) 100 hours or 40 sectors as pilot-in-command on the type. 100 m must be added to the applicable Category II or Category III RVR minima unless he has been previously qualified for Category II or III operations with a JAA operator.

(3) The Authority may authorise a reduction in the above command experience requirements for flight crew members who have Category II or Category III command experience.

(f) *Low Visibility Take-Off with RVR less than 150 m*

(1) An operator must ensure that prior to authorisation to conduct take-offs in RVRs below 150 m the following training is carried out:

(i) Normal take-off in minimum authorised RVR conditions;

(ii) Take-off in minimum authorised RVR conditions with an engine failure at or after TDP; and

(iii) Take-off in minimum authorised RVR conditions with an engine failure before the TDP.

(2) An operator must ensure that the training required by sub-paragraph (1) above is carried out in an approved flight simulator. This training must include the use of any special procedures and equipment. Where no approved flight simulator exists, the Authority may approve such training in a helicopter without the requirement for minimum RVR conditions. (See Appendix 1 to JAR-OPS 3.965.)

(3) An operator must ensure that a flight crew member has completed a check before conducting low visibility take-offs in RVRs of less than 150 m if applicable. The check may only be replaced by successful completion of the flight simulator and/or flight training prescribed in sub-paragraph (f)(1) on initial conversion to a helicopter type.

Appendix 1 to JAR-OPS 3.450 (continued)

(g) *Recurrent Training and Checking - Low Visibility Operations*

(1) An operator must ensure that, in conjunction with the normal recurrent training and operator proficiency checks, a pilot' s knowledge and ability to perform the tasks associated with the particular category of operation, including LVTO, for which he is authorised is checked. The required number of approaches to be conducted during such recurrent training is to be a minimum of two, one of which is to be a missed approach and at least one low visibility take off to the lowest applicable minima. The period of validity for this check is 6 months including the remainder of the month of issue.

(2) For Category III operations an operator must use a flight simulator approved for Category III training.

(3) An operator must ensure that, for Category III operations on helicopters with a fail passive flight control system, a missed approach is completed at least once every 18 months as the result of an autopilot failure at or below decision height when the last reported RVR was 300 m or less.

(4) The Authority may authorise recurrent training for Category II operations in a helicopter type where no approved flight simulator is available.

(h) *LVTO and Category II/III Recency Requirements*

(1) An operator must ensure that, in order for pilots to maintain a Category II and Category III qualification, they have conducted a minimum of 3 approaches and landings using approved Category II/III procedures during the previous six month period, at least one of which must be conducted in the helicopter.

(2) Recency for LVTO is maintained by retaining the Category II or III qualification prescribed in sub-paragraph (h)(1) above.

(3) An operator may not substitute this recency requirement for recurrent training.

[Ch. 1, 01.02.99]

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Appendix 1 to JAR-OPS 3.455
Low Visibility Operations - Operating procedures

(a) *General.* Low Visibility Operations include:

(1) Manual take-off (with or without electronic guidance systems);

(2) Auto-coupled approach to below DH, with manual flare, hover, landing and roll-out;

(3) Auto-coupled approach followed by auto-flare, hover, autolanding and manual roll-out; and

(4) Auto-coupled approach followed by auto-flare, hover, autolanding and auto-roll-out, when the applicable RVR is less than 400 m.

Note 1: A hybrid system may be used with any of these modes of operations.

Note 2: Other forms of guidance systems or displays may be certificated and approved.

(b) *Procedures and Operating Instructions*

(1) The precise nature and scope of procedures and instructions given depend upon the airborne equipment used and the flight deck procedures followed. An operator must clearly define flight crew member duties during take-off, approach, flare, hover, roll-out and missed approach in the Operations Manual. Particular emphasis must be placed on flight crew responsibilities during transition from non-visual conditions to visual conditions, and on the procedures to be used in deteriorating visibility or when failures occur. Special attention must be paid to the distribution of flight deck duties so as to ensure that the workload of the pilot making the decision to land or execute a missed approach enables him to devote himself to supervision and the decision making process.

(2) An operator must specify the detailed operating procedures and instructions in the Operations Manual. The instructions must be compatible with the limitations and mandatory procedures contained in the Helicopter Flight Manual and cover the following items in particular:

(i) Checks for the satisfactory functioning of the helicopter equipment, both before departure and in flight;

(ii) Effect on minima caused by changes in the status of the ground installations and airborne equipment;

Appendix 1 to JAR-OPS 3.455 (continued)

(iii) Procedures for the take-off, approach, flare, hover, landing, roll-out and missed approach;

(iv) Procedures to be followed in the event of failures, warnings and other non-normal situations;

(v) The minimum visual reference required;

(vi) The importance of correct seating and eye position;

(vii) Action which may be necessary arising from a deterioration of the visual reference;

(viii) Allocation of crew duties in the carrying out of the procedures according to sub-paragraphs (i) to (iv) and (vi) above, to allow the Commander to devote himself mainly to supervision and decision making;

(ix) The requirement for all height calls below 200 ft to be based on the radio altimeter and for one pilot to continue to monitor the helicopter instruments until the landing is completed;

(x) The requirement for the Localiser Sensitive Area to be protected;

(xi) The use of information relating to wind velocity, windshear, turbulence, runway contamination and use of multiple RVR assessments;

(xii) Procedures to be used for practice approaches and landing on runways at which the full Category II or Category III heliport procedures are not in force;

(xiii) Operating limitations resulting from airworthiness certification; and

(xiv) Information on the maximum deviation allowed from the ILS glide path and/or localiser.

Appendix 1 to JAR-OPS 3.465
Minimum Visibilities for VFR Operations
[

Airspace class	ABCDE	F	G
		Above 900 m (3 000 ft) AMSL or above 300 m (1 000 ft) above terrain, whichever is the higher	At and below 900 m (3 000 ft) AMSL or 300 m (1 000 ft) above terrain, whichever is the higher
Distance from cloud	1 500 m horizontally 300 m (1 000 ft) vertically		Clear of cloud and in sight of the surface
Flight visibility	8 km at and above 3 050 m (10 000 ft) AMSL (Note 1) 5 km below 3 050 m (10 000 ft) AMSL (Note 2)		5 km (Note 2)

]

Note 1: When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.

Note 2: Helicopters may be operated in flight visibility down to 1 500 m [by day], provided the appropriate ATS authority permits use of a flight visibility less than 5 km, and the circumstances are such, that the probability of encounters with other traffic is low, and the IAS is 140 kts or less. When so prescribed by the appropriate ATS Authority, helicopters may be permitted to operate down to a flight visibility of 800 m by day **[ ]**.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

Appendix 2 to JAR-OPS 3.465
Minima for flying between helidecks located in Class G airspace

	Day		Night	
	Height (Note 1)	**Visibility**	**Height (Note 1)**	**Visibility**
Single Pilot	300 ft	3 km	500 ft	5 km
Two Pilots	300 ft	2 km (Note 2)	500 ft	5 km (Note 3)

Note 1: The cloud base shall be such as to allow flight at the specified height below and clear of cloud

Note 2: Helicopters may be operated in flight visibility down to 800 m provided the destination or an intermediate structure are continuously visible.

Note 3: Helicopters may be operated in flight visibility down to 1 500 m provided the destination or an intermediate structure are continuously visible.

[Ch. 1, 01.02.99]

SUBPART F – PERFORMANCE GENERAL

JAR-OPS 3.470 Applicability

(a) An operator shall ensure that **[ ]**

[(1) helicopters operating to/from heliports located in a congested hostile environment: or

(2) helicopters which have a maximum approved passenger seating configuration (MAPSC) of more than 19;

are operated in accordance with JAR-OPS Part 3, Subpart G (Performance Class 1); except helicopters:

with a maximum approved passenger seating configuration (MAPSC) of more than 19 and operated to/from helidecks; which may be operated in accordance with JAR-OPS 3.517(a)

or

which have an operational approval in accordance with Appendix 1 to JAROPS 3.005(i)**]**

(b) Unless otherwise prescribed by sub-paragraph (a) above, an operator shall ensure that helicopters which have a maximum approved passenger seating configuration of 19 or less but more than 9 are operated in accordance with JAR-OPS Part 3, Subpart G or H (Performance Class 1 or 2);

(c) Unless otherwise prescribed by sub-paragraph (a) above, an operator shall ensure that helicopters which have a maximum approved passenger seating configuration of 9 or less, are operated in accordance with JAR-OPS Part 3, Subpart G, H or I (Performance Class 1, 2 or 3).

[Amdt. 5, 01.07.07]

JAR-OPS 3.475 General

(a) An operator shall ensure that the mass of the helicopter:

(1) At the start of the take-off;

or, in the event of in-flight replanning

(2) At the point from which the revised operational flight plan applies,

is not greater than the mass at which the requirements of the appropriate Subpart can be complied with for the flight to be undertaken, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is provided for in the particular requirement.

(b) An operator shall ensure that the approved performance data contained in the Helicopter Flight Manual is used to determine compliance with the

JAR-OPS 3.475 (continued)

requirements of the appropriate Subpart, supplemented as necessary with other data acceptable to the Authority as prescribed in the relevant Subpart. When applying the factors prescribed in the appropriate Subpart, account may be taken of any operational factors already incorporated in the Helicopter Flight Manual performance data to avoid double application of factors.

(c) When showing compliance with the requirements of the appropriate Subpart, due account shall be taken of **[**the following parameters:

(1) mass of the helicopter;

(2) helicopter configuration;

(3) environmental conditions, in particular:

(i) pressure-altitude, and temperature;

(ii) wind:

(A) for take-off, take-off flight path and landing requirements, accountability for wind shall be no more than 50% of any reported steady head wind component of 5 knots or more.

(B) Where take-off and landing with a tail wind component is permitted in the Helicopter Flight Manual, and in all cases for the take-off flight path, not less than 150% of any reported tail wind component shall be taken into account.

(C) Where precise wind measuring equipment enables accurate measurement of wind velocity over the point of take-off and landing, alternate wind components specific to a site may be approved by the Authority. (See ACJ OPS 3.475(c)(3)(ii));

(4) operating techniques; and

(5) operation of any system which have adverse effect on performance**]**

[Amdt. 5, 01.07.07]

[JAR-OPS 3.477 Obstacle accountability (See ACJ to Subpart H)

(a) For the purpose of obstacle clearance requirements, an obstacle, located beyond the FATO,

JAR-OPS 3.477(a) (continued)

in the take-off flight path or the missed approach flight path, shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than:

(1) For VFR operations:

(i) half of the minimum FATO (or the equivalent term used in the Flight Manual) width defined in the Helicopter Flight Manual (or, when no width is defined 0.75 D), plus 0.25 times D (or 3 m, whichever is greater), plus:

0.10 DR for VFR day operations

0.15 DR for VFR night operations

(2) For IFR operations:

(i) 1.5 D (or 30 m, whichever is greater), plus:

0.10 DR for IFR operations with accurate course guidance

0.15 DR for IFR operations with standard course guidance

0.30 DR for IFR operations without course guidance

(ii) when considering the missed approach flight path, the divergence of the obstacle accountability area only applies after the end of the takeoff distance available;

(iii) standard course guidance includes ADF and VOR guidance. Accurate course guidance include ILS, MLS or other course guidance providing an equivalent navigational accuracy.

(3) For operations with initial takeoff conducted visually and converted to IFR/IMC at a transition point, the criteria required in (1) apply up to the transition point then the criteria required in (2) apply after the transition point:

(i) the transition point cannot be located before the end of TODRH for helicopters operating in performance Class 1 and before the DPATO for helicopters operating in performance Class 2;

(b) For take-off using a backup (or a lateral transition) procedure; for the purpose of obstacle clearance requirements, an obstacle, located in the back-up (or lateral transition) area, shall be considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than:

(1) half of the minimum FATO (or the equivalent term used in the Flight Manual) width

JAR-OPS 3.477(b) (continued)

defined in the Helicopter Flight Manual (or, when no width is defined 0.75 D), plus 0.25 times D (or 3 m, whichever is greater), plus 0.10 for VFR day, or 0.15 for VFR night, of the distance travelled from the back of the FATO.

(see ACJ OPS 3.490(d))

(c) Obstacles may be disregarded if they are situated beyond:

(1) 7 R for day operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;

(2) 10 R for night operations if it is assured that navigational accuracy can be achieved by reference to suitable visual cues during the climb;

(3) 300 m if navigational accuracy can be achieved by appropriate navigation aids; and

(4) 900 m in the other cases.**]**

[Amdt. 5, 01.07.07]

JAR-OPS 3.480 Terminology

(a) Terms used in Subparts F, G, H, **[**and**]**I **[ ]** and not defined in JAR-1 have the following meaning:

(1) 'Category A' with respect to helicopters means multi-engine helicopters designed with engine and system isolation features specified in **[**CS**]**-27/29 or equivalent acceptable to the **[**Authority**]** and Helicopter Flight Manual performance information based on a critical engine failure concept which assures adequate designated surface area and adequate performance capability for continued safe flight in the event of an engine failure.

(2) 'Category B' with respect to helicopters means single-engine or multi-engine helicopters which do not fully meet all Category A standards. Category B helicopters have no guaranteed stay-up ability in the event of engine failure and unscheduled landing is assumed.

(3) *Committal Point* (CP). The committal point is defined as the point in the approach at which the pilot flying (PF) decides that, in the event of a power unit failure being recognised, the safest option is to continue to the deck.

(4) *Congested area*. In relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes (See also definitions of hostile and non-hostile environment).

JAR-OPS 3.480(a) (continued)

[(5) *D*. The largest dimension of the helicopter when the rotors are turning.]

([6]) *Defined point after take-off (DPATO)*. The point, within the take-off and initial climb phase, before which the helicopter's ability to continue the flight safely, with the critical power unit inoperative, is not assured and a forced landing may be required.

([7]) *Defined point before landing (DPBL)*. The point within the approach and landing phase, after which the helicopter's ability to continue the flight safely, with the critical power unit inoperative, is not assured and a forced landing may be required.

Note: Defined points apply to helicopters operated in Performance Class 2 only.

([8]) *Distance DR*. DR is the horizontal distance that the helicopter has travelled from the end of the take-off distance available.

([9]) *Elevated heliport*. A heliport which is at least 3 m above the surrounding surface.

([10]) *Exposure time*. The actual period during which the performance of the helicopter with the critical power unit inoperative in still air does not guarantee a safe forced landing or the safe continuation of the flight. (See also definition of maximum permitted exposure time).

([11]) *Helideck*. A heliport located on a floating or fixed off-shore structure.

([12]) *Heliport*. An aerodrome or a defined area of land, water or a structure used or
intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

([13]) *Hostile environment*:

(i) An environment in which:

(A) A safe forced landing cannot be accomplished because the surface is inadequate; or

(B) The helicopter occupants cannot be adequately protected from the elements; or

(C) Search and rescue response/capability is not provided consistent with anticipated exposure; or

JAR-OPS 3.480(a) (continued)

(D) There is an unacceptable risk of endangering persons or property on the ground;

(ii) In any case, the following areas shall be considered hostile:

(A) For overwater operations, the open sea areas North of 45N and South of 45S designated by the Authority of the State concerned; and

(B) Those parts of a congested area without adequate safe forced landing areas.

(See IEM OPS 3.480(a)(13))

([14]) *Landing decision point (LDP)*. The point used in determining landing performance from which, a power unit failure having been recognised at this point, the landing may be safely continued or a baulked landing initiated.

([15]) *Landing distance available* [*(LDAH)*]. The length of the final approach and take-off area plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.

([16]) *Landing distance required* [*(LDRH)*]. The horizontal distance required to land and come to a full stop from a point [15] m ([50] ft) above the landing surface.

([17]) *Maximum approved passenger seating configuration* [*(MAPSC)*]. The maximum passenger seating capacity of an individual helicopter, excluding crew seats, used by the operator, approved by the Authority and included in the Operations Manual.

([18]*) Maximum permitted exposure time*. A period, determined on the basis of the power unit failure rate recorded for the helicopter's engine type, during which the probability of a power unit failure can be discounted. (See also definition of exposure time).

([19]) *Non-hostile environment*.

(i) An environment in which:

(A) A safe forced landing can be accomplished; and

(B) The helicopter occupants can be protected from the elements; and

(C) Search and rescue response/capability is provided

JAR-OPS 3.480(a) (continued)

consistent with the anticipated exposure;

(ii) In any case, those parts of a congested area with adequate safe forced landing areas shall be considered non-hostile.

([20]) *Obstacle*. Obstacles include the surface of the earth, whether land or sea.

([21]) *Performance Class 1*. Performance Class 1 operations are those with performance such that, in the event of failure of the critical power unit, the helicopter is able to land within the rejected take-off distance available or safely continue the flight to an appropriate landing area, depending on when the failure occur.

([22]) *Performance Class 2*. Performance Class 2 operations are those operations such that, in the event of critical power unit failure, performance is available to enable the helicopter to safely continue the flight, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required.

([23]) *Performance Class 3*. Performance Class 3 operations are those operations such that, in the event of a power unit failure at any time during the flight, a forced landing may be required in a multi-engined helicopter but will be required in a single engine helicopter.

[(24) *Rejected take-off distance available (RTODAH)*. The length of the final approach and take-off area declared available and suitable for helicopters operated in Performance Class 1 to complete a rejected take-off.]

([25]) *Rejected take-off distance required* [*(RTODRH)*]. The horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following a power unit failure and rejection of the take-off at the take-off decision point.

([26]) *Reported headwind component.* Reported headwind component is interpreted as being that reported at the time of flight planning and may be used provided there is no significant change of unfactored wind prior to take-off.

([27]) *Rotation Point* (RP). The rotation point is defined as the point at which

JAR-OPS 3.480(a) (continued)

a cyclic input is made to initiate a nose-down attitude change during the take-off flight path. It is the last point in the take-off path from which, in the event of an engine failure being recognised, a forced landing on the deck can be achieved.

([28]) *R*. Rotor radius.

([29]) *Safe forced landing*. Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

([30]) *Take-off decision point (TDP)*. The point used in determining take-off performance from which, a power unit failure having been recognised at this point, either a rejected take-off may be made or a take-off safely continued.

([31]) *Take-off distance available*. *[TODAH]* The length of the final approach and take-off area plus the length of helicopter clearway (if provided) declared available and suitable for helicopters to complete the take-off.

([32]) *Take-off distance required* [*(TODRH)*]. The horizontal distance required from the start of the take-off to the point at which V_{TOSS}, a [selected] height [ ] and a positive climb gradient are achieved, following failure of the critical power unit [being recognised] at TDP, the remaining power units within approved operating limits. [The selected height is to be determined with the use of Helicopter Flight Manual data, and is to be at least 10.7 m (35 ft) above:

(i) the take-off surface; or

(ii) as an alternative, a level defined by the highest obstacle in the take-off distance required.]

[(33) Take-off flight path. The vertical and horizontal path, with the critical power-unit inoperative, from a specified point in the take-off to 1000 ft above the surface.]

([34]) *Take-off mass*. The take-off mass of the helicopter shall be taken to be its mass, including everything and everyone carried at the commencement of the take-off.

([35]) *Touchdown and lift-off area (TLOF)*. A load bearing area on which a helicopter may touch down or lift off.

([36]) *Vy*. Best rate of climb speed.

[ ]

[Amdt. 5, 01.07.07]

SUBPART G – PERFORMANCE CLASS 1

JAR–OPS 3.485 General

An operator shall ensure that helicopters operated in Performance Class 1 are certificated in Category A. [(see ACJ OPS 3.480(a)(1) and (a)(2)).]

[Amdt. 5, 01.07.07]

JAR-OPS 3.490 Take-off

(a) An operator shall ensure that:

(1) The take-off mass does not exceed the maximum take-off mass specified in the Helicopter Flight Manual [, for the procedure to be used (see ACJ OPS 3.490 & 3.510).]

(2) [T]he take-off mass is such that:

[(i) it is possible to reject the takeoff and land on the FATO in case of the critical power-unit failure being recognised at or before the TDP;

([ii]) The rejected take-off distance required does not exceed the rejected take-off distance available; and

([iii]) The take-off distance required does not exceed the take-off distance available

[(iv) As an alternative, the requirement in JAR-OPS 3.490(a)(2)(iii) above may be disregarded provided that the helicopter, with the critical powerunit failure recognised at TDP can, when continuing the take-off, clear all obstacles to the end of the take-off distance required by a vertical margin of not less than 10.7 m (35 ft) (see ACJ OPS 3.480(a)(31));]

[ ]

(b) When showing compliance with sub-paragraph (a) above, account shall be taken of the [appropriate parameters of JAR-OPS 3.475(c)] at the heliport of departure:

[ ]

(c) The part of the take-off up to and including TDP shall be conducted in sight of the surface such that a rejected take-off can be carried out.

[(d) For take-off using a backup (lateral transition) procedure, the operator shall ensure that, with the critical power-unit inoperative, all obstacles in the back-up (lateral transition) area are cleared by an adequate margin (see ACJ OPS 3.490(d))]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.495 Take-off Flight Path

(a) [An operator shall ensure that, from the end of the take-off distance required with the critical power unit failure recognised at the TDP:

(1) The take-off mass is such that the take-off flight path provides a vertical clearance of not less than 10.7 m (35 ft) for VFR operations and 10.7 m (35 ft) + 0.01 DR for IFR operations above all obstacles located in the climb path. Only obstacles as specified in JAR-OPS 3.477 have to be considered.

(2) Where a change of direction of more than 15° is made, adequate allowance is made for the effect of bank angle on the ability to comply with the obstacle clearance requirements. This turn is not to be initiated before reaching a height of 61 m (200 ft) above the take-off surface unless permitted as part of an approved procedure in the Flight Manual.

(b) When showing compliance with sub-paragraph (a) above, account shall be taken of the appropriate parameters of JAR-OPS 3.475(c) at the heliport of departure.]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.500 En-route – critical power unit inoperative

(a) An operator shall ensure that [t]he en-route flight path with the critical power unit inoperative, appropriate to the meteorological conditions expected for the flight complies with either sub-paragraph [(1),] (2) or (3) below at all points along the route.

([1]) When it is intended that the flight will be conducted at any time out of sight of the surface, the mass of the helicopter permits a rate of climb of at least 50 ft/minute with the critical power unit inoperative at an altitude of at least 300 m (1 000 ft) 600 m (2 000 ft) in areas of mountainous terrain, above all [terrain and obstacles along the route within 9.3 km (5 nm) on either side of the intended track.]

[(2) When it is intended that the flight will be conducted without the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with JAR-OPS 3.510. The flight path clears vertically, by at least 300 m (1000 ft), 600 m (2000 ft) in areas of mountainous terrain, all

JAR-OPS 3.500(a) (continued)

terrain and obstacles along the route within 9.3 km (5 nm) on either side of the intended track. Drift-down techniques may be used.]

(3) [When it is intended that the flight will be conducted in VMC with the surface in sight, the flight path permits the helicopter to continue flight from the cruising altitude to a height of 300 m (1000 ft) above a landing site where a landing can be made in accordance with JAR-OPS 3.510, without flying at any time below the appropriate minimum flight altitude, obstacles within 900m on either side of the route need to be considered.

(b) When showing compliance with paragraph (a)(2) or (a)(3) above, an operator shall ensure that:

(1) The critical power unit is assumed to fail at the most critical point along the route]

([2]) Account is taken of the effects of winds on the flight path.

([3]) Fuel jettisoning is planned to take place only to an extent consistent with reaching the heliport with the required fuel reserves and using a safe procedure (See ACJ OPS 3.500[(b)(3)]).

([4]) Fuel jettisoning is not planned below 1000 ft above terrain.

[ ]

[(c) The width margins of subparagraphs (a)(1) and (a)(2) above shall be increased to 18.5 km (10 nm) if the navigational accuracy cannot be met for 95% of the total flying time (see JAR-OPS 3.240, 3.243 and 3.250.]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.505 *Intentionally blank*

JAR-OPS 3.510 Landing

(a) An operator shall ensure that:

(1) The landing mass of the helicopter at the estimated time of landing does not exceed the maximum mass specified in the Helicopter Flight Manual[, for the procedure to be used (see ACJ OPS 3.490 & 3.510).]

[(2) in the event of the critical powerunit failure being recognised at any point at or before the LDP, it is possible either to land and stop within the FATO, or to perform a balked landing and clear all obstacles in the flight path by a vertical margin of 10.7 m (35 ft) (see ACJ OPS

JAR-OPS 3.510(a) (continued)

3.480(a)(32)). Only obstacles as specified in JAR-OPS 3.477 have to be considered;

(3) in the event of the critical power-unit failure being recognised at any point at or after the LDP, it is possible to clear all obstacles in the approach path; and

(4) in the event of the critical power-unit failure being recognised at any point at or after the LDP, it is possible to land and stop within the FATO.

(b) When showing compliance with sub-paragraph (a) above, account shall be taken of the appropriate parameters of JAR-OPS 3.475(c) for the estimated time of landing at the destination heliport, or any alternate if required.]

(c) That part of the landing from the LDP to touchdown, shall be conducted in sight of the surface.

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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SUBPART H – PERFORMANCE CLASS 2

JAR-OPS 3.515 General

(a) An operator shall ensure that [ ] helicopters operated in Performance Class 2 are certificated in Category A [see also ACJ to JAR-OPS 3.480(a)(1) and (a)(2))].

[ ]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.517 [Operations Without an Assured Safe Forced Landing Capability

(a) An operator shall be satisfied that operations without an assured safe forced landing capability during the take-off and landing phases are not conducted unless the operator has been granted the relevant approval by the Authority in accordance with Appendix 1 to JAR-OPS 3.517(a). (See also JAR-OPS 3.470(a)(1).)]

[ ]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.520 Take-off [(See ACJ to Subpart H)] (See IEM-OPS 3.520 & 3.535)

(a) An operator shall [be satisfied] that:

(1) The take-off mass does not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1 000 ft) above the level of the heliport with the critical power unit inoperative and the remaining power units operating at an appropriate power rating.

(2) [For operations other than specified in JAR-OPS 3.517(a), the takeoff is conducted such that a safe forced landing can be executed until the point where safe continuation of the flight is possible (see ACJ to Subpart H paragraph 6.2).

(3) For operations in accordance with JAR-OPS 3.517(a) in addition to the requirements of (a)(1) above:

(i) The take-off mass does not exceed the maximum mass specified in the Helicopter Flight Manual for an AEO OGE hover in still air with all power units operating at an appropriate power rating.

(ii) For operations to/from a helideck:

JAR-OPS 3.520(a)(3) (continued)

(A) with a helicopter that has a maximum approved passenger seating configuration (MAPSC) of more than 19; and

(B) from 1st January 2010 any helicopter operated to/from a helideck located in a noncongested hostile environment as defined in JAR-OPS 3.480(13)(ii)(A)

the take-off mass takes into account: the procedure; deck-edge miss; and drop down appropriate to the height of the helideck - with the critical power unit(s) inoperative and the remaining power units operating at an appropriate power rating.

(b) When showing compliance with sub-paragraph (a) above, account shall be taken of the appropriate parameters of JAR-OPS 3.475(c) at the heliport of departure.

(c) The part of the take-off before the requirement of JAR-OPS 3.525 is met shall be conducted in sight of the surface.]

[ ]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.525 Take-off Flight Path [(See ACJ to Subpart H)]

(a) [An operator shall be satisfied that from DPATO or, as an alternative, no later than 200 ft above the take-off surface, with the critical power-unit inoperative the requirements of JAR-OPS 3.495(a)(1), (2) and (b) are met.]

[ ]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.530 En-route - Critical power unit inoperative

(a) An operator shall ensure that [the requirement of JAR-OPS 3.500 is met.]

[ ]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.535 Landing
(See IEM OPS 3.520 & 3.535)
[(See ACJ to Subpart H)]

(a) An operator shall [be satisfied] that:

(1) The landing mass at the estimated time of landing does not exceed the maximum mass specified for a rate of climb of 150 ft/min at 300 m (1000 ft) above the level of the heliport with the critical power unit inoperative and the remaining power units operating at an appropriate power [rating.]

(2) [If the critical power unit fails at any point in the approach path:

(i) a balked landing can be carried out meeting the requirement of JAROPS 3.525; or

(ii) for operations other than specified in JAR-OPS 3.517(a) the helicopter can perform a safe-forced-landing.

(3) For operations in accordance with JAR-OPS 3.517(a) in addition to the requirements of (a)(1) above:

(i) The landing mass does not exceed the maximum mass specified in the Helicopter Flight Manual for an AEO OGE hover in still air with all power units operating at an appropriate power rating.

(ii) For operations to/from a helideck:

(A) with a helicopter that has a maximum approved passenger seating configuration (MAPSC) of more than 19; and

(B) from 1st January 2010 any helicopters operated to/from a helideck located in a non-congested hostile environment as defined in JAR-OPS 3.480(13)(ii)(A)

the landing mass takes into account the procedure, and drop down appropriate to the height of the helideck - with the critical power unit inoperative and the remaining power unit(s) operating at an appropriate power rating.

(b) When showing compliance with sub-paragraph (a) above, account shall be taken of the appropriate parameters of JAR-OPS 3.475(c) at the destination heliport or any alternate, if required.

JAR-OPS 3.535 (continued)

(c) The part of the landing after which the requirement of JAR-OPS 3.525 cannot be met shall be conducted in sight of the surface.]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

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Appendix 1 to JAR-OPS 3.517(a)
Helicopter operations [without an assured safe forced landing capability]

[(See JAR-OPS 3.517(a))**]**
[(See ACJ-1 to Appendix 1 to JAR-OPS 3.517(a))**]**
[(See ACJ-2 to Appendix 1 to JAR-OPS 3.517(a))**]**

(a) *Approval:*

(1) **[**Following a risk assessment, an operator may be authorised to conduct operations without an assured safe forced landing capability during the take-off and landing phases, under an approval specifying:**]**

(i) The type of helicopter; and

(ii) The type of operations.

(2) Such an approval will be subject to the following conditions:

(i) **[**A set of conditions to be implemented by the operator to obtain and maintain the approval for the helicopter type;

(ii) Implementation of a Usage Monitoring System**]**

[ ]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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SUBPART I – PERFORMANCE CLASS 3

JAR-OPS 3.540 General

(a) An operator shall ensure that:

(1) Helicopters operated in Performance Class 3 are certificated in either Category A or B [(see also ACJ OPS 3.480(a)(1) and (a)(2))].

(2) Operations are only conducted from/to those heliports and over such routes, areas and diversions contained in a non-hostile environment, except [for the take-off and landing phase as provided in (b) below].

[ ]

[(b) An operator may conduct operations to/from a heliport located outside a congested hostile environment, without an assured safe forced landing capability during the take-off and landing phases (see ACJ OPS 3.540(b)):

(1) during take-off; before reaching Vy or 200 ft above the take-off surface; or

(2) during landing; below 200 ft above the landing surface;

provided the operator has been granted a relevant approval by the Authority in accordance with Appendix 1 to JAR-OPS 3.517(a).

(c) An operator shall ensure that operations are not conducted:

(1) out of sight of the surface;

(2) at night;

(3) when the ceiling is less than 600 ft; or

(4) when the visibility is less than 800m.]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.545 Take-off

An operator shall ensure that:

(a) The take-off mass does not exceed the maximum take-off mass specified for a hover in ground effect with all power units operating at take-off power. If conditions are such that a hover in ground effect is not likely to be established, the take-off mass shall not exceed the maximum take-off mass specified for a hover out of ground effect with all power units operating at take-off power.

JAR-OPS 3.545 (continued)

([b]) in the event of a power unit failure, the helicopter is able to perform a safe forced landing, except when operated in accordance with the alleviation contained in sub-paragraph 3.540([b])[ ].

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.550 En-route

An operator shall ensure that:

(a) The helicopter is able, with all power units operating within the maximum continuous power conditions specified, to continue along its intended route or to a planned diversion without flying at any point below the appropriate minimum flight altitude; and

(b) in the event of a power unit failure, the helicopter is able to perform a safe forced landing [ ].

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.555 Landing

An operator shall ensure that:

(a) The landing mass of the helicopter at the estimated time of landing does not exceed the maximum landing mass specified for a hover in ground effect, with all power units operating at take-off power. If conditions are such that a hover in ground effect is not likely to be established, the landing mass shall not exceed the maximum landing mass specified for a hover out of ground effect with all power units operating at take-off power.

([b]) in the event of a power unit failure, the helicopter is able to perform a safe forced landing, except when operated in accordance with the alleviation contained in sub-paragraph 3.540(a)(2) or 3.540([b])[ ].

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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SUBPART J– MASS AND BALANCE

JAR-OPS 3.605 General
(See Appendix 1 to JAR-OPS 3.605)

(a) An operator shall ensure that during any phase of operation, the loading, mass and centre of gravity of the helicopter complies with the limitations specified in the approved Helicopter Flight Manual, or the Operations Manual if more restrictive.

(b) An operator must establish the mass and the centre of gravity of any helicopter by actual weighing prior to initial entry into service and thereafter at intervals of 4 years. The accumulated effects of modifications and repairs on the mass and balance must be accounted for and properly documented. Furthermore, helicopters must be reweighed if the effect of modifications on the mass and balance is not accurately known.

(c) An operator must determine the mass of all operating items and crew members included in the helicopter dry operating mass by weighing or by using standard masses. The influence of their position on the helicopter centre of gravity must be determined.

(d) An operator must establish the mass of the traffic load, including any ballast, by actual weighing or determine the mass of the traffic load in accordance with standard passenger and baggage masses as specified in JAR-OPS 3.620.

(e) An operator must determine the mass of the fuel load by using the actual density or, if not known, the density calculated in accordance with a method specified in the Operations Manual. (See IEM OPS 3.605(e).)

JAR-OPS 3.607 Terminology

(a) *Dry Operating Mass*. The total mass of the helicopter ready for a specific type of operation excluding all usable fuel and traffic load.

(b) *Maximum Take-Off Mass*. The maximum permissible total helicopter mass at take-off.

(c) *Traffic Load*. The total mass of passengers, baggage and cargo, including any non-revenue load.

(d) *Passenger classification.*

(1) Adults, male and female, are defined as persons of an age of 12 years and above.

(2) Children are defined as persons of an age of two years and above but who are less than 12 years of age.

(3) Infants are defined as persons who are less than 2 years of age.

JAR-OPS 3.610 Loading, mass and balance

An operator shall specify, in the Operations Manual, the principles and methods involved in the loading and in the mass and balance system that meet the requirements of JAR-OPS 3.605. This system must cover all types of intended operations.

JAR-OPS 3.615 Mass values for crew

(a) An operator shall use the following mass values to determine the dry operating mass:

(1) Actual masses including any crew baggage; or

(2) Standard masses, including hand baggage, of 85 kg for crew members and; or

(3) Other standard masses acceptable to the Authority.

(b) An operator must correct the dry operating mass to account for any additional baggage. The position of this additional baggage must be accounted for when establishing the centre of gravity of the helicopter.

JAR-OPS 3.620 Mass values for passengers and baggage

(a) An operator shall compute the mass of passengers and checked baggage using either the actual weighed mass of each person and the actual weighed mass of baggage or the standard mass values specified in Tables 1 to 3 below except where the number of passenger seats available is less than 6. In the case of such exceptions, passenger mass may be established by use of a verbal statement by, or on behalf of, each passenger and adding to it a pre-determined constant to account for hand baggage and clothing (See AMC OPS 3.620(a)). The procedure specifying when to select actual or standard masses and the procedure to be followed when using verbal statements must be included in the Operations Manual.

(b) If determining the actual mass by weighing, an operator must ensure that passengers' personal belongings and hand baggage are included. Such weighing must be conducted immediately prior to boarding and at an adjacent location.

(c) If determining the mass of passengers using standard mass values, the standard mass values in Tables 1, 2 and 3 below which include the mass of any infant below 2 years of age carried by an adult on one passenger seat, must be used. Infants occupying separate passenger seats must be considered as children for the purpose of this sub-paragraph.

(d) Where the total number of passenger seats available on a helicopter is 20 or more, the standard masses of male and female in Table 1 are applicable. As an alternative, in cases where the total number of passenger seats available is 30 or more, the 'All Adult' mass values in Table 1 are applicable.

Table 1

Passenger seats:	**20 and more**		**30 and more All adult**
	Male	**Female**	
All flights	82 kg	64 kg	78 kg
Children	35 kg	35 kg	35 kg
Hand baggage (where applicable)	6 kg		
Survival suit (where applicable)	3 kg		

(e) Where the total number of passenger seats available on a helicopter is 10 - 19 inclusive the standard masses in Table 2 are applicable.

Table 2

Passenger seats:	**10-19**	
	Male	**Female**
All flights	86 kg	68 kg
Children	35 kg	35 kg
Hand baggage (where applicable)	6 kg	
Survival suit (where applicable)	3 kg	

(f) Where the number of passenger seats available is 1 - 5 inclusive or 6 - 9 inclusive, the standard masses in Table 3 are applicable.

Table 3

Passenger seats:	**1–5**	**6–9**
Male	98 kg	90 kg
Female	80 kg	72 kg
Children	35 kg	35 kg
Hand baggage (where applicable)	6 kg	
Survival suit where applicable)	3 kg	

(g) Where the total number of passenger seats available on the helicopter is 20 or more the standard mass value for each piece of checked baggage is 13 kg. For helicopters with 19 passenger seats or less the actual mass of checked baggage, determined by weighing, must be used.

(h) If an operator wishes to use standard mass values other than those contained in Tables 1 to 3 above, he must advise the Authority of his reasons and gain its approval in advance. He must also submit for approval a detailed weighing survey plan and apply the statistical analysis method given in Appendix 1 to JAR-OPS 3.620(h). After verification and approval by the Authority of the results of the weighing survey, the revised standard mass values are only applicable to that operator. The revised standard mass values can only be used in circumstances consistent with those under which the survey was conducted. Where revised standard masses exceed those in Tables 13, then such higher values must be used. (See IEM OPS 3.620(h).)

(i) On any flight identified as carrying a significant number of passengers whose masses, including hand baggage, are expected to exceed the standard passenger mass, an operator must determine the actual mass of such passengers by weighing or by adding an adequate mass increment. (See IEM OPS 3.620(i) & (j).)

(j) If standard mass values for checked baggage are used and a significant number of passengers check in baggage that is expected to exceed the standard baggage mass, an operator must determine the actual mass of such baggage by weighing or by adding an adequate mass increment. (See IEM OPS 3.620(i) & (j).)

(k) An operator shall ensure that a commander is advised when a non-standard method has been used for determining the mass of the load and that this method is stated in the mass and balance documentation.

JAR-OPS 3.625 Mass and balance documentation
(See Appendix 1 to JAR-OPS 3.625)

(a) An operator shall establish mass and balance documentation prior to each flight specifying the load and its distribution. The mass and balance documentation must enable the commander to determine that the load and its distribution is such that the mass and balance limits of the helicopter are not exceeded. The person preparing the mass and balance documentation must be named on the document. The person supervising the loading of the helicopter must confirm by signature that the load and its distribution are in accordance with the mass and balance documentation. This document must be acceptable to the commander, his acceptance being indicated by countersignature or equivalent. (See also JAR-OPS 3.1055(a)(12).)

(b) An operator must specify procedures for Last Minute Changes to the load.

(c) Subject to the approval of the Authority, an operator may use an alternative to the procedures required by paragraphs (a) and (b) above.

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Appendix 1 to JAR-OPS 3.605
Mass and Balance - General
(See JAR-OPS 3.605)

(a) *Determination of the dry operating mass of a helicopter*

(1) *Weighing of a helicopter*

(i) New helicopters are normally weighed at the factory and are eligible to be placed into operation without reweighing if the mass and balance records have been adjusted for alterations or modifications to the helicopter. Helicopters transferred from one JAA operator with an approved mass control programme to another JAA operator with an approved programme need not be weighed prior to use by the receiving operator unless more than 4 years have elapsed since the last weighing.

(ii) The individual mass and centre of gravity (CG) position of each helicopter shall be re-established periodically. The maximum interval between two weighings must be defined by the operator and must meet the requirements of JAR-OPS 3.605(b). In addition, the mass and the CG of each helicopter shall be re-established either by:

(A) Weighing; or

(B) Calculation, if the operator is able to provide the necessary justification to prove the validity of the method of calculation chosen,

whenever the cumulative changes to the dry operating mass exceed ± 0·5% of the maximum landing mass.

(2) *Weighing procedure*

(i) The weighing must be accomplished either by the manufacturer or by an approved maintenance organisation.

(ii) Normal precautions must be taken consistent with good practices such as:

(A) Checking for completeness of the helicopter and equipment;

(B) Determining that fluids are properly accounted for;

(C) Ensuring that the helicopter is clean; and

(D) Ensuring that weighing is accomplished in an enclosed building.

(iii) Any equipment used for weighing must be properly calibrated, zeroed, and used in accordance with the manufacturer's instructions. Each scale must be calibrated either by the manufacturer, by a civil department of weights and measures or by an appropriately authorised organisation within 2 years or within a time period defined by the manufacturer of the weighing equipment, whichever is less. The equipment must enable the mass of the helicopter to be established accurately (See IEM to Appendix 1 to JAR-OPS 3.605, sub-paragraph (a)(2)(iii)).

(b) *Special standard masses for the traffic load*. In addition to standard masses for passengers and checked baggage, an operator can submit for approval to the Authority standard masses for other load items.

(c) *Helicopter loading*

(1) An operator must ensure that the loading of its helicopters is performed under the supervision of qualified personnel.

(2) An operator must ensure that the loading of the freight is consistent with the data used for the calculation of the helicopter mass and balance.

(3) An operator must comply with additional structural limits such as the floor strength limitations, the maximum load per running metre, the maximum mass per cargo compartment, and/or the maximum seating limits.

(4) The operator must take account of in-flight changes in loading (e.g. CAT hoist operations).

(d) *Centre of gravity limits*

(1) *Operational CG envelope*. Unless seat allocation is applied and the effects of the number of passengers per seat row, of cargo in individual cargo compartments and of fuel in individual tanks is accounted for accurately in the balance calculation, operational margins must be applied to the certificated centre of gravity envelope. In determining the CG margins, possible deviations from the assumed load distribution must be considered. If free

seating is applied, the operator must introduce procedures to ensure corrective action by flight or cabin crew if extreme longitudinal seat selection occurs. The CG margins and associated operational procedures, including assumptions with regard to passenger seating, must be acceptable to the Authority. (See IEM to Appendix 1 to JAR-OPS 3.605, sub-paragraph (d).)

(2) *In-flight centre of gravity*. Further to sub-paragraph (d)(1) above, the operator must show that the procedures fully account for the extreme variation in CG travel during flight caused by passenger/crew movement and fuel consumption/transfer.

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Appendix 1 to JAR-OPS 3.620(h)
Procedure for establishing revised standard mass values for passengers and baggage
(See IEM to Appendix 1 to JAR-OPS 3.620(h))

(a) *Passengers*

(1) *Weight sampling method*. The average mass of passengers and their hand baggage must be determined by weighing, taking random samples. The selection of random samples must by nature and extent be representative of the passenger volume, considering the type of operation, the frequency of flights on various routes, in/outbound flights, applicable season and seat capacity of the helicopter.

(2) *Sample size*. The survey plan must cover the weighing of at least the greatest of:

(i) A number of passengers calculated from a pilot sample, using normal statistical procedures and based on a relative confidence range (accuracy) of 1% for all adult and 2% for separate male and female average masses (the statistical procedure, complemented with a worked example for determining the minimum required sample size and the average mass, is included in IEM OPS 3.620(h)); and

(ii) For helicopters:

(A) With a passenger seating capacity of 40 or more, a total of 2000 passengers; or

(B) With a passenger seating capacity of less than 40, a total number of 50 x (the passenger seating capacity).

(3) *Passenger masses.* Passenger masses must include the mass of the passengers' belongings which are carried when entering the helicopter. When taking random samples of passenger masses, infants shall be weighed together with the accompanying adult (See also JAR-OPS 3.607(d) and JAR-OPS 3.620(c), (d) and (e)).

(4) *Weighing location*. The location for the weighing of passengers shall be selected as close as possible to the helicopter, at a point where a change in the passenger mass by disposing of or by acquiring more personal belongings is unlikely to occur before the passengers board the helicopter.

(5) *Weighing machine*. The weighing machine to be used for passenger weighing shall have a capacity of at least 150 kg. The mass shall be displayed at minimum graduations of 500 g. The weighing machine must be accurate to within 0·5% or 200 g whichever is the greater.

(6) *Recording of mass values*. For each flight the mass of the passengers, the corresponding passenger category (i.e. male/female/children) and the flight number must be recorded.

(b) *Checked baggage*. The statistical procedure for determining revised standard baggage mass values based on average baggage masses of the minimum required sample size is basically the same as for passengers and as specified in sub-paragraph (a)(1) (see also IEM OPS 3.620(h)). For baggage, the relative confidence range (accuracy) amounts to 1%. A minimum of 2000 pieces of checked baggage must be weighed.

(c) *Determination of revised standard mass values for passengers and checked baggage*

(1) To ensure that, in preference to the use of actual masses determined by weighing, the use of revised standard mass values for passengers and checked baggage does not adversely affect operational safety, a statistical analysis (see IEM OPS 3.620(h)) must be carried out. Such an analysis will generate average mass values for passengers and baggage as well as other data.

(2) On helicopters with 20 or more passenger seats, these averages apply as revised standard male and female mass values.

(3) On smaller helicopters, the following increments must be added to the average passenger mass to obtain the revised standard mass values:

Number of passenger seats	**Required mass increment**
1 – 5 incl.	16 kg
6 – 9 incl.	8 kg
10 – 19 incl.	4 kg

Alternatively, all adult revised standard (average) mass values may be applied on helicopters with 30 or more passenger seats. Revised standard (average) checked baggage mass values are applicable to helicopters with 20 or more passenger seats.

(4) Operators have the option to submit a detailed survey plan to the Authority for

approval and subsequently a deviation from the revised standard mass value provided this deviating value is determined by use of the procedure explained in this Appendix. Such deviations must be reviewed at intervals not exceeding 5 years. (See AMC to Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (c)(4).)

(5) All adult revised standard mass values must be based on a male/female ratio of 80/20 in respect of all flights. If an operator wishes to obtain approval for use of a different ratio on specific routes or flights then data must be submitted to the Authority showing that the alternative male/female ratio is conservative and covers at least 84% of the actual male/female ratios on a sample of at least 100 representative flights.

(6) The average mass values found are rounded to the nearest whole number in kg. Checked baggage mass values are rounded to the nearest 0·5 kg figure, as appropriate.

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Appendix 1 to JAR-OPS 3.625
Mass and Balance Documentation
(See JAR-OPS 3.625)
(See IEM to Appendix 1 to JAR-OPS 3.625)

(a) *Mass and balance documentation*

(1) *Contents*

(i) The mass and balance documentation must contain the following information:

(A) The helicopter registration and type;

(B) The flight identification number and date;

(C) The identity of the Commander;

(D) The identity of the person who prepared the document;

(E) The dry operating mass and the corresponding CG of the helicopter;

(F) The mass of the fuel at take-off and the mass of trip fuel;

(G) The mass of consumables other than fuel;

(H) The components of the load including passengers, baggage, freight and ballast;

(**[**I**]**) The Take-off Mass, Landing Mass **[ ]**;

(J) The load distribution;

(K) The applicable helicopter CG positions; and

(L) The limiting mass and CG values.

(ii) Subject to the approval of the Authority, an operator may omit some of this Data from the mass and balance documentation.

(2) *Last Minute Change*. If any last minute change occurs after the completion of the mass and balance documentation, this must be brought to the attention of the commander and the last minute change must be entered on the mass and balance documentation. The maximum allowed change in the number of passengers or hold load acceptable as a last minute change must be specified in the Operations Manual. If this number is exceeded, new mass and balance documentation must be prepared.

(b) *Computerised systems*. Where mass and balance documentation is generated by a computerised mass and balance system, the operator must verify the integrity of the output data. He must establish a system to check that amendments of his input data are incorporated properly in the system and that the system is operating correctly on a continuous basis by verifying the output data at intervals not exceeding 6 months.

(c) *On-board mass and balance systems*. An operator must obtain the approval of the Authority if he wishes to use an on-board mass and balance computer system as a primary source for despatch.

(d) *Datalink*. When mass and balance documentation is sent to helicopters via datalink, a copy of the final mass and balance documentation as accepted by the commander must be available on the ground.

[Amdt. 5, 01.07.07]

SUBPART K – INSTRUMENTS AND EQUIPMENT

JAR-OPS 3.630 General introduction
(See IEM OPS 3.630)

(a) An operator shall ensure that a flight does not commence unless the instruments and equipment required under this Subpart are:

(1) Approved, except as specified in sub-paragraph (c), and installed in accordance with the requirements applicable to them, including the minimum performance standard and the operational and airworthiness requirements; and

(2) In operable condition for the kind of operation being conducted except as provided in the MEL (JAR-OPS 3.030 refers).

(b) Instruments and equipment minimum performance standards are those prescribed in the applicable Joint Technical Standard Orders (JTSO) as listed in JAR-TSO, unless different performance standards are prescribed in the operational or airworthiness codes. Instruments and equipment complying with design and performance specifications other than JTSO on the date of JAR-OPS implementation may remain in service, or be installed, unless additional requirements are prescribed in this Subpart. Instruments and equipment that have already been approved do not need to comply with a revised JTSO or a revised specification, other than JTSO, unless a retroactive requirement is prescribed.

(c) The following items shall not be required to have an equipment approval:

(1) Electric torches referred to in JAR-OPS 3.640(a)(4);

(2) An accurate time piece referred to in JAR-OPS 3.650(b) & 3.652(b);

(3) Chart holder referred to in JAR-OPS 3.652(n).

(4) First aid kits referred to in JAR-OPS 3.745;

(5) Megaphones referred to in JAR-OPS 3.810;

(6) Survival and pyrotechnic signalling equipment referred to in JAR-OPS 3.835(a) and (c); and

(7) Sea anchors and equipment for mooring, anchoring or manoeuvring amphibians on water referred to in JAR-OPS 3.840.

(d) If equipment is to be used by one flight crew member at his station during flight, it must

JAR-OPS 3.630(d) (continued)

be readily operable from his station. When a single item of equipment is required to be operated by more than one flight crew member it must be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.

(e) Those instruments that are used by any one flight crew member shall be so arranged as to permit the flight crew member to see the indications readily from his station, with the minimum practicable deviation from the position and line of vision which he normally assumes when looking forward along the flight path. Whenever a single instrument is required in a helicopter operated by more than 1 flight crew member it must be installed so that the instrument is visible from each applicable flight crew station.

JAR-OPS 3.635 *Intentionally blank*

JAR-OPS 3.640 Helicopter operating lights

An operator shall not operate a helicopter unless it is equipped with:

(a) For flight by day under VFR:

(1) Anti-collision light system;

(b) For flight under IFR or by night, in addition to equipment specified in subparagraph (a) above:

(1) Lighting supplied from the helicopter's electrical system to provide adequate illumination for all instruments and equipment essential to the safe operation of the helicopter; and

(2) Lighting supplied from the helicopter's electrical system to provide illumination in all passenger compartments; and

(3) An electric torch for each required crew member readily accessible to crew members when seated at their designated station; and

(4) Navigation/position lights; and

(5) Two landing lights of which at least one is adjustable in flight so as to illuminate the ground in front of and below the helicopter and the ground on either side of the helicopter; and

JAR-OPS 3.640(b) (continued)

(6) Lights to conform with the International regulations for preventing collisions at sea if the helicopter is amphibious.

[Amdt. 2, 01.01.02]

JAR-OPS 3.645 *Intentionally blank*

JAR-OPS 3.647 Equipment for operations requiring a radio communication and/or radio navigation system
(See IEM OPS 3.647)

Whenever a radio communication and/or radio navigation system is required, an operator shall not conduct operations unless the helicopter is equipped with a headset with boom microphone or equivalent and a transmit button on the flight controls for each required pilot and/or crew member at his working station.

[Ch. 1, 01.02.99]

JAR-OPS 3.650 Day VFR operations – Flight and navigational instruments and associated equipment
(See AMC OPS 3.650/3.652)
(See **[**ACJ**]** OPS 3.650/3.652)

An operator shall not operate a helicopter by day in accordance with Visual Flight Rules (VFR) unless it is equipped with the flight and navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:

(a) A magnetic **[**direction indicator**]**;

(b) An accurate time-piece showing the time in hours, minutes, and seconds;

(c) A sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight;

(d) An airspeed indicator calibrated in knots;

(e) A vertical speed indicator;

(f) A slip indicator;

(g) A means of indicating in the flight crew compartment the outside air temperature calibrated in degrees Celcius (see AMC OPS 3.650(g) & 3.652(k).)

JAR-OPS 3.650(g) (continued)

(h) Whenever two pilots are required the second pilot's station shall have separate instruments as follows:

(1) A sensitive pressure altimeter calibrated in feet with a sub-scale setting calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight;

(2) An airspeed indicator calibrated in knots;

(3) A vertical speed indicator; and

(4) A slip indicator.

(i) In addition to the flight and navigational equipment required by sub-paragraphs (a) to (h) above, helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg or any helicopter **[ ]** operating over water **[**when**]** out of sight of land or when the visibility is less than 1 500 m, must be equipped with the following flight instruments:

(1) An attitude indicator; and

(2) A **[**gyroscopic direction indicator.**]**

(j) Whenever duplicate instruments are required, the requirement embraces separate displays for each pilot and separate selectors or other associated equipment where appropriate;

(k) All helicopters must be equipped with means for indicating when power is not adequately supplied to the required flight instruments; and

(l) Each airspeed indicating system must be equipped with a heated pitot tube or equivalent means for preventing malfunction due to either condensation or icing for helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg or having a maximum approved passenger seating configuration (MAPSC) of more than 9.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.652 IFR or night operations – Flight and navigational instruments and associated equipment
(See AMC OPS 3.650/3.652)
(See **[**ACJ**]** OPS 3.650/3.652)

An operator shall not operate a helicopter in accordance with Instrument Flight Rules (IFR) or by night in accordance with Visual Flight Rules (VFR) unless it is equipped with the flight and

JAR-OPS 3.652 (continued)

navigational instruments and associated equipment and, where applicable, under the conditions stated in the following sub-paragraphs:

(a) A magnetic [direction indicator];

(b) An accurate time-piece showing the time in hours, minutes and seconds;

(c) Two sensitive pressure altimeters calibrated in feet, with sub-scale settings calibrated in hectopascals/millibars, adjustable for any barometric pressure likely to be set during flight. For single pilot night VFR operations one pressure altimeter may be substituted by a radio altimeter.

(d) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including [an annunciation] of pitot heater failure. The pitot heater failure [annunciation] requirement does not apply to those helicopters with a maximum approved passenger seating configuration (MAPSC) of 9 or less or a maximum certificated take-off mass (MCTOM) of 3 175 kg or less and issued with an individual Certificate of Airworthiness prior to 1 August 1999 (see AMC OPS 3.652(d) & (m)(2));

(e) A vertical speed indicator;

(f) A slip indicator;

(g) An attitude indicator;

(h) A single standby attitude indicator (artificial horizon) capable of being used from either pilot's station that:

(1) Provides reliable operation for a minimum of 30 minutes or the time required to fly to a suitable alternate landing site when operating over hostile terrain or offshore, whichever is the greater, after total failure of the normal electrical generating system, taking into account other loads on the emergency power supply and operational procedures;

(2) Operates independently of any other attitude indicating system;

(3) Is operative automatically after total failure of the normal electrical generating system; and

(4) Is appropriately illuminated during all phases of operation;

(i) In complying with sub-paragraph (h) above, it must be clearly evident to the flight crew when the standby attitude indicator, required by that paragraph, is being operated by emergency power. Where the standby attitude indicator has its own dedicated power supply there shall be an

JAR-OPS 3.652(i) (continued)

associated indication clearly visible when this supply is in use.

(j) A [gyroscopic direction indicator for VFR night and a magnetic gyroscopic direction indicator for IFR.]

(k) A means of indicating in the flight crew compartment the outside air temperature calibrated in degrees Celsius (see AMC OPS 3.650(g) and 3.652(k)); and

(l) An alternate source of static pressure for the altimeter and the airspeed and vertical speed indicators; and

(m) Whenever two pilots are required the second pilot's station shall have separate instruments as follows:

(1) A sensitive pressure altimeter calibrated in feet with a sub-scale setting, calibrated in hectopascals/millibars, adjustable for any barometric pressure setting likely to be encountered during flight which may be one of the two altimeters required by sub-paragraph (c) above;

(2) An airspeed indicating system with heated pitot tube or equivalent means for preventing malfunctioning due to either condensation or icing including [an annunciation] of pitot heater failure. The pitot heater failure [annunciation] requirement does not apply to those helicopters with a maximum approved passenger seating configuration (MAPSC) of 9 or less or a maximum certificated take-off mass (MCTOM) of 3 175 kg or less and issued with an individual Certificate of Airworthiness prior to 1 August 1999 (see AMC OPS 3.652(d) and (m)(2));

(3) A vertical speed indicator;

(4) A slip indicator;

(5) An attitude indicator; and

(6) A [gyroscopic direction indicator for VFR night and a magnetic gyroscopic direction indicator for IFR.]

(n) For IFR operations, a chart holder in an easily readable position which can be illuminated for night operations.

(o) Whenever duplicate instruments are required, the requirement embraces separate displays for each pilot and separate selectors or other associated equipment where appropriate; and

(p) All helicopters must be equipped with means for indicating when power is not

JAR-OPS 3.652 (continued)

adequately supplied to the required flight instruments.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.655 Additional equipment for single pilot operation under IFR
(See AMC OPS 3.655)

An operator shall not conduct single pilot IFR operations unless the helicopter is equipped with an autopilot with, at least, altitude hold and heading mode, except for helicopters with a maximum approved passenger seating configuration (MAPSC) of 6 or less first certificated in a JAA Member State for single pilot IMC operations on or before 1 January 1979 and which are in service in a JAA Member State on 1 August 1999. Such helicopters may continue to be operated until 31 December 2004 provided the operator has been granted a relevant approval by the Authority.

[Amdt. 2, 01.01.02]

JAR-OPS 3.660 Radio Altimeters

(a) An operator shall not operate a helicopter on a flight over water;

(1) when operating out of sight of the land; or

(2) when the visibility is less than 1 500 m; or

(3) at night; or

(4) at a distance from land corresponding to more than 3 minutes at normal cruising speed,

unless that helicopter is equipped with a radio altimeter with an audio voice warning, or other means acceptable to the Authority, operating below a preset height and a visual warning capable of operating at a height selectable by the pilot.

[Amdt. 2, 01.01.02]

JAR-OPS 3.665 *Intentionally blank*

JAR-OPS 3.670 Airborne Weather Radar Equipment

An operator shall not operate a helicopter with a maximum approved passenger seating configuration (MAPSC) of more than 9 under IFR or at night when current weather reports indicate that thunderstorms or other potentially hazardous weather conditions, regarded as detectable with airborne weather radar, may reasonably be expected along the route to be flown unless it is equipped with airborne weather radar equipment.

[Amdt. 2, 01.01.02]

JAR-OPS 3.675 Equipment for operations in icing conditions

(a) An operator shall not operate a helicopter in expected or actual icing conditions unless it is certificated and equipped to operate in icing conditions.

(b) An operator shall not operate a helicopter in expected or actual icing conditions at night unless it is equipped with a means to illuminate or detect the formation of ice. Any illumination that is used must be of a type that will not cause glare or reflection that would handicap crew members in the performance of their duties.

JAR-OPS 3.680 *Intentionally blank*

JAR-OPS 3.685 Flight crew interphone system

An operator shall not operate a helicopter on which a flight crew of more than one is required unless it is equipped with a flight crew interphone system, including headsets and microphones, not of a handheld type, for use by all members of the flight crew.

JAR-OPS 3.690 Crew member interphone system

(a) An operator shall not operate a helicopter carrying a crew member other than a flight crew member unless it is equipped with a crew member interphone system.

(b) The crew member interphone system required by this paragraph must:

(1) Operate independently of the public address system except for handsets, headsets,

JAR-OPS 3.690(b) (continued)

microphones, selector switches and signalling devices;

(2) Provide a means of two-way communication between the flight crew compartment and each crew member station;

(3) Be readily accessible for use from each of the required flight crew stations in the flight crew compartment;

and in addition for cabin crew members:

(4) Be readily accessible for use at required cabin crew stations close to each separate or pair of floor level emergency exits;

(5) Have an alerting system incorporating aural or visual signals for use by flight crew members to alert the cabin crew and for use by cabin crew members to alert the flight crew; and

(6) Have a means for the recipient of a call to determine whether it is a normal call or an emergency call (See AMC OPS 3.690(b)(6)).

[Amdt. 2, 01.01.02]

JAR-OPS 3.695 Public address system

(a) [Except as in (c) below,] an operator shall not operate a helicopter with a maximum approved passenger seating configuration [(MAPSC)] of more than 9 unless a public address system is installed.

(b) The public address system required by this paragraph must:

(1) Operate independently of the interphone systems except for handsets, headsets, microphones, selector switches and signalling devices;

(2) Be readily accessible for immediate use from each required flight crew member station;

(3) Be readily accessible for use from at least one cabin crew member station in the cabin, and each public address system microphone intended for cabin crew use must be positioned adjacent to a cabin crew member seat that is located near each required floor level emergency exit in the passenger compartment;

(4) Be capable of operation within 10 seconds by a cabin crew member at each of those stations in the compartment from which its use is accessible;

JAR-OPS 3.695(b) (continued)

(5) Be audible and intelligible at all passenger seats, toilets and cabin crew seats and work stations; and

(6) Following a total failure of the normal electrical generating system, provide reliable operation for a minimum of 10 minutes.

[(c) For helicopters with a maximum approved passenger seating configuration (MAPSC) of more than 9 but less than 19, the Public Address System is not required if:

(1) the helicopter is designed without a bulkhead between pilot and passengers; and

(2) the operator is able to demonstrate that when in flight, the pilot's voice is audible and intelligible at all passengers seats.]

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.700 Cockpit voice recorders-1
(See [ACJ-]OPS 3.700)

(a) An operator shall not operate a helicopter first issued with an individual Certificate of Airworthiness, [ ] on or after 1 August 1999, which has a maximum certificated take-off mass (MCTOM) over 3 175 kg unless it is equipped with a cockpit voice recorder which, with reference to a time scale, records:

(1) Voice communications transmitted from or received by the [ ] crew by radio;

(2) The aural environment of the cockpit including, without interruption, the audio signals received from each [ ] crew microphone in use;

(3) Voice communications of [ ] crew members [ ] using the [crew members] interphone system;

(4) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker; and

(5) Voice communications of [ ] crew members [ ] using the public address system, where practicable.

(b) The cockpit voice recorder shall be capable of retaining information recorded during at least the last hour of its operation except that, for those helicopters with a maximum certificated take-off mass of 7 000 kg or less, this period may be reduced to 30 minutes.

JAR-OPS 3.700 (continued)

(c) The cockpit voice recorder must start automatically to record prior to the helicopter moving under its own power and continue to record until the termination of the flight when the helicopter is no longer capable of moving under its own power. In addition, depending on the availability of electrical power, the cockpit voice recorder must start to record as early as possible during the cockpit checks prior to engine start at the beginning of the flight until the cockpit checks immediately following engine shutdown at the end of the flight.

(d) The cockpit voice recorder must have a device to assist in locating that recorder in water.

(e) In complying with this section, the cockpit voice recorder may be combined with the flight data recorder. **[**(See ACJ OPS 3.700(e))**]**

[ ]

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.705 Cockpit voice recorders-2
(See ACJ OPS 3.705)

[(a) An operator shall not operate a helicopter which has either:

a maximum certificated take-off mass (MCTOM) of over 3175 kg, but not more than 7000 kg, and first issued with an individual Certificate of Airworthiness between 1 January 1987 and 31 July 1999 inclusive, or

a MCTOM of over 7000 kg and first issued with an individual Certificate of Airworthiness up to and including 31 July 1999;

unless these are equipped with a cockpit voice recorder which records with reference to a timescale:**]**

(1) Voice communications transmitted from or received by the crew by radio;

(2) The aural environment of the cockpit, including where practicable, without interruption, the audio signals received from each crew microphone in use;

(3) Voice communications of crew members using the crew member's interphone system;

(4) Voice or audio signals identifying navigation or approach aids introduced into a headset or speaker;

(5) Voice communications of crew members using the public address system, where practicable; and

JAR-OPS 3.705 (continued)

(6) For a helicopter not equipped with a flight data recorder, the parameters necessary to determine main rotor speed.

(b) The cockpit voice recorder shall be capable of retaining information recorded during at least the last 30 minutes of its operation.

(c) The cockpit voice recorder must start to record prior to the helicopter moving under its own power and continue to record until the termination of the flight when the helicopter is no longer capable of moving under its own power.

(d) The cockpit voice recorder must have a device to assist in locating that recorder in water.

(e) In complying with this section, the cockpit voice recorder may be combined with the flight data recorder. See ACJ OPS 3.700(e)

(f) Helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg but not more than 7 000 kg operated for the purpose of HEMS on or before **[**31 July 1999**]**, may continue to be operated for the purpose of HEMS without being equipped with a cockpit voice recorder until 31 December 2010, if acceptable to the Authority.

[Amdt. 2, 01.01.02; Amdt. 3, 01.04.04; Amdt 4, 01.12.06]

JAR-OPS 3.710 *Intentionally blank*

JAR-OPS 3.715 Flight data recorders-1
[(See Appendix 1 to JAR-OPS 3.715/3.720)**]**
(See **[**ACJ**]**-OPS 3.715/3.720)

(a) An operator shall not operate any helicopter first issued with an individual Certificate of Airworthiness **[ ]** on or after 1 August 1999 which has a maximum certificated take-off mass (MCTOM) over 3 175 kg unless it is equipped with a flight data recorder that uses a digital method of recording and storing data and a method of readily retrieving that data from the storage medium is available.

(b) The flight data recorder shall be capable of retaining the data recorded during at least the last 8 hours of its operation.

(c) The flight data recorder must, with reference to a timescale, record:

(1) **[**For helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg but not over 7 000 kg**]** the parameters **[**listed in Table A of Appendix 1;**]**

JAR-OPS 3.715(c) (continued)

(2) For [ ] helicopters with a maximum certificated take-off mass over 7 000 kg, the [parameters listed in Table B of Appendix 1,] [except that, if acceptable to the Authority, parameter 19 need not be recorded, when any of the following conditions are met:

(i) The sensor is not readily available,

(ii) A change is required in the equipment that generates the data;]

(3) For all helicopters, the flight data recorder must record any dedicated parameters relating to novel or unique design or operational characteristics of the helicopter[; and]

[(4) For helicopters equipped with electronic display systems, the parameters listed in Table C of Appendix 1.]

(d) Data must be obtained from [helicopter] sources which enable accurate correlation with information displayed to the flight crew.

(e) The flight data recorder must start automatically to record the data prior to the helicopter being capable of moving under its own power and must stop automatically after the helicopter is incapable of moving under its own power.

(f) The flight data recorder must have a device to assist in locating that recorder in water.

(g) In complying with this section, the flight data recorder may be combined with the cockpit voice recorder [(See ACJ OPS 3.700(e))].

[ ]

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.720 Flight data recorders-2 [(See Appendix 1 to JAR-OPS 3.715/3/720)] (See [ACJ-]OPS 3.715/3.720)

(a) [An operator shall not operate any helicopter first issued with an individual Certificate of Airworthiness on or after 1 January 1989, up to and including 31 July 1999, which has a maximum certificated take-off mass (MCTOM) over 7 000 kg or a maximum approved passenger seating configuration (MAPSC) of more than 9, unless it is equipped with a flight data recorder that uses a digital method of recording and storing data and a method of readily retrieving that data from the storage medium.

JAR-OPS 3.720(a) (continued)

For helicopters not equipped with a flight data recorder on or before 31 July 1999 compliance with this requirement may be delayed until 1 January 2005.]

(b) The flight data recorder shall be capable of retaining the data recorded during at least the last 5 hours of its operation.

(c) The flight data recorder must record with reference to a timescale:

(1) [For helicopters with a maximum certificated take-off mass (MCTOM) of 7 000 kg or less and with a maximum approved passenger seating configuration (MAPSC) of more than 9 the parameters listed in Table A of Appendix 1]

(2) For [ ] helicopters with a maximum certificated take-off mass (MCTOM) over 7 000 kg [the parameters listed in Table B of Appendix 1, except that, if acceptable to the Authority, parameter 19 need not be recorded, when any of the following conditions are met:

(i) The sensor is not readily available,

(ii) A change is required in the equipment that generates the data.]

(3) For all helicopters, the flight data recorder must record any dedicated parameters relating to novel or unique design or operational characteristics of the helicopter[; and]

[(4) For helicopters equipped with electronic display systems, the parameters listed in Table C of Appendix 1.

(d) Individual parameters that can be derived by calculation from the other recorded parameters, need not be recorded if acceptable to the Authority.]

([e]) Data must be obtained from aircraft sources which enable accurate correlation with information displayed to the flight crew.

([f]) The flight data recorder must start automatically to record the data prior to the helicopter being capable of moving under its own power and must stop automatically after the helicopter is incapable of moving under its own power.

([g]) The flight data recorder must have a device to assist in locating that recorder in water.

([h]) In complying with this section, the flight data recorder may be combined with the cockpit voice recorder. [(See ACJ OPS 3.700(e)).]

[ ]

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.725 *Intentionally blank*

JAR-OPS 3.730 Seats, seat safety belts, harnesses and child restraint devices

(a) An operator shall not operate a helicopter unless it is equipped with:

(1) A seat or berth for each person who is aged two years or more;

(2) For helicopters first issued with an individual Certificate of Airworthiness, either in a JAA member state or elsewhere up to and including 31 July 1999 a safety belt, with or without a diagonal shoulder strap, or a safety harness for use in each passenger seat for each passenger aged two years or more;

(3) For helicopters first issued with an individual Certificate of Airworthiness, either in a JAA member state or elsewhere on or after 1 August 1999, a safety belt, with a diagonal shoulder strap, or a safety harness for use in each passenger seat for each passenger aged 2 years or more;

(4) A restraint device for each passenger less than 2 years of age;

(5) A safety harness for each flight crew seat incorporating a device which will automatically restrain the occupant's torso in the event of rapid deceleration; and

(6) A safety harness for each cabin crew member's seat.

Note: This requirement does not preclude use of passenger seats by cabin crew members carried in excess of the required cabin crew complement.

(7) Seats for cabin crew members located, where possible, near a floor level emergency exit. If the number of required cabin crew members exceeds the number of floor level emergency exits the additional cabin crew seats required shall be located such that the cabin crew member(s) may best be able to assist passengers in the event of an emergency evacuation. Such seats shall be forward or rearward facing within 15° of the longitudinal axis of the helicopter.

(b) All safety harnesses and safety belts must have a single point release. A safety belt with a diagonal shoulder strap is permitted if it is not reasonably practicable to fit the latter.

JAR-OPS 3.731 Fasten Seat belt and No-Smoking signs

An operator shall not operate a helicopter in which all passenger seats are not visible from the commander's seat, or from the seat of the pilot to whom the conduct of the flight may be delegated, unless it is equipped with a means of indicating to all passengers and cabin crew when seat belts shall be fastened and when smoking is not allowed.

[Ch. 1, 01.02.99]

JAR-OPS 3.735 *Intentionally blank*

JAR-OPS 3.740 *Intentionally blank*

JAR-OPS 3.745 First-Aid Kits
(See AMC OPS 3.745)

(a) An operator shall not operate a helicopter unless it is equipped with a first-aid kit, readily accessible for use.

(b) An operator shall ensure that first-aid kits are:

(1) Inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and

(2) Replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

JAR-OPS 3.750 *Intentionally blank*

JAR-OPS 3.755 *Intentionally blank*

JAR-OPS 3.760 *Intentionally blank*

JAR-OPS 3.765 *Intentionally blank*

JAR-OPS 3.770 *Intentionally blank*

JAR-OPS 3.775 Supplemental oxygen-Non-pressurised helicopters
(See Appendix 1 to JAR-OPS 3.775)

(a) *General*

(1) An operator shall not operate a non-pressurised helicopter at pressure altitudes above 10 000 ft unless supplemental oxygen equipment, capable of storing and dispensing the oxygen supplies required, is provided.

(2) The amount of supplemental oxygen for sustenance required for a particular operation shall be determined on the basis of flight altitudes and flight duration, consistent with the operating procedures established for each operation in the Operations Manual and with the routes to be flown, and with the emergency procedures specified in the Operations Manual.

(3) A helicopter intended to be operated above 10 000 ft pressure altitude shall be provided with equipment capable of storing and dispensing the oxygen supplies required.

(b) *Oxygen supply requirements*

(1) *Flight crew members*. Each member of the flight crew on duty in the cockpit shall be supplied with supplemental oxygen in accordance with Appendix 1. If all occupants of cockpit seats are supplied from the flight crew source of oxygen supply then they shall be considered as flight crew members on cockpit duty for the purpose of oxygen supply.

(2) *Cabin crew members, additional crew members and passengers*. Cabin crew members and passengers shall be supplied with oxygen in accordance with Appendix 1. Cabin crew members carried in addition to the minimum number of cabin crew members required, and additional crew members, shall be considered as passengers for the purpose of oxygen supply.

JAR-OPS 3.780 *Intentionally blank*

JAR-OPS 3.785 *Intentionally blank*

JAR-OPS 3.790 Hand fire extinguishers
(See AMC OPS 3.790)

An operator shall not operate a helicopter unless hand fire extinguishers are provided for use in crew, passenger and, as applicable, cargo compartments and galleys in accordance with the following:

(a) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used and, for personnel compartments, must minimise the hazard of toxic gas concentration;

(b) At least one hand fire extinguisher, containing Halon 1211 (bromochlorodifluoro-methane, $CBrClF_2$), or equivalent as the extinguishing agent, must be conveniently located in the cockpit for use by the flight crew;

(c) At least one hand fire extinguisher must be located in, or readily accessible for use in, each galley not located on the main passenger deck;

(d) At least one readily accessible hand fire extinguisher must be available for use in each cargo compartment which is accessible to crew members during flight for the purpose of fire fighting; and

(e) There must be at least the following number of hand fire extinguishers conveniently located to provide adequate availability for use in each passenger compartment.

Passenger compartment seating capacity	Minimum number of Hand Fire Extinguishers
7 to 30	1
31 to 60	2
61 to 200	3

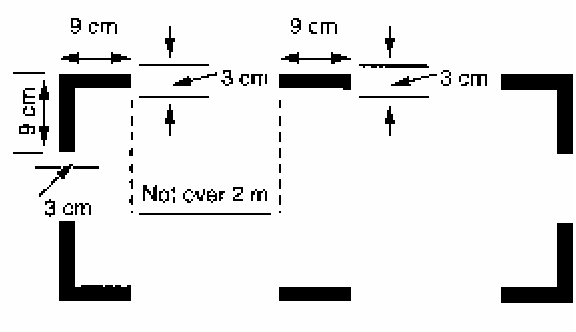
JAR-OPS 3.795 *Intentionally blank*

JAR-OPS 3.800 Marking of break-in points

An operator shall ensure that, if **[ ]** areas of the fuselage suitable for break-in by rescue crews in emergency are **[**marked**]** on a helicopter, such areas shall be marked as shown below. The colour of the markings shall be red or yellow, and if necessary they shall be outlined in white to contrast with the background. If the corner markings are more than 2 metres apart,

JAR-OPS 3.800 (continued)

intermediate lines 9 cm x 3 cm shall be inserted so that there is no more than 2 metres between adjacent marks.



[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

JAR-OPS 3.805 *Intentionally blank*

JAR-OPS 3.810 Megaphones
(See AMC OPS 3.810)

An operator shall not operate a helicopter with a total maximum approved passenger seating configuration (MAPSC) of more than 19 unless it is equipped with portable battery-powered megaphones readily available for use by crew members during an emergency evacuation.

[Amdt. 2, 01.01.02]

JAR-OPS 3.815 Emergency lighting

(a) An operator shall not operate a helicopter which has a maximum approved passenger seating configuration (MAPSC) of more than 19 unless it is equipped with:

(1) An emergency lighting system having an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter; and

(2) Illuminated emergency exit marking and locating signs.

[Amdt. 2, 01.01.02]

JAR-OPS 3.820 Automatic Emergency Locator Transmitter
(See IEM OPS 3.820)

(a) An operator shall not operate a helicopter unless it is equipped with an automatic Emergency Locator Transmitter (ELT) **[ ]**.

JAR-OPS 3.820 (continued)

(b) An operator shall not operate a helicopter in Performance Class 1 or 2 on a flight over water in a hostile environment as defined in JAR-OPS 3.480(a)(12)(ii)(A) at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed, on a flight in support of or in connection with the offshore exploitation of mineral resources (including gas), unless it is equipped with an Automatically Deployable Emergency Locator Transmitter (ELT(AD)).

(c) An operator **[**shall**]** ensure that **[**all**]** ELT**[**s**]** **[**are**]** capable of transmitting **[**simultaneously on 121.5MHz and 406 MHz, are coded in accordance with ICAO Annex 10 and are registered with the national agency responsible for initiating Search and Rescue or another nominated agency**]**.

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.825 Life Jackets
(See IEM OPS 3.825)

(a) An operator shall not operate a helicopter for any operations on water or on a flight over water:

(1) When operating in Performance Class 3 beyond autorotational distance from land; or

(2) When operating in Performance Class 1 or 2 at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed; or

(3) When operating in Performance Class 2 or 3 when taking off or landing at a heliport where the take-off or approach path is over water, unless it is equipped with life jackets equipped with a survivor locator light, for each person on board, stowed in an easily accessible position, with safety belt or harness fastened, from the seat or berth of the person for whose use it is provided and an individual infant flotation device, equipped with a survivor locator light, for use by each infant on board.

JAR-OPS 3.827 Crew Survival Suits
(See **[**ACJ**]** OPS 3.827)

(a) An operator shall not operate a helicopter in Performance Class 1 or 2 on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising

JAR-OPS 3.827(a) (continued)

speed from land on a flight in support of or in connection with the offshore exploitation of mineral resources (including gas) when the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10°C during the flight or when the estimated rescue time exceeds the [estimated] survival time unless each member of the crew is wearing a survival suit.

(b) An operator shall not operate a helicopter in Performance Class 3 on a flight over water beyond autorotational or safe forced landing distance from land when the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10°C during the flight, unless each member of the crew is wearing a survival suit.

[Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.830 Life-rafts and survival ELTs o[n] extended overwater flights
(See AMC OPS 3.830)

(a) An operator shall not operate a helicopter on a flight over water at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed when operating in Performance Class 1 or 2, or 3 minutes flying time at normal cruising speed when operating in Performance Class 3 unless it carries:

(1) In the case of a helicopter carrying less than 12 persons, a minimum of one life-raft with a rated capacity of not less than the maximum number of persons on board;

(2) In the case of a helicopter carrying more than 11 persons, a minimum of two life-rafts sufficient together to accommodate all persons capable of being carried on board. Should one life-raft of the largest rated capacity be lost, the overload capacity of the remaining life-raft(s) shall be sufficient to accommodate all persons on the helicopter (See AMC OPS 3.830(a)(2));

(3) At least one survival Emergency Locator Transmitter (ELT(S)) for each liferaft carried (but not more than a total of 2 ELTs are required), capable of transmitting on the distress frequencies prescribed in [Appendix 1 to JAR-OPS 3.830]. (See [also] AMC OPS 3.830(a)(3));

(4) Emergency exit illumination; and

JAR-OPS 3.830(a) (continued)

(5) Life saving equipment including means of sustaining life as appropriate to the flight to be undertaken.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

JAR-OPS 3.835 Survival equipment
(See IEM OPS 3.835)

An operator shall not operate a helicopter in areas where search and rescue would be especially difficult unless it is equipped with the following:

(a) Signalling equipment to make the pyrotechnical distress signals described in ICAO Annex 2;

(b) At least one survival Emergency Locator Transmitter (ELT(S)) capable of transmitting on the distress frequencies prescribed in [Appendix 1 to JAR-OPS 3.830] (see [also] AMC OPS 3.830(a)(3)); and

(c) Additional survival equipment for the route to be flown taking account of the number of persons on board (see AMC OPS 3.835(c)).

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

JAR-OPS 3.837 Additional requirements for helicopters operating to or from helidecks located in a hostile sea area (as defined in JAR-OPS 3.480(a)(13)(ii)(A))

(a) An operator shall not operate a helicopter on a flight to or from a helideck located in a hostile sea area at a distance from land corresponding to more than 10 minutes flying time at normal cruising speed on a flight in support of or in connection with the offshore exploitation of mineral resources (including gas) unless:

(1) When the weather report or forecasts available to the commander indicate that the sea temperature will be less than plus 10°C during the flight, or when the estimated rescue time exceeds the calculated survival time, or the flight is planned to be conducted at night, all persons on board are wearing a survival suit (see ACJ OPS 3.827);

(2) All liferafts carried in accordance with JAR-OPS 3.830 are installed so as to be usable in the sea conditions in which the helicopter's ditching, flotation and trim characteristics were evaluated in order to

JAR-OPS 3.837(a) (continued)

comply with the ditching requirements for certification (See IEM OPS 3.837(a)(2));

(3) The helicopter is equipped with an emergency lighting system having an independent power supply to provide a source of general cabin illumination to facilitate the evacuation of the helicopter;

(4) All emergency exits, including crew emergency exits, and its means of opening are conspicuously marked for the guidance of occupants using the exits in daylight or in the dark. Such markings are designed to remain visible if the helicopter is capsized and the cabin is submerged;

(5) All non-jettisonable doors which are designated as Ditching Emergency Exits have a means of securing them in the open position so they do not interfere with occupants egress in all sea conditions up to the maximum required to be evaluated for ditching and flotation;

(6) All doors, windows or other openings in the passenger compartment authorised by the Authority as suitable for the purpose of underwater escape, are equipped so as to be operable in an emergency;

(7) Lifejackets are worn at all times; unless the passenger or crew member is wearing an integrated survival suit that meets the combined requirement of the survival suit and lifejacket which is acceptable to the Authority.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.840 Helicopters certificated for operating on water - Miscellaneous equipment

(a) An operator shall not operate on water a helicopter certificated for operating on water unless it is equipped with:

(1) A sea anchor and other equipment necessary to facilitate mooring, anchoring or manoeuvring the aircraft on water, appropriate to its size, weight and handling characteristics; and

(2) Equipment for making the sound signals prescribed in the International Regulations for preventing collisions at sea, where applicable.

JAR-OPS 3.843 All helicopters on flights over water - Ditching

(a) An operator shall not operate a helicopter in Performance Class 1 or 2 on a flight over water in a hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed unless that helicopter is so designed for landing on water or is certificated in accordance with ditching provisions.

(b) An operator shall not operate a helicopter in Performance Class 1 or 2 on a flight over water in a non-hostile environment at a distance from land corresponding to more than 10 minutes flying time at normal cruise speed unless that helicopter is; so designed for landing on water; or is certificated in accordance with ditching provisions; or is fitted with emergency flotation equipment.

(c) An operator shall not operate a helicopter in Performance Class 2, when taking-off or landing over water, unless that helicopter is; so designed for landing on water; or is certificated in accordance with ditching provisions; or is fitted with emergency floatation equipment. (See IEM OPS 3.843(c)). Except where, for the purpose of minimising exposure, the landing or take-off at a HEMS operating site located in a congested environment is conducted over water – unless otherwise required by the Authority.

(d) An operator shall not operate a helicopter in Performance Class 3 on a flight over water beyond safe forced landing distance from land unless that helicopter is; so designed for landing on water; or is certificated in accordance with ditching provisions; or is fitted with emergency flotation equipment.

[Amdt. 2, 01.01.02]

[Appendix 1 to JAR-OPS 3.715/3.720
Flight data recorders – 1 and 2 – List of parameters to be recorded

Table A - Helicopters with a maximum certificated take-off mass (MCTOM) of 7 000 kg or less

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated airspeed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying
9	Power on each engine (free power turbine speed and engine torque)/ cockpit power control position (if applicable)
10a 10b	Main rotor speed Rotor brake (if installed)
11 11a 11b 11c 11d 11e 11f	Primary flight controls - Pilot input and control output position (if applicable) Collective pitch Longitudinal cyclic pitch Lateral cyclic pitch Tail rotor pedal Controllable stabilator Hydraulic selection
12	Warnings
13	Outside air temperature
14	Autopilot engagement status
15	Stability augmentation system engagement

Table B - Helicopters with a maximum certificated take-off mass (MCTOM) of over 7 000 kg

No.	Parameter
1	Time or relative time count
2	Pressure altitude
3	Indicated airspeed
4	Heading
5	Normal acceleration
6	Pitch attitude
7	Roll attitude
8	Manual radio transmission keying
9	Power on each engine (free power turbine speed and engine torque)/ cockpit power control position (if applicable)
10a 10b	Main rotor speed Rotor brake (if installed)

]

Appendix 1 to JAR-OPS 3.715/3.720 (continued)

[

No.	Parameter
11	Primary flight controls - Pilot input and control output position (if applicable)
11a	Collective pitch
11b	Longitudinal cyclic pitch
11c	Lateral cyclic pitch
11d	Tail rotor pedal
11e	Controllable stabilator
11f	Hydraulic selection
12	Hydraulics low pressure
13	Outside air temperature.
14	AFCS mode and engagement status
15	Stability augmentation system engagement
16	Main gear box oil pressure
17	Main gear box oil temperature
18	Yaw rate or yaw acceleration
19	Indicated sling load force (if installed)
20	Longitudinal acceleration (body axis)
21	Lateral acceleration
22	Radio altitude
23	Vertical beam deviation (ILS glide path or MLS elevation)
24	Horizontal beam deviation (ILS localiser or MLS azimuth)
25	Marker beacon passage
26	Warnings
27	Reserved (Nav receiver frequency selection is recommended)
28	Reserved (DME distance is recommended)
29	Reserved (navigation data is recommended)
30	Landing gear or gear selector position

Table C - Helicopters equipped with electronic display systems

C	Parameter
6	Selected barometric setting (Each pilot station)
7	Selected altitude
8	Selected speed
9	Selected mach
10	Selected vertical speed
11	Selected heading
12	Selected flight path
13	Selected decision height
14	EFIS display format
15	Multi function /Engine / Alerts display format

]

[Amdt. 3, 01.04.04]

Appendix 1 to JAR-OPS 3.775
Supplemental Oxygen for non-pressurised Helicopters

Table 1

(a)	(b)
SUPPLY FOR:	DURATION AND PRESSURE ALTITUDE
1. All occupants of flight deck seats on flight deck duty	Entire flight time at pressure altitudes above 10 000 ft.
2. All required cabin crew members	Entire flight time at pressure altitudes above 13 000 ft and for any period exceeding 30 minutes at pressure altitudes above 10 000 ft but not exceeding 13 000 ft.
3. 100% of passengers (See Note)	Entire flight time at pressure altitudes above 13 000 ft.
4. 10% of passengers(See Note)	Entire flight time after 30 minutes at pressure altitudes greater than 10 000 ft but not exceeding 13 000 ft.

Note: For the purpose of this table ‘passengers’ means passengers actually carried and includes infants under the age of 2.

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[Appendix 1 to JAR-OPS 3.830
Emergency Locator Transmitter (ELT(S))
(See JAR-OPS 3.380 and JAR-OPS 3.835)

(a) All ELT(S) shall be capable of transmitting simultaneously on 121.5 MHz and 406 MHz, be coded in accordance with ICAO Annex 10 and be registered with the national agency responsible for initiating Search and Rescue, or another nominated agency.**]**

[Amdt. 5, 01.07.07]

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SUBPART L – COMMUNICATION AND NAVIGATION EQUIPMENT

JAR-OPS 3.845 General introduction
(See IEM OPS 3.845)

(a) An operator shall ensure that a flight does not commence unless the communication and navigation equipment required under this Subpart is:

(1) Approved and installed in accordance with the requirements applicable to them, including the minimum performance standard and the operational and airworthiness requirements;

(2) Installed such that the failure of any single unit required for either communication or navigation purposes, or both, will not result in the failure of another unit required for communications or navigation purposes.

(3) In operable condition for the kind of operation being conducted except as provided in the MEL (JAR-OPS 3.030 refers); and

(4) So arranged that if equipment is to be used by one flight crew member at his station during flight it must be readily operable from his station. When a single item of equipment is required to be operated by more than one flight crew member it must be installed so that the equipment is readily operable from any station at which the equipment is required to be operated.

(b) Communication and navigation equipment minimum performance standards are those prescribed in the applicable Joint Technical Standard Orders (JTSO) as listed in JAR-TSO, unless different performance standards are prescribed in the operational or airworthiness codes. Communication and navigation equipment complying with design and performance specifications other than JTSO on the date of JAR-OPS implementation may remain in service, or be installed, unless additional requirements are prescribed in this Subpart. Communication and navigation equipment which has already been approved does not need to comply with a revised JTSO or a revised specification, other than JTSO, unless a retroactive requirement is prescribed.

[Ch. 1, 01.02.99]

JAR-OPS 3.850 Radio Equipment

(a) An operator shall not operate a helicopter unless it is equipped with radio required for the kind of operation being conducted.

(b) Where two independent (separate and complete) radio systems are required under this Subpart, each system must have an independent antenna installation except that, where rigidly supported non-wire antennae or other antenna installations of equivalent reliability are used, only one antenna is required.

(c) The radio communication equipment required to comply with paragraph (a) above must also provide for communications on the aeronautical emergency frequency 121·5 MHz.

JAR-OPS 3.855 Audio Selector Panel

An operator shall not operate a helicopter under IFR unless it is equipped with an audio selector panel accessible to each required flight crew member.

JAR-OPS 3.860 Radio equipment for operations under VFR over routes navigated by reference to visual landmarks

An operator shall not operate a helicopter under VFR over routes that can be navigated by reference to visual landmarks, unless it is equipped with the radio equipment (communication and SSR transponder equipment) necessary under normal operating conditions to fulfil the following:

(a) Communicate with appropriate ground stations;

(b) Communicate with appropriate air traffic control facilities from any point in controlled airspace within which flights are intended;

(c) Receive meteorological information; and

(d) [When mandated by airspace requirements,] reply to SSR interrogations [with a pressure-altitude reporting transponder which operates in accordance with ICAO Annex 10, Volume IV].

[Amdt. 3, 01.04.04]

JAR-OPS 3.865 Communication and Navigation equipment for operations under IFR, or under VFR over routes not navigated by reference to visual landmarks
[(See AMC OPS 3.865)**]**

(a) An operator shall not operate a helicopter under IFR, or under VFR over routes that cannot be navigated by reference to visual landmarks, unless the helicopter is equipped with radio (communication and SSR transponder) and navigation equipment in accordance with the requirements of air traffic services in the area(s) of operation.

(b) *Radio equipment.* An operator shall ensure that radio equipment comprises not less than:

(1) Two independent radio communication systems necessary under normal operating conditions to communicate with an appropriate ground station from any point on the route including diversions; and

(2) **[**When mandated by airspace requirements, a pressure-altitude reporting transponder which operates in accordance with ICAO Annex 10, Volume IV.**]**

(c) *Navigation equipment*. An operator shall ensure that navigation equipment

(1) Comprises not less than:

(i) Two independent navigation aids appropriate to the route/area to be flown;

(ii) An approach aid suitable for the destination and alternate heliports;

(iii) An Area Navigation System when area navigation is required for the route/area being flown;

(iv) Two VOR receiving systems on any route, or part thereof, where navigation is based only on VOR signals; and

(v) Two ADF systems on any route, or part thereof, where navigation is based only on NDB signals, or

(2) Complies with the Required Navigation Performance (RNP) Type for operation in the airspace concerned. (See also IEM OPS 3.243).

(d) An operator may operate a helicopter that is not equipped with the navigation equipment specified in sub-paragraph(s) (c)(1)(iv) and/or

JAR-OPS 3.865(d) (continued)

(c)(1)(v) above, provided that it is equipped with alternative equipment authorised for the route/area being flown by the Authority. The reliability and the accuracy of alternative equipment must allow safe navigation for the intended route.

(e) **[**An operator shall ensure that VHF communication equipment, ILS Localiser and VOR receivers installed on helicopters to be operated under IFR are of a type that has been approved as complying with the FM immunity performance standards (see ACJ OPS 3.865(e)).**]**

(f) Where not more than one item of equipment specified in (a) above is unserviceable when the helicopter is about to begin a flight, the helicopter may nevertheless take-off on that flight if:

(1) It is not reasonably practical to repair or replace that item, before the commencement of the flight;

(2) The helicopter has not made more than one flight since the item was found to be unserviceable; and

(3) The commander has satisfied himself that, taking into account the latest information available as to the route/area and heliport to be used (including any planned diversion) and the weather conditions likely to be encountered, the flight can be made safely and in accordance with any relevant requirements of the appropriate air traffic control limit.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.870 *Intentionally blank*

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SUBPART M – HELICOPTER MAINTENANCE

JAR-OPS 3.875 General [ ]

(a) An operator shall not operate a helicopter unless it is maintained and released to service by an organisation appropriately approved/accepted in accordance with **[**Commission Regulation (EC) No 2042/2003, Part**]**-145, except that pre-flight inspections need not necessarily be carried out by the **[**Part**]**-145 organisation.

(b) **[ ] [**Helicopter continuing airworthiness requirements**]** needed to comply with the operator certification requirements in JAR-OPS 3.180 **[**are those set up in Commission Regulation (EC) No 2042/2003, Part-M (hereinafter abbreviated to Part-M for convenience)**]**.

[Amdt. 12, 01.12.06]

[ ]

[Amdt. 12, 01.12.06]

The rest of this Subpart has been withdrawn due to the implementation of Commission Regulation (EC) No 2042/2003 Part-M.

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SUBPART N – FLIGHT CREW

Note 1: JAR-FCL is referred to in this Subpart. Where this is the case, it should be noted that, until JAR-FCL has been implemented, the equivalent national aviation regulations will apply.

Note 2: Whenever the use of flight simulator or Synthetic Training Device is required by this Subpart, it shall be approved in accordance with the requirements of JAR-STD.

JAR-OPS 3.940 Composition of Flight Crew

(a) An operator shall ensure that:

(1) The composition of the flight crew and the number of flight crew members at designated crew stations are both in compliance with, and no less than the minimum specified in, the Helicopter Flight Manual;

(2) The flight crew includes additional flight crew members when required by the type of operation, and is not reduced below the number specified in the Operations Manual;

(3) All flight crew members hold an applicable and valid licence acceptable to the Authority and are suitably qualified and competent to conduct the duties assigned to them;

(4) Procedures are established, acceptable to the Authority, to prevent the crewing together of inexperienced flight crew members; (See AMC OPS 3.940(a)(4)); and

(5) One pilot amongst the flight crew is designated as the commander who may delegate the conduct of the flight to another suitably qualified pilot.

[(6) When engaging the services of flight crew members who are self-employed and/or working on a freelance or part-time basis, the requirements of Subpart N are complied with.

(7) For crew members serving the operator as a commander, initial operator's Crew Resource Management (CRM) training shall be completed before commencing unsupervised line flying.]

(b) *Pilots*. An operator shall ensure that:

(1) Commanders and co-pilots on an IFR flight hold a valid instrument rating, except that the holder of a pilot licence may fly in VMC at night, provided he is appropriately qualified for the circumstances, airspace and flight conditions in which the flight is conducted. This qualification requirement must be entered in the Operations Manual and be

JAR-OPS 3.940(b)(1) (continued)

acceptable to the Authority. (See IEM to JAR-OPS 3.940(b)(1)).

(2) For IFR operations using helicopters with a maximum approved passenger seating configuration (MAPSC) of more than 9:

(i) The minimum flight crew is two qualified pilots; and

(ii) The commander holds a valid Airline Transport Pilot's Licence (Helicopter) (ATPL(H));

(3) For operations using helicopters with a maximum approved passenger seating configuration (MAPSC) of more than 19:

(i) The minimum flight crew is two qualified pilots;

(ii) The commander holds a valid Airline Transport Pilot's Licence (Helicopter) (ATPL(H)).

(c) Helicopters not covered by sub-paragraph (b)(2) and (b)(3) above may be operated by a single pilot provided that the requirements of Appendix 1 to JAR-OPS 3.940(c) are satisfied.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

[JAR-OPS 3.943 Initial Operator's Crew Resource Management (CRM) training
(See ACJ No. 1 to JAR-OPS 3.943)
(See ACJ No. 2 to JAR-OPS 3.943)

(a) When a flight crew member has not previously completed initial Operator's Crew Resource Management (CRM) training (either new employees or existing staff), then the operator shall ensure that the flight crew member completes an initial CRM training course. New employees shall complete initial Operator's CRM Training within their first year of joining an operator.

(b) Initial CRM training shall be conducted by suitably qualified personnel (See ACJ-1 OPS 3.943).

(c) Initial CRM training is conducted in accordance with a detailed course syllabus included in the Operations Manual, and shall contain at least the following items:]

JAR-OPS 3.943(c) (continued)

[(1) Human error and reliability, error chain, error prevention and detection;

(2) Company safety culture, Standard Operating Procedures (SOPs), organisational factors;

(3) Stress, stress management, fatigue and vigilance;

(4) Information acquisition and processing, situation awareness, workload management;

(5) Decision making;

(6) Communication and co-ordination inside and outside the cockpit;

(7) Leadership and team behaviour, synergy;

(8) Automation and philosophy of the use of Automation (if relevant to the type);

(9) Specific type-related differences;

(10) Case based studies;

(11) Additional areas which warrant extra attention, as identified by the accident prevention and flight safety programme (see JAR-OPS 3.037).]

[Amdt. 3, 01.04.04]

JAR-OPS 3.945 Conversion Training and checking
(See AMC OPS 3.945)
(See IEM OPS 3.945)
[(See ACJ-No.1 to JAR-OPS 3.943)
(See ACJ-No. 2 to JAR-OPS 3.943)]

(a) An operator shall ensure that:

(1) A flight crew member completes a Type Rating course which satisfies the applicable requirements of JAR-FCL when changing from one type of helicopter to another type for which a new type rating is required;

(2) A flight crew member completes an operator's conversion course before commencing unsupervised line flying;

(i) When changing to a helicopter for which a new type rating is required; or

(ii) When changing operator;

(3) Conversion training is conducted by suitably qualified person[nel] in accordance

JAR-OPS 3.945(a)(3) (continued)

with a detailed course syllabus included in the Operations Manual [ ].

(4) The amount of training required by the operator's conversion course is determined after due note has been taken of the flight crew member's previous training as recorded in his training records prescribed in JAR-OPS 3.985;

(5) The minimum standards of qualification and experience required of flight crew members before undertaking conversion training are specified in the Operations Manual;

(6) Each flight crew member undergoes the checks required by JAR-OPS 3.965(b) and the training and checks required by JAR-OPS 3.965(d) before commencing line flying under supervision;

(7) Upon completion of line flying under supervision, the check required by JAR-OPS 3.965(c) is undertaken;

(8) Once an operator's conversion course has been commenced, a flight crew member does not undertake flying duties on another type until the course is completed or terminated unless otherwise approved by the Authority (See IEM OPS 3.945(a)(8)); and

(9) [Elements of CRM] training [are integrated into] the conversion course. [(See ACJ-1 OPS 3.943 and ACJ-2 OPS 3.943 and ACJ OPS 3.945(a)(9) and IEM OPS 3.945(a)(9)).]

(b) In the case of changing helicopter type, the check required by 3.965(b) may be combined with the type rating skill test required by JAR-FCL.

(c) The operator's conversion course and the Type Rating course required by JAR-FCL may be combined.

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.950 Differences Training and Familiarisation training

(a) An operator shall ensure that a flight crew member completes:

(1) Differences training which requires additional knowledge and training on an appropriate training device:

(i) When operating a variant of a helicopter currently operated; or

(ii) When introducing a significant change of equipment and/or

JAR-OPS 3.950(a)(1)(ii) (continued)

procedures on types or variants currently operated.

(2) Familiarisation training which requires the acquisition of additional knowledge:

(i) When operating another helicopter of the same type; or

(ii) When introducing a significant change of equipment and/or procedures on types or variants currently operated.

(b) The operator shall specify in the Operations Manual when such differences training or familiarisation training is required.

[Ch. 1, 01.02.99]

JAR-OPS 3.955 Upgrade to commander
(See Appendix 1 to JAR-OPS 3.955)

(a) A pilot upgrading to commander shall complete an appropriate command course.

(b) The operator shall specify in the Operations Manual a minimum experience level for upgrade to commander from within the company and for those joining as direct entry commanders.

JAR-OPS 3.960 Commanders - Minimum Qualification Requirements

(a) The minimum qualification requirements for a commander are either:

(1) An Airline Transport Pilot Licence (Helicopter) (ATPL(H)); or

(2) A Commercial Pilot's Licence (Helicopter) (CPL(H))provided that:

(i) When conducting operations under instrument flight rules (IFR), the commander has a minimum of 700 hours total flight time on helicopters which includes 300 hours as pilot-in-command (in accordance with JAR-FCL) and 100 hours under IFR. The 300 hours as pilot-in-command may be substituted by co-pilot hours on a 2 for 1 basis provided those hours were gained within an established two pilot crew concept system described in the Operations Manual;

(ii) When conducting operations under visual meteorological conditions (VMC) at night, a commander, without a

JAR-OPS 3.960(a)(2)(ii) (continued)

valid instrument rating, has 300 hours total flight time on helicopters which includes 100 hours as pilot-in-command and 10 hours at night as pilot flying.

[Ch. 1, 01.02.99]

JAR-OPS 3.965 Recurrent Training and Checking
(See Appendix 1 to JAR-OPS 3.965)
[(See ACJ-No. 1 to JAR-OPS 3.943)
(See ACJ-No. 2 to JAR-OPS 3.943)**]**
(See AMC OPS 3.965)
(See IEM OPS 3.965)

(a) *General*. An operator shall ensure that:

(1) Each flight crew member undergoes recurrent training and checking and that all such training and checking is relevant to the type or variant of helicopter on which the flight crew member operates;

(2) A recurrent training and checking programme is established in the Operations Manual and approved by the Authority;

(3) Recurrent training is conducted by the following personnel:

(i) *Ground and refresher training* - by suitably qualified personnel;

(ii) *Helicopter/flight simulator training* - by a Type Rating Instructor (TRI) or a Flight Instructor (FI) with the appropriate type rating, or, in the case of the flight simulator content, a Synthetic Flight Instructor (SFI), providing that the TRI or the SFI satisfies the operator's experience and knowledge requirements sufficient to instruct on the items specified in **[**paragraphs**]** (a)(1)(i)(A) and (B) **[**of**]** Appendix 1 to JAR-OPS 3.965;

(iii) *Emergency and safety equipment training* - by suitably qualified personnel; and

(iv) *Crew Resource Management (CRM) training* - by suitably qualified personnel.

(4) Recurrent checking is conducted by the following personnel:

(i) *Operator proficiency checks* - by a Type Rating Examiner **[**(TRE)**]**, or a Flight Examiner **[**(FE)**]** with the

JAR-OPS 3.965(a)(4)(i) (continued)

appropriate type rating, [nominated by the operator and acceptable to the Authority or, a Synthetic Flight Examiner (SFE) if the check is conducted in a flight simulator approved for the purpose;] and

(ii) *Line checks* – [by suitably qualified] commanders [trained in the assessment of CRM skills (see ACJ-2 OPS 3.943 paragraph 4)] nominated by the operator and acceptable to the Authority*;*

(5) Each flight crew member undergoes operator proficiency checks as part of a normal flight crew complement.

(b) *Operator Proficiency Check*

(1) An operator shall ensure that:

(i) Each flight crew member undergoes operator proficiency checks to demonstrate his competence in carrying out normal, abnormal and emergency procedures; and

(ii) The check must be conducted without external visual references, as appropriate, when it is likely that the crew member will be required to operate under IFR.

(2) The period of validity of an operator proficiency check shall be 6 calendar months in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of a previous operator proficiency check, the period of validity shall extend from the date of issue until 6 calendar months from the expiry date of that previous operator proficiency check. Before a flight crew member, without a valid instrument rating, may operate VMC at night he will be required to undergo a proficiency check at night. Thereafter, each second proficiency check shall then be conducted at night.

(c) *Line Check*. An operator shall ensure that each flight crew member undergoes a line check on the helicopter to demonstrate his competence in carrying out normal line operations described in the Operations Manual. The period of validity of a line check shall be 12 calendar months, in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of a previous line check the period of validity shall extend from the date of issue until 12 calendar months from the expiry date of that previous line check.

JAR-OPS 3.965 (continued)

(d) *Emergency and Safety Equipment training and checking*. An operator shall ensure that each flight crew member undergoes training and checking on the location and use of all emergency and safety equipment carried. The period of validity of an emergency and safety equipment check shall be 12 calendar months in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of a previous emergency and safety check, the period of validity shall extend from the date of issue until 12 calendar months from the expiry date of that previous emergency and safety equipment check.

(e) [*CRM*. An operator shall ensure that:

(1) Elements of CRM are integrated into all appropriate phases of the recurrent training, and;

(2) Each flight crew member undergoes specific modular CRM training. All major topics of the initial CRM training shall be covered over a period not exceeding 3 years;]

(f) *Ground and Refresher training*. An operator shall ensure that each flight crew member undergoes ground and refresher training at least every 12 calendar months. If the training is conducted within 3 calendar months prior to the expiry of the 12 calendar months period, the next ground and refresher training must be completed within 12 calendar months of the original expiry date of the previous ground and refresher training.

(g) *Helicopter/flight simulator training.* An operator shall ensure that each flight crew member undergoes helicopter/flight simulator training at least every 12 calendar months. If the training is conducted within 3 calendar months prior to the expiry of the 12 calendar months period, the next helicopter/flight simulator training must be completed within 12 calendar months of the original expiry date of the previous ground and refresher training.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.968 Pilot qualification to operate in either pilot's seat
(See Appendix 1 to JAR-OPS 3.968)
(See AMC OPS 3.965)
(See IEM OPS 3.965)

(a) An operator shall ensure that:

(1) A pilot who may be assigned to operate in either pilot's seat completes appropriate training and checking; and

(2) The training and checking programme is specified in the Operations Manual and is acceptable to the Authority.

[Ch. 1, 01.02.99]

JAR-OPS 3.970 Recent experience

(a) An operator shall ensure that, except as permitted in sub-paragraph (b) below:,

(1) A pilot does not operate a helicopter unless he has carried out at least three take-offs, three circuits and three landings as pilot flying in a helicopter of the same type, or a Flight Simulator, of the helicopter type to be used, in the preceding 90 days.

(2) For night VMC operations:

(i) a pilot without a valid instrument rating has carried out at least three take-offs, three circuits and three landings at night in the preceding 90 days. This recency may be obtained in an STD.

(ii) a pilot with a valid instrument rating satisfies the night recent experience requirement if he has carried out at least three instrument approaches in the preceding 90 days. This recency may be obtained in a STD.

(b) The 90 day period prescribed in sub-paragraph (a) above may be extended up to a maximum of 120 days by line flying under the supervision of a nominated commander.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.975 Route/Role/Area - Competence Qualification
(See AMC OPS 3.975)

(a) An operator shall ensure that, prior to being assigned as commander or as pilot to whom the conduct of flight may be delegated by the commander on a route, in a role or an area, the pilot has obtained adequate knowledge of the route to be flown and of the heliports (including alternates), facilities and procedures to be used.

(b) The period of validity of the route/role/area competence qualification shall be 12 calendar months in addition to the remainder of:

(1) The month of qualification; or

(2) The month of the latest operation on the route, in the role or area.

(c) The route/role/area competence qualification shall be revalidated by operating on the route, in the role or area within the period of validity prescribed in sub-paragraph (b) above.

(d) If revalidated within the final 3 calendar months of validity of previous route/role/area competence qualification, the period of validity shall extend from the date of revalidation until 12 calendar months from the expiry date of that previous route/role/area competence qualification.

[Ch. 1, 01.02.99]

JAR-OPS 3.978 *Intentionally blank*

JAR-OPS 3.980 Operation on more than one type or variant
(See AMC OPS 3.980)

(a) An operator shall ensure that a flight crew member does not operate more than one type or a variant unless:

(1) The flight crew member is competent to do so; and

(2) Appropriate procedures, approved by the Authority are included in the Operations Manual.

[Ch. 1, 01.02.99]

JAR-OPS 3.985 Training Records
(See IEM OPS 3.985)

(a) An operator shall:

(1) Maintain records of all training, checking and qualification prescribed in JAR-OPS 3.945, 3.955, 3.965, 3.968 and 3.975 undertaken by a flight crew member; and

(2) Make the records of all conversion courses and recurrent training and checking available, on request, to the flight crew member concerned.

Appendix 1 to JAR-OPS 3.940(c)
Single pilot operations under IFR or at night

(a) Helicopters referred to in JAR-OPS 3.940(c) may be operated by a single pilot under IFR or at night when the following requirements are satisfied:

(1) The operator shall include in the Operations Manual a pilot's conversion and recurrent training programme which includes the additional requirements for a single pilot operation;

(2) Training and Recency. Attention shall be given to cockpit procedures, especially in respect of:

(i) Engine management and emergency handling;

(ii) Use of normal, abnormal and emergency checklist;

(iii) ATC communication;

(iv) Cockpit procedures in respect of departure and approach;

(v) Autopilot management, if applicable; and

(vi) Simplified in-flight documentation;

(3) The recurrent checks required by JAR-OPS 3.965 shall be performed in the single-pilot role on the particular helicopter type in an environment representative of the operation;

(4) The pilot shall meet the Commanders minimum qualification requirements of JAR-OPS 3.960.

(5) For IFR operations, the pilot shall have experience as follows:

(i) 25 hours total IFR flight experience in the relevant operating environment.

(ii) 25 hours flight experience on the specific type of helicopter, approved for single pilot IFR, of which 10 hours is as commander or commander under supervision, including 5 sectors of IFR line flying under supervision using the single pilot procedures.

(iii) The minimum required recent experience for a pilot engaged in a single-pilot operation under IFR shall be 5 IFR flights, including 3 instrument approaches, carried out during the preceding 90 days on [a] helicopter

Appendix 1 to JAR-OPS 3.940(c) (continued)

[approved] in the single-pilot role. This requirement may be replaced by an IFR instrument approach check on the helicopter [or an STD].

Note: Additional equipment requirements for alleviating pilot workload are prescribed in JAR-OPS 3.655.

[Ch. 1, 01.02.99, Amdt. 3, 01.04.04]

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Appendix 1 to JAR-OPS 3.955
Upgrading to Commander
[ ]

(a) *Upgrade Training Course*

(1) The command course required by JAR-OPS 3.955(a) must be specified in the Operations Manual and include at least the following:

(i) Training in a flight simulator (including Line Orientated Flying Training) and/or flying training including a proficiency check operating as commander;

(ii) Operator command responsibilities;

(iii) Line training in command under supervision. A minimum of 10 hours including at least 10 sectors is required for pilots already qualified on the helicopter type;

(iv) Completion of a commander's line check and route/role/area competency qualification.

(v) For initial upgrade to commander the course shall also include **[**CRM. (See ACJ-1 OPS 3.943).**]**

(2) *Combined Upgrading and Conversion Course*. If a pilot is converting from one helicopter type or variant to another when upgrading to commander:

(i) The Command Course shall also include a Conversion Course in accordance with JAR-OPS 3.945.

(ii) Additional sectors shall be required for a pilot transitioning on to a new type of helicopter.

[Amdt. 3, 01.04.04]

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Appendix 1 to JAR-OPS 3.965
Recurrent Training and Checking - Pilots
(See IEM to Appendix 1 to JAR-OPS 3.965)
(See ACJ-No. 1 to JAR-OPS 3.943)
(See ACJ-No. 2 to JAR-OPS 3.943)

(a) *Recurrent Training* - Recurrent training shall comprise:

(1) *Ground and refresher training*

(i) The ground and refresher training programme shall include:

(A) Helicopter systems;

(B) Operational procedures and requirements including ground de-/anti-icing and pilot incapacitation; and

(C) Accident/Incident and occurrence review.

(ii) Knowledge of the ground and refresher training shall be verified by a questionnaire or other suitable methods.

(2) *Helicopter/flight simulator training*

(i) The helicopter/flight simulator training programme shall be established such that all major failures of helicopter systems and associated procedures will be covered within a 3 year period.

(ii) When engine malfunctions are simulated, if no synthetic training device is available, these emergencies may be covered in the helicopter using a safe airborne simulation. In the event that such training is conducted in the helicopter, due consideration must be given to the effect of any subsequent failure and the exercise must be preceded by a comprehensive briefing.

(iii) Helicopter/flight simulator training may be combined with the operator proficiency check.

(3) *Emergency and Safety Equipment Training*

(i) The emergency and safety equipment training programme may be combined with emergency and safety equipment checking and shall be conducted in a helicopter or a suitable alternative training device.

(ii) Every year the emergency and safety equipment training programme must include the following:

(A) Actual donning of a lifejacket, where fitted;

(B) Actual donning of protective breathing equipment, where fitted;

(C) Actual handling of fire extinguishers, of the type used;

(D) Instruction on the location and use of all emergency and safety equipment carried on the helicopter;

(E) Instruction on the location and use of all types of exits; and

(F) Security procedures.

(iii) Every three years the programme of training must include the following:

(A) Actual operation of all types of exits;

(B) Actual fire-fighting using equipment representative of that carried in the helicopter on an actual or simulated fire except that, with Halon extinguishers, an alternative method acceptable to the Authority may be used;

(C) The effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment, if applicable;

(D) Demonstration in the use of the life-rafts where fitted, or, demonstration and use of the life-rafts where they are fitted for extended overwater operations (See AMC to Appendix 1 to JAR-OPS 3.965, sub-paragraph (a)(3)(iii)(D); and

(E) First aid**[**; appropriate to the helicopter type, the kind of operation and crew complement (particularly in the case when crew members are not carried)**]**.

(4) *CRM.*

(b) *Recurrent checking*. Recurrent checking shall comprise:

(1) *Operator proficiency checks*.

Appendix 1 to JAR-OPS 3.965 (continued)

(i) Where applicable, proficiency checks must include the following abnormal/emergency procedures:

(A) Engine fire;

(B) Fuselage fire;

(C) Emergency operation of under carriage;

(D) Fuel dumping;

(E) Engine Failure and relight;

(F) Hydraulic failure;

(G) Electrical failure;

(H) Engine failure during take-off before decision point;

(I) Engine failure during take-off after decision point;

(J) Engine failure during landing before decision point;

(K) Engine failure during landing after decision point;

(L) Flight and engine control system malfunctions;

(M) Recovery from unusual attitudes;

(N) Landing with one or more engine(s) inoperative;

(O) IMC auto-rotation techniques;

(P) Auto-rotation to a designated area;

(Q) Pilot incapacitation; and

(R) Directional control failures and malfunctions.

(ii) For pilots required to engage in IFR operations proficiency checks include the following additional abnormal/emergency procedures:

(A) Precision instrument approach to minima with, in the case of multi-engined helicopters, a simulated failure of one engine;

(B) Go-around on instruments from minima with, in the case of multi-engined helicopters, a simulated failure of one engine;

Appendix 1 to JAR-OPS 3.965 (continued)

(C) Non precision approach to minima;

(D) Landing with a simulated failure of one or more engines; and

(E) Where appropriate to the helicopter type, approach with flight control system/flight director system malfunctions, flight instrument and navigation equipment failures.

(2) *Emergency and safety equipment checks*. The items to be checked shall be those for which training has been carried out in accordance with sub-paragraph (a)(3) above.

(3) *Line checks*;

(i) Line checks must establish the ability to perform satisfactorily a complete line operation including pre-flight and post-flight procedures and use of the equipment provided, as specified in the Operations Manual.

(ii) The flight crew must be assessed on their CRM skills for the purpose of:

(A) Providing feedback to the crew collectively and individually; and

(B) improving the CRM training system.

(iii) When pilots are assigned duties as pilot flying and pilot non-flying they must be checked in both functions.

(iv) Line checks must be completed in a helicopter.

(v) The person conducting a line check, who is described in JAR-OPS 3.965(a)(4)(ii), shall occupy an observer's seat whenever practical.

(4) *Single pilot operations* ;

(i) The recurrent checks required by sub-paragraphs (1) to (3) above shall be performed in the single pilot role on a particular helicopter type in an environment representative of the operation.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04; Amdt. 5, 01.07.07]

Appendix 1 to JAR-OPS 3.968
Pilot qualification to operate in either pilot's seat

(a) Commanders whose duties also require them to carry out the duties of the co-pilot, or commanders required to conduct training or examining duties, **[**shall complete their proficiency checks respectively from left and right hand seats, on alternate proficiency checks, provided that when the type rating proficiency check is combined with the operator proficiency check the commander completes his training or checking from his normally occupied seat. All checks, from whatever seat, must be completed as prescribed in JAR-OPS 3.965(b).**]**

[ ]

(b) When engine-out manoeuvres are carried out in a helicopter, the engine failure must be simulated. **[**When carried out in a single engine helicopter, the engine failure must be simulated and the training captain must carry out the autorotative landing respectively from left and right hand seats on alternate proficiency checks.**]**

(c) When operating in the co-pilot's seat, the checks required by JAR-OPS 3.965 and JAR-OPS 3.968 for operating in the commander's seat must, in addition, be valid and current.

(d) A pilot relieving the commander shall have demonstrated, concurrent with the operator proficiency checks prescribed in JAR-OPS 3.965(b), practice of drills and procedures which would not, normally, be the relieving pilot's responsibility. Where the differences between left and right seats are not significant (for example because of use of autopilot) then practice may be conducted in either seat.

(e) A pilot other than the commander occupying the commander's seat shall demonstrate practice of drills and procedures, concurrent with the operator proficiency checks prescribed in JAR-OPS 3.965(b), which would otherwise have been the commander's responsibility acting as pilot non-flying. Where the differences between right and left seats are not significant (for example because of use of autopilot) then practice may be conducted in either seat.

[Ch. 1, 01.01.99, Amdt. 3, 01.04.04]

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SUBPART O – CREW MEMBERS OTHER THAN FLIGHT CREW

JAR-OPS 3.988 Applicability
(See Appendix 1 to JAR-OPS 3.988)

An operator shall ensure that all crew members, other than flight crew members, assigned by the operator to duties in the helicopter, comply with the requirements of this Subpart except for cabin crew members who will comply only with the requirements in Appendix 1 to JAR-OPS 3.988.

[Amdt. 2, 01.01.02]

JAR-OPS 3.990 *Intentionally blank*

[Amdt. 2, 01.01.02]

JAR-OPS 3.995 Minimum requirements

(a) An operator shall ensure that each crew member:

(1) Is at least 18 years of age;

(2) Has passed an initial medical examination or assessment and is found medically fit to discharge the duties specified in the Operations Manual (see ACJ OPS 3.995(a)(2)); and

(3) Remains medically fit to discharge the duties specified in the Operations Manual.

(b) An operator shall ensure that each crew member is competent to perform his duties in accordance with procedures specified in the Operations Manual.

[Amdt. 2, 01.01.02]

JAR-OPS 3.1000 *Intentionally blank*

[Amdt. 2, 01.01.02]

JAR-OPS 3.1005 Initial training
(See ACJ OPS 3.1005)

An operator shall ensure that each crew member successfully completes initial training **[**(which shall include appropriate elements of JAR-OPS 3.943)**]**, accepted by the Authority, and the checking prescribed in JAR-OPS 3.1025 before undertaking conversion training.

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.1010 Conversion and Differences Training
(See ACJ OPS 3.1010)

(a) An operator shall ensure that each crew member has completed appropriate training, as specified in the Operations Manual, before undertaking assigned duties as follows:

(1) *Conversion training*. A conversion course must be completed before being:

(i) First assigned by the operator to operate as a crew member; or

(ii) Assigned to operate another helicopter type; and

(2) *Differences training*. Differences training must be completed before operating:

(i) On a variant of a helicopter type currently operated; or

(ii) With different safety equipment, safety equipment location, equipment relevant to the crew member's duties, or normal and emergency procedures on currently operated helicopter types or variants.

(b) An operator shall determine the content of the conversion or differences training taking account of the crew member's previous training as recorded in the crew member's training records required by JAR - OPS 3.1035.

(c) An operator shall ensure that:

(1) Conversion training is conducted in a structured and realistic manner;

(2) Differences training is conducted in a structured manner; and

(3) Conversion training, and if necessary differences training, includes the use of all relevant equipment (including safety equipment) and emergency procedures applicable to the type or variant of helicopter and involves training and practice on either a representative training device or on the actual helicopter.

[(4) Elements of CRM training are integrated into the conversion course.**]**

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.1012 Familiarisation flights

An operator shall ensure that, following completion of conversion training, each crew

JAR-OPS 3.1012 (continued)

member undertakes familiarisation flight prior to operating as one of the crew members required by JAR-OPS 3.

[Amdt. 2, 01.01.02]

JAR-OPS 3.1015 Recurrent training (See ACJ OPS 3.1015)

(a) An operator shall ensure that each crew member undergoes recurrent training, covering the actions assigned to each crew member in normal and emergency procedures and drills relevant to the type(s) and/or variant(s) of helicopter on which they operate.

(b) An operator shall ensure that the recurrent training and checking programme accepted by the Authority includes theoretical and practical instruction, together with individual practice.

(c) The period of validity of recurrent training and the associated checking required by JAR-OPS 3.1025 shall be 12 calendar months in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of a previous check, the period of validity shall extend from the date of issue until 12 calendar months from the expiry date of that previous check.

[(d) An operator shall ensure that:

(1) Elements of CRM are integrated into all appropriate phases of the recurrent training; and

(2) Each crew member undergoes specific modular CRM training. All major topics of the initial CRM training shall be covered over a period not exceeding 3 years.**]**

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

JAR-OPS 3.1020 Refresher Training (See ACJ OPS 3.1020)

(a) An operator shall ensure that each crew member who has been absent from all flying duties for more than 6 months completes refresher training specified in the Operations Manual

(b) An operator shall ensure that when a crew member has not been absent from all flying duties, but has not, during the preceding 6 months, undertaken duties on a type of helicopter as a crew member, before undertaking such duties on that type, the crew member either:

JAR-OPS 3.1020(b) (continued)

(1) Completes refresher training on the type; or

(2) Operates two re-familiarisation sectors.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.1025 Checking (See ACJ OPS 3.1025)

(a) An operator shall ensure that during or following completion of the training required by JAR-OPS 3.1005, 3.1010 and 3.1015, each crew member undergoes a check covering the training received in order to verify his proficiency in carrying out normal and emergency safety duties. These checks must be performed by personnel acceptable to the Authority.

(b) An operator shall ensure that each crew member undergoes checks as follows:

(1) *Initial training*. (See ACJ OPS 3.1005);

(2) *Conversion and Differences training*. (See ACJ OPS 3.1010); and

(3) *Recurrent training*. (See ACJ OPS 3.1015).

[Amdt. 2, 01.01.02]

JAR-OPS 3.1030 Operation on more than one type or variant

(a) An operator shall ensure that each crew member does not operate on more than three helicopter types except that, with the approval of the Authority, the crew member may operate on four helicopter types, provided that safety equipment and emergency procedures for at least two of the types are similar.

(b) For the purposes of sub-paragraph (a) above, variants of a helicopter type are considered to be different types if they are not similar in all the following aspects:

(1) Emergency exit operation;

(2) Location and type of safety equipment; and

(3) Emergency procedures.

[Amdt. 2, 01.01.02]

JAR-OPS 3.1035 Training records

(a) An operator shall:

(1) Maintain records of all training and checking required by JAR-OPS 3.1005, 3.1010, 3.1015, 3.1020 and 3.1025; and

(2) Make the records of all initial, conversion and recurrent training and checking available, on request, to the crew member concerned.

[Amdt. 2, 01.01.02]

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Appendix 1 to JAR-OPS 3.988
Cabin Crew members

(a) *Applicability*. An operator shall ensure that all cabin crew members, assigned by the operator to duties in the passenger compartment of a helicopter comply with the requirements of JAR-OPS 1 Subpart O, except for the variations contained in this appendix.

(b) *Interpretation of terms*. When applying the text of JAR-OPS 1 Subpart O, the following text shall be interpreted, for the purpose of this appendix, as indicated:

(1) In JAR-OPS 1.988, the use of the term crew members is not to be interpreted to mean crew members in the sense of JAR-OPS 3 Subpart O.

(2) For aeroplane read helicopter.

(3) The term airport(s) includes heliport(s).

(4) Reference to any other subpart of JAR-OPS 1 means the appropriate subpart of JAR-OPS 3.

(c) *Alleviation.* The following rules do not apply to helicopter cabin crew members:

(1) Appendix 1 to JAR-OPS 1.1010 Conversion and Differences training:

(i) paragraph (d); evacuation slide training;

(ii) paragraph (e)(2)(ii); severe air turbulence;

(iii) paragraph (e)(2)(iii) sudden decompression;

(iv) paragraph (h)(1); slides;

(v) paragraph (h)(2); slide rafts;

(vi) paragraph (h)(4); dropout oxygen.

[Amdt. 2, 01.01.02]

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SUBPART P – MANUALS, LOGS AND RECORDS

JAR-OPS 3.1040 General Rules for Operations Manuals

(a) An operator shall ensure that the Operations Manual contains all instructions and information necessary for operations personnel to perform their duties.

(b) An operator shall ensure that the contents of the Operations Manual, including all amendments or revisions, do not contravene the conditions contained in the Air Operator Certificate (AOC) or any applicable regulations and are acceptable to, or, where applicable, approved by, the Authority. (See IEM OPS 3.1040(b).)

(c) Unless otherwise approved by the Authority, or prescribed by national law, an operator must prepare the Operations Manual in the English language. In addition, an operator may translate and use that manual, or parts thereof, into another language. (See IEM OPS 3.1040(c).)

(d) Should it become necessary for an operator to produce new Operations Manuals or major parts/volumes thereof, he must comply with sub-paragraph (c) above. In all other cases, an operator must comply with sub-paragraph (c) above as soon as possible and in no case later than 1 December 2000.

(e) An operator may issue an Operations Manual in separate volumes.

(f) An operator shall ensure that all operations personnel have easy access to a copy of each part of the Operations Manual which is relevant to their duties. In addition, the operator shall supply crew members with a personal copy of, or sections from, Parts A and B of the Operations Manual as are relevant for personal study.

(g) An operator shall ensure that the Operations Manual is amended or revised so that the instructions and information contained therein are kept up to date. The operator shall ensure that all operations personnel are made aware of such changes that are relevant to their duties.

(h) Each holder of an Operations Manual, or appropriate parts of it, shall keep it up to date with the amendments or revisions supplied by the operator.

(i) An operator shall supply the Authority with intended amendments and revisions in advance of the effective date. When the amendment concerns any part of the Operations Manual which must be approved in accordance

JAR-OPS 3.1040(i) (continued)

with JAR-OPS Part 3, this approval shall be obtained before the amendment becomes effective. When immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately, provided that any approval required has been applied for.

(j) An operator shall incorporate all amendments and revisions required by the Authority.

(k) An operator must ensure that information taken from approved documents, and any amendment of such approved documentation, is correctly reflected in the Operations Manual and that the Operations Manual contains no information contrary to any approved documentation. However, this requirement does not prevent an operator from using more conservative data and procedures.

(l) An operator must ensure that the contents of the Operations Manual are presented in a form in which they can be used without difficulty. **[**The design of the manual shall observe Human factors and CRM principles.**]**

(m) An operator may be permitted by the Authority to present the Operations Manual or parts thereof in a form other than on printed paper. In such cases, an acceptable level of accessibility, usability and reliability must be assured.

(n) The use of an abridged form of the Operations Manual does not exempt the operator from the requirements of JAR-OPS 3.130.

[Ch. 1, 01.02.99; Amdt. 3, 01.04.04]

JAR-OPS 3.1045 Operations Manual - structure and contents

(See Appendix 1 to JAR-OPS 3.1045)
(See AMC OPS 3.1045)

(a) An operator shall ensure that the main structure of the Operations Manual is as follows:

Part A. *General/Basic*

This part shall comprise all non type-related operational policies, instructions and procedures needed for a safe operation.

Part B. *Helicopter Operating Matters*

This part shall comprise all type-related instructions and procedures needed for a safe operation. It shall take account of any differences

JAR-OPS 3.1045(a) (continued)

between types, variants or individual helicopters used by the operator.

Part C. *Route/Role/Area and Heliport Instructions and Information*

This part shall comprise all instructions and information needed for the area of operation.

Part D. *Training*

This part shall comprise all training instructions for personnel required for a safe operation.

(b) An operator shall ensure that the contents of the Operations Manual are in accordance with Appendix 1 to JAR-OPS 1045 and relevant to the area(s) and type(s) of operation.

(c) An operator shall ensure that the detailed structure of the Operations Manual is acceptable to the Authority. (See IEM OPS 3.1045(c).)

[Ch. 1, 01.02.99]

JAR-OPS 3.1050 Helicopter Flight Manual

An operator shall keep a current approved Helicopter Flight Manual or equivalent document for each helicopter that it operates.

JAR-OPS 3.1055 Journey log

(a) An operator shall retain the following information for each flight in the form of a Journey Log:

(1) Helicopter registration;

(2) Date;

(3) Name(s) of crew member(s);

(4) Duty assignment of crew member(s);

(5) Place of departure;

(6) Place of arrival;

(7) Time of departure;

(8) Time of arrival;

(9) Hours of flight;

(10) Nature of flight;

(11) Incidents, observations (if any); and

(12) Commander's signature (or equivalent) (see IEM OPS 3.1055 (a)(12)).

(b) An operator may be permitted not to keep a helicopter journey log, or parts thereof, by the Authority if the relevant information is available

JAR-OPS 3.1055(b) (continued)

in other documentation. (See IEM OPS 3.1055(b).)

JAR-OPS 3.1060 Operational flight plan

(a) An operator must ensure that the operational flight plan used and the entries made during flight contain the following items:

(1) Helicopter registration;

(2) Helicopter type and variant;

(3) Date of flight;

(4) Flight identification;

(5) Names of flight crew members;

(6) Duty assignment of flight crew members;

(7) Place of departure;

(8) Time of departure;

(9) Place of arrival (planned and actual);

(10) Time of arrival;

(11) Type of operation (VFR, HEMS, etc.);

(12) Route and route segments with checkpoints/waypoints, distances, time and tracks;

(13) Planned cruising speed and flying times between check-points/way-points. Estimated and actual times overhead;

(14) Safe altitudes and minimum levels;

(15) Planned altitudes and flight levels;

(16) Fuel calculations (records of in-flight fuel checks);

(17) Fuel on board when starting engines;

(18) Alternate(s) for destination and, where applicable, take-off and en-route, including information required in sub-paragraphs (12), (13), (14), and (15) above;

(19) Initial ATS Flight Plan clearance and subsequent re-clearance;

(20) In-flight re-planning calculations; and

(21) Relevant meteorological information.

(b) Items which are readily available in other documentation or from an acceptable source or are

JAR-OPS 3.1060(b) (continued)

irrelevant to the type of operation may be omitted from the operational flight plan.

(c) An operator must ensure that the operational flight plan and its use is described in the Operations Manual.

(d) An operator shall ensure that all entries on the operational flight plan are made concurrently and that they are permanent in nature.

JAR-OPS 3.1065 Document storage periods

An operator shall ensure that all records and all relevant operational and technical information for each individual flight, are stored for the periods prescribed in Appendix 1 to JAR-OPS 3.1065.

JAR-OPS 3.1070 Operator's maintenance management exposition

An operator shall keep a current approved maintenance management exposition as prescribed in **[**Part-M – M.A.704 Continuing airworthiness management exposition**]**.

[Amdt. 4, 01.12.06]

JAR-OPS 3.1071 Helicopter Technical log

An operator shall keep a helicopter technical log as prescribed in **[**Part-M – M.A.306 Operator’s technical log system**]**.

[Amdt. 4, 01.12.06]

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Appendix 1 to JAR-OPS 3.1045
Operations Manual Contents
(See IEM to Appendix 1 to JAR-OPS 3.1045)

An operator shall ensure that the Operations Manual contains the following:

A GENERAL/BASIC

0 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL

0.1 *Introduction*

(a) A statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable Air Operator Certificate.

(b) A statement that the manual contains operational instructions that are to be complied with by the relevant personnel.

(c) A list and brief description of the various parts, their contents, applicability and use.

(d) Explanations and definitions of terms and words needed for the use of the manual.

0.2 *System of amendment and revision*

(a) Who is responsible for the issuance and insertion of amendments and revisions.

(b) A record of amendments and revisions with insertion dates and effective dates.

(c) A statement that handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety.

(d) A description of the system for the annotation of pages and their effective dates.

(e) A list of effective pages.

(f) Annotation of changes (on text pages and, as far as practicable, on charts and diagrams).

(g) Temporary revisions.

(h) A description of the distribution system for the manuals, amendments and revisions.

1 ORGANISATION AND RESPONSIBILITIES

1.1 *Organisational structure*. A description of the organisational structure including the general company organigram and operations department organigram. The organigram must depict the relationship between the Operations Department and the other Departments of the

company. In particular, the subordination and reporting lines of all Divisions, Departments etc., which pertain to the safety of flight operations, must be shown.

1.2 *Nominated postholders*. The name of each nominated postholder responsible for flight operations, the maintenance system, crew training and ground operations, as prescribed in JAR-OPS 3 Subpart C. A description of their function and responsibilities must be included.

1.3 *Responsibilities and duties of operations management personnel*. A description of the duties, responsibilities and authority of operations management personnel pertaining to the safety of flight operations and the compliance with the applicable regulations.

1.4 *Authority, duties and responsibilities of the commander*. A statement defining the authority, duties and responsibilities of the commander.

1.5. *Duties and responsibilities of crew members other than the commander*

2 OPERATIONAL CONTROL AND SUPERVISION

2.1 *Supervision of the operation by the operator*. A description of the system for supervision of the operation by the operator (see JAR-OPS 3.175(g)). This must show how the safety of flight operations and the qualifications of personnel are supervised. In particular, the procedures related to the following items must be described:

(a) Licence and qualification validity;

(b) Competence of operations personnel; and

(c) Control, analysis and storage of records, flight documents, additional information and data.

2.2 *System of promulgation of additional operational instructions and information*. A description of any system for promulgating information which may be of an operational nature but is supplementary to that in the Operations Manual. The applicability of this information and the responsibilities for its promulgation must be included.

2.3 *Accident prevention and flight safety programme*. A description of the main aspects of the flight safety programme.

Appendix 1 to JAR-OPS 3.1045 (continued)

2.4 *Operational control*. A description of the procedures and responsibilities necessary to exercise operational control with respect to flight safety.

2.5 *Powers of the Authority.* A description of the powers of the Authority [and guidance to staff on how to facilitate inspections by Authority personnel.]

3 QUALITY SYSTEM

A description of the quality system adopted including at least:

(a) Quality policy;

(b) A description of the organisation of the Quality System; and

(c) Allocation of duties and responsibilities.

4 CREW COMPOSITION

4.1 *Crew Composition*. An explanation of the method for determining crew compositions taking account of the following:

(a) The type of helicopter being used;

(b) The area and type of operation being undertaken;

(c) The phase of the flight;

(d) The minimum crew requirement and flight duty period planned;

(e) Experience (total and on type), recency and qualification of the crew members; and

(f) The designation of the commander.

(g) The designation of the senior cabin crew member.

4.2 *Intentionally blank*

4.3 *Flight crew incapacitation*. Instructions on the succession of command in the event of flight crew incapacitation.

4.4 *Operation on more than one type.* A statement indicating which helicopters are considered as one type for the purpose of:

(a) Flight crew scheduling; and

(b) Cabin crew scheduling.

Appendix 1 to JAR-OPS 3.1045 (continued)

5 QUALIFICATION REQUIREMENTS

5.1 A description of the required licence, rating(s), qualification/competency (e.g. for routes and aerodromes), experience, training, checking and recency for operations personnel to conduct their duties. Consideration must be given to the helicopter type, kind of operation and composition of the crew.

5.2 *Flight crew*

(a) Commander.

(b) Pilot relieving the commander.

(c) Co-pilot.

(d) Pilot under supervision.

(e) System panel operator.

(f) Operation on more than one type or variant.

5.3 *Cabin crew*

(a) Senior cabin crew member.

(b) Cabin crew member.

(i) Required cabin crew member.

(ii) Additional cabin crew member and cabin crew member during familiarisation flights.

(c) Operation on more than one type or variant.

5.4 *Training, checking and supervision personnel*

(a) For flight crew.

(b) For cabin crew.

5.5 *Other operations personnel*

6 CREW HEALTH PRECAUTIONS

6.1 *Crew health precautions*. The relevant regulations and guidance to crew members concerning health including:

(a) [Psychoactive substances including but not limited to:

(i) Anti depressants;

(ii) Alcohol and other intoxicating liquids;

(iii) Narcotics;

(iv) Drugs; and]

Appendix 1 to JAR-OPS 3.1045 (continued)

[(v) Sleeping tablets.

(See also JAR-FCL Part 3 (medical) - 3.035 & 3.040)]

([b]) Pharmaceutical preparations;

([c]) Immunisation;

([d]) [D]iving [involving underwater pressure breathing devices;]

([e]) Blood[/bone marrow] donation;

([f]) Meal precautions prior to and during flight;

([g]) Sleep and rest; and

([k]) Surgical operations.

7 FLIGHT TIME LIMITATIONS

7.1 *Flight and Duty Time Limitations and Rest Requirements*. A description of the flight and duty time limitations and rest requirements prescribed in JAR-OPS Part 3 Subpart Q as applicable to the operation.

7.2 *Exceedances of flight and duty time limitations and/or reductions of rest periods*. Conditions under which flight and duty time may be exceeded or rest periods may be reduced and the procedures used to report these modifications.

8 OPERATING PROCEDURES

8.1 *Flight Preparation Instructions*. As applicable to the operation:

8.1.1 *Minimum Flight Altitudes*. A description of the method of determination and application of minimum altitudes including:

(a) A procedure to establish the minimum altitudes/flight levels for VFR flights; and

(b) A procedure to establish the minimum altitudes/flight levels for IFR flights.

8.1.2 *Criteria for determining the usability of aerodromes*

8.1.3 *Methods for the determination of aerodrome operating minima*. The method for establishing aerodrome operating minima for IFR flights in accordance with JAR-OPS Part 3 Subpart E. Reference must be made to procedures for the determination of the visibility and/or runway visual range and for the applicability of the actual visibility observed by the pilots, the

Appendix 1 to JAR-OPS 3.1045 (continued)

reported visibility and the reported runway visual range.

8.1.4 En-route Operating Minima for VFR Flights or VFR portions of a flight and, where single engined helicopters are used, instructions for route selection with respect to the availability of surfaces which permit a safe forced landing.

8.1.5 *Presentation and Application of Aerodrome and En-route Operating Minima*

8.1.6 *Interpretation of meteorological information*. Explanatory material on the decoding of MET forecasts and MET reports relevant to the area of operations, including the interpretation of conditional expressions.

8.1.7 *Determination of the quantities of fuel, oil and water methanol carried*. The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in flight. This section must also include instructions on the measurement and distribution of the fluid carried on board. Such instructions must take account of all circumstances likely to be encountered on the flight, including the possibility of in-flight replanning and of failure of one or more of the helicopter's power plants. The system for maintaining fuel and oil records must also be described.

8.1.8 *Mass and Centre of Gravity*. The general principles of mass and centre of gravity including:

(a) Definitions;

(b) Methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations;

(c) The policy for using either standard and/or actual masses;

(d) The method for determining the applicable passenger, baggage and cargo mass;

(e) The applicable passenger and baggage masses for various types of operations and helicopter type;

(f) General instruction and information necessary for verification of the various types of mass and balance documentation in use;

(g) Last Minute Changes procedures;

(h) Specific gravity of fuel, oil and water methanol;

(i) Seating policy/procedures; and

(j) Standard load plans.

Appendix 1 to JAR-OPS 3.1045 (continued)

8.1.9 *ATS Flight Plan*. Procedures and responsibilities for the preparation and submission of the air traffic services flight plan. Factors to be considered include the means of submission for both individual and repetitive flight plans.

8.1.10 *Operational Flight Plan*. Procedures and responsibilities for the preparation and acceptance of the operational flight plan. The use of the operational flight plan must be described including samples of the operational flight plan formats in use.

8.1.11 *Operator's Helicopter Technical Log*. The responsibilities and the use of the operator's Helicopter Technical Log must be described, including samples of the format used.

8.1.12 *List of documents, forms and additional information to be carried*

8.2 *Ground Handling Instructions*

8.2.1 *Fuelling procedures*. A description of fuelling procedures, including:

(a) Safety precautions during refuelling and defuelling including rotors running, engine(s) running and when an APU is in operation;

(b) Refuelling and defuelling when passengers are embarking, on board or disembarking; and

(c) Precautions to be taken to avoid mixing fuels.

8.2.2 *Helicopter, passengers and cargo handling procedures related to safety*. A description of the handling procedures to be used when allocating seats and embarking and disembarking passengers and when loading and unloading the helicopter. Further procedures, aimed at achieving safety whilst the helicopter is on the ramp, must also be given. Handling procedures must include:

(a) Children/infants, sick passengers and Persons with Reduced Mobility;

(b) Transportation of inadmissible passengers, deportees or persons in custody;

(c) Permissible size and weight of hand baggage;

(d) Loading and securing of items in the helicopter;

(e) Special loads and classification of load compartments;

(f) Positioning of ground equipment;

Appendix 1 to JAR-OPS 3.1045 (continued)

(g) Operation of helicopter doors;

(h) Safety on the ramp, including fire prevention, blast and suction areas;

(i) Start-up, ramp departure and arrival procedures;

(j) Servicing of helicopters; and

(k) Documents and forms for helicopter handling;

(l) Multiple occupancy of helicopter seats.

8.2.3 *Procedures for the refusal of embarkation*. Procedures to ensure that persons who appear to be intoxicated or who demonstrate by manner or physical indications that they are under the influence of drugs, except medical patients under proper care, are refused embarkation.

8.2.4 *De-icing and Anti-icing on the ground*. A description of the de-icing and anti-icing policy and procedures for helicopters on the ground. These shall include descriptions of the types and effects of icing and other contaminants on helicopters whilst stationary, during ground movements and during take-off. In addition, a description of the fluid types used must be given including:

(a) Proprietary or commercial names;

(b) Characteristics;

(c) Effects on helicopter performance;

(d) Hold-over times; and

(e) Precautions during usage.

8.3 *Flight Procedures*

8.3.1 *VFR/IFR Policy*. A description of the policy for allowing flights to be made under VFR, or of requiring flights to be made under IFR, or of changing from one to the other.

8.3.2 *Navigation Procedures*. A description of all navigation procedures relevant to the type(s) and area(s) of operation. Consideration must be given to:

(a) Standard navigational procedures including policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the helicopter;

(b) MNPS and POLAR navigation and navigation in other designated areas;

Appendix 1 to JAR-OPS 3.1045 (continued)

(c) RNAV. A description of the relevant RNAV procedures specified in Part C;

(d) In-flight replanning; and

(e) Procedures in the event of system degradation.

8.3.3 *Altimeter setting procedures*

8.3.4 *Audio voice alerting device*

8.3.5 *Intentionally blank*

8.3.6 *Intentionally blank*

8.3.7 *Policy and procedures for in-flight fuel management*

8.3.8 *Adverse and potentially hazardous atmospheric conditions*. Procedures for operating in, and/or avoiding, potentially hazardous atmospheric conditions including:

(a) Thunderstorms;

(b) Icing conditions;

(c) Turbulence;

(d) Windshear;

(e) Jet stream;

(f) Volcanic ash clouds;

(g) Heavy precipitation;

(h) Sand storms;

(i) Mountain waves; and

(j) Significant Temperature inversions.

8.3.9 *Wake Turbulence and Rotor Downwash*. Wake turbulence and rotor downwash separation, taking into account helicopter types, wind conditions and FATO location.

8.3.10 *Crew members at their stations*. The requirements for crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interest of safety.

8.3.11 *Use of safety belts for crew and passengers*. The requirements for crew members and passengers to use safety belts and/or harnesses during the different phases of flight or whenever deemed necessary in the interest of safety.

8.3.12 *Admission to Cockpit*. The conditions for the admission to the cockpit of persons other than the flight crew. The policy regarding the admission of Inspectors from the Authority must also be included.

Appendix 1 to JAR-OPS 3.1045 (continued)

8.3.13 *Use of vacant crew seats*. The conditions and procedures for the use of vacant crew seats.

8.3.14 *Incapacitation of crew members*. Procedures to be followed in the event of incapacitation of crew members in flight. Examples of the types of incapacitation and the means for recognising them must be included.

8.3.15 *Cabin Safety Requirements*. Procedures covering:

(a) Cabin preparation for flight, in-flight requirements and preparation for landing including procedures for securing cabin and galleys;

(b) Procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the helicopter;

(c) Procedures to be followed during passenger embarkation and disembarkation;

(d) Procedures in the event of fuelling with passengers on board or embarking and disembarking; and

(e) Smoking on board.

8.3.16 *Passenger briefing procedures*. The contents, means and timing of passenger briefing in accordance with JAR-OPS 3.285.

8.3.17 *Intentionally blank*

8.4 *AWO*. A description of the operational procedures associated with All Weather Operations. (See JAR-OPS Part 3 Subparts D & E).

8.5 *Intentionally blank*

8.6 *Use of the Minimum Equipment and Configuration Deviation List(s)*

8.7 *Non revenue flights*. Procedures and limitations for:

(a) Training flights;

(b) Test flights;

(c) Delivery flights;

(d) Ferry flights;

(e) Demonstration flights; and

(f) Positioning flights,

Appendix 1 to JAR-OPS 3.1045 (continued)

including the kind of persons who may be carried on such flights.

8.8 *Oxygen Requirements*

8.8.1 An explanation of the conditions under which oxygen must be provided and used.

8.8.2 The oxygen requirements specified for:

(a) Flight crew;

(b) Cabin crew; and

(c) Passengers.

9 DANGEROUS GOODS AND WEAPONS

9.1 Information, instructions and general guidance on the transport of dangerous goods including:

(a) Operator's policy on the transport of dangerous goods;

(b) Guidance on the requirements for acceptance, labelling, handling, stowage and segregation of dangerous goods;

(c) Procedures for responding to emergency situations involving dangerous goods;

(d) Duties of all personnel involved as per JAR-OPS 3.1215; and

(e) Instructions on the carriage of the operator's employees.

9.2 The conditions under which weapons, munitions of war and sporting weapons may be carried.

10 SECURITY

10.1 Security instructions and guidance of a non-confidential nature which must include the authority and responsibilities of operations personnel. Policies and procedures for handling and reporting crime on board such as unlawful interference, sabotage, bomb threats, and hijacking must also be included.

10.2 A description of preventative security measures and training.

NOTE: Parts of the security instructions and guidance may be kept confidential.

Appendix 1 to JAR-OPS 3.1045 (continued)

11 HANDLING[, NOTIFYING AND REPORTING] OCCURRENCES

Procedures for the handling, notifying and reporting [ ] occurrences. This section must include:

(a) Definitions of [ ] occurrences and [of] the relevant responsibilities of all persons involved;

(b) [Illustrations of forms used for reporting all types of occurrences (or copies of the forms themselves), instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done;]

(c) [In the event of an accident, descriptions of which company departments, Authorities and other organizations that have to be notified, how this will be done and in what sequence;]

(d) [Procedures for verbal notification to air traffic service units of incidents involving ACAS RAs, bird hazards, dangerous goods and hazardous conditions;]

(e) [Procedures for submitting written reports on air traffic incidents, ACAS RAs, bird strikes, dangerous goods incidents or accidents, and unlawful interference;]

(f) [Reporting procedures to ensure compliance with JAR-OPS 3.085(b) and 3.420. These procedures must include internal safety related reporting procedures to be followed by crew members, designed to ensure that the commander is informed immediately of any incident that has endangered, or may have endangered, safety during flight and that he is provided with all relevant information.]

12 RULES OF THE AIR

Rules of the Air including:

(a) Visual and instrument flight rules;

(b) Territorial application of the Rules of the Air;

(c) Communication procedures including COM-failure procedures;

(d) Information and instructions relating to the interception of civil helicopters;

(e) The circumstances in which a radio listening watch is to be maintained;

(f) Signals;

(g) Time system used in operation;

(h) ATC clearances, adherence to flight plan and position reports;

Appendix 1 to JAR-OPS 3.1045 (continued)

(i) Visual signals used to warn an unauthorised helicopter flying in or about to enter a restricted, prohibited or danger area;

(j) Procedures for pilots observing an accident or receiving a distress transmission;

(k) The ground/air visual codes for use by survivors, description and use of signal aids; and

(l) Distress and urgency signals.

[13 LEASING. A description of the operational arrangements for leasing, associated procedures and management responsibilities.]

B HELICOPTER OPERATING MATTERS – TYPE RELATED

Taking account of the differences between types, and variants of types, under the following headings:

0 GENERAL INFORMATION AND UNITS OF MEASUREMENT

0.1 General Information (e.g. helicopter dimensions), including a description of the units of measurement used for the operation of the helicopter type concerned and conversion tables.

1 LIMITATIONS

1.1 A description of the certified limitations and the applicable operational limitations including:

(a) Certification status (e.g. JAR-27, JAR-29, ICAO Annex 16 (JAR-34 and JAR-36) etc.);

(b) Passenger seating configuration for each helicopter type including a pictorial presentation;

(c) Types of operation that are approved (e.g. IFR/VFR, CAT II/III, RNP Type, flights in known icing conditions etc.);

(d) Crew composition;

(e) Mass and centre of gravity;

(f) Speed limitations;

(g) Flight envelope(s);

(h) Wind limits;

(i) Performance limitations for applicable configurations;

(j) Slope;

(k) Airframe contamination;

Appendix 1 to JAR-OPS 3.1045 (continued)

(l) System limitations.

2 EMERGENCY PROCEDURES

2.1 The emergency procedures and duties assigned to the crew, the appropriate checklists, the system for use of the checklists and a statement covering the necessary co-ordination procedures between flight and **[**other**]** crew **[**members (the design and utilisation of which shall observe Human factors and CRM principles)**]**. The following emergency procedures and duties must be included:

(a) Crew Incapacitation;

(b) Fire and Smoke Drills;

(c) Lightning Strikes;

(d) Distress Communications and alerting ATC to Emergencies;

(e) Engine failure;

(f) System failures;

(g) Guidance for Diversion in case of Serious Technical Failure;

(h) AVAD warning;

(i) Windshear;

(j) Emergency Landing/Ditching;

3 NORMAL PROCEDURES

3.1 The normal procedures and duties assigned to the crew, the appropriate check-lists, the system for use of the check-lists and a statement covering the necessary coordination procedures between flight and cabin crew. The following normal procedures and duties must be included:

(a) Pre-flight;

(b) Pre-departure;

(c) Altimeter setting and checking;

(d) Taxy, Take-Off and Climb;

(e) Noise abatement;

(f) Cruise and descent;

(g) Approach, Landing preparation and briefing;

(h) VFR Approach;

(i) IFR approach;

(j) Visual Approach and circling;

(k) Missed Approach;

Appendix 1 to JAR-OPS 3.1045 (continued)

(l) Normal Landing;

(m) Post Landing.

4 PERFORMANCE

4.0 *Performance data must be provided in a form in which it can be used without difficulty.*

4.1 *Performance data*. Performance material which provides the necessary data for compliance with the performance requirements prescribed in Subparts F, G H and I.

4.2 If performance Data, as required for the appropriate performance class, is not available in the approved HFM, then other data acceptable to the Authority must be included. Alternatively, the Operations Manual may contain cross-reference to the approved data contained in the HFM where such data is not likely to be used often or in an emergency.

5 MASS AND BALANCE

Instructions and data for the calculation of the mass and balance including:

(a) Calculation system (e.g. Index system);

(b) Information and instructions for completion of mass and balance documentation, including manual and computer generated types;

(c) Limiting masses and centre of gravity for the types, variants or individual helicopters used by the operator; and

(d) Dry Operating mass and corresponding centre of gravity or index.

6 LOADING

Procedures and provisions for loading and securing the load in the helicopter.

7 FLIGHT PLANNING

7.1 Data and instructions necessary for pre-flight and in-flight planning. Where applicable, procedures for engine(s) out operations and flights to isolated heliports must be included.

7.2 The method for calculating fuel needed for the various stages of flight, in accordance with JAR-OPS 3.255.

Appendix 1 to JAR-OPS 3.1045 (continued)

8 CONFIGURATION DEVIATION LIST

The Configuration Deviation List(s) (CDL), if provided by the manufacturer, taking account of the helicopter types and variants operated including procedures to be followed when a helicopter is being despatched under the terms of its CDL.

9 MINIMUM EQUIPMENT LIST

The Minimum Equipment List (MEL) taking account of the helicopter types and variants operated and the type(s)/area(s) of operation. The MEL must include the navigational equipment and take into account the required navigation performance for the route and area of operation.

10 SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN

10.1 A list of the survival equipment to be carried for the routes to be flown and the procedures for checking the serviceability of this equipment prior to take-off. Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated check list(s) must also be included.

10.2 The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile and number of occupants.

11 EMERGENCY EVACUATION PROCEDURES

11.1 *Instructions for preparation for emergency evacuation including crew co-ordination and emergency station assignment.*

11.2 *Emergency evacuation procedures*. A description of the duties of all members of the crew for the rapid evacuation of a helicopter and the handling of the passengers in the event of a forced landing, ditching or other emergency.

12 HELICOPTER SYSTEMS

A description of the helicopter systems, related controls and indications and operating instructions. (See IEM to Appendix 1 to JAR-OPS 3.1045.)

Appendix 1 to JAR-OPS 3.1045 (continued)

C ROUTE AND HELIPORT INSTRUCTIONS AND INFORMATION

1 Instructions and information relating to communications, navigation and heliport including minimum flight levels and altitudes for each route to be flown and operating minima for each heliport planned to be used, including:

(a) Minimum flight level/altitude;

(b) Operating minima for departure, destination and alternate aerodromes;

(c) Communication facilities and navigation aids;

(d) FATO/runway data and heliport facilities;

(e) Approach, missed approach and departure procedures including noise abatement procedures;

(f) COM-failure procedures;

(g) Search and rescue facilities in the area over which the helicopter is to be flown;

(h) A description of the aeronautical charts that must be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity;

(i) Availability of aeronautical information and MET services;

(j) En-route COM/NAV procedures.

(k) *Intentionally blank*

(l) Special heliport limitations (performance operating etc.).

D TRAINING

1 Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and/or conduct of a flight.

2 Training syllabi and checking programmes must include:

2.1 *For flight crew*. All relevant items prescribed in JAR-OPS Part 3 Subparts E and N;

2.2 *For cabin crew*. All relevant items prescribed in Subpart O;

2.3 *For operations personnel concerned, including crew members:*

(a) All relevant items prescribed in JAR-OPS Part 3 Subpart R (Transport of Dangerous Goods by Air); and

Appendix 1 to JAR-OPS 3.1045 (continued)

(b) All relevant items prescribed in JAR-OPS Part 3, Subpart S (Security).

2.4 *For operations personnel other than crew members (e.g. despatcher, handling personnel etc.).* All other relevant items prescribed in JAR-OPS pertaining to their duties.

3 *Procedures*

3.1 Procedures for training and checking.

3.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards.

3.3 Procedures to ensure that abnormal or emergency situations requiring the application of part or all of abnormal or emergency procedures and simulation of IMC by artificial means, are not simulated during commercial air transportation flights.

4 Description of documentation to be stored and storage periods. (See Appendix 1 to JAR-OPS 3.1065.)

[Amdt. 3, 01.04.04]

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Appendix 1 to JAR-OPS 3.1065
Document storage periods

An operator shall ensure that the following information/documentation is stored in an acceptable form, accessible to the Authority, for the periods shown in the Tables below.

Note: Additional information relating to maintenance records is prescribed in [Part-M – M.A.306(c) Operator's technical log system].

Table 1 – Information used for the preparation and execution of a flight

Information used for the preparation and execution of the flight as described in JAR-OPS 3.135	
Operational flight plan	3 months
Helicopter Technical log	24 months after the date of the last entry
Route specific NOTAM/AIS briefing documentation if edited by the operator	3 months
Mass and balance documentation	3 months
Notification of special loads including written information to the commander about dangerous goods	3 months

Table 2 – Reports

Reports	
Journey log	3 months
Flight report(s) for recording details of any occurrence, as prescribed in JAR–OPS 3.420, or any event which the commander deems necessary to report/record	3 months
Reports on exceedances of duty and/or reducing rest periods	3 months

Appendix 1 to JAR-OPS 3.1065 (continued)

Table 3 – Flight crew records

Flight Crew Records	
Flight, Duty and Rest time	15 months
Licence	As long as the flight crew member is exercising the privileges of the licence for the operator
Conversion training and checking	3 years
Command course (including checking)	3 years
Recurrent training and checking	3 years
Training and checking to operate in either pilot's seat	3 years
Recent experience (JAR–OPS 3.970 refers)	15 months
Route and aerodrome competence (JAR–OPS 3.975 refers)	3 years
Training and qualification for specific operations when required by JAR–OPS (e.g. HEMS CATII/III operations)	3 years
Dangerous Goods training as appropriate	3 years

Table 4 – Cabin crew records

Cabin Crew Records	
Flight, Duty and Rest time	15 months
Initial training, conversion and differences training (including checking)	As long as the cabin crew member is employed by the operator
Recurrent training and refresher (including checking)	Until 12 months after the cabin crew member has left the employ of the operator
Dangerous Goods training as appropriate	3 years

Appendix 1 to JAR-OPS 3.1065 (continued)

Table 5 – Records for other operations personnel

Records for other operations personnel	
Training /qualification records of other personnel for whom an approved training programme is required by JAR–OPS	Last 2 training records

Table 6 – Other records

Other records	
Quality System records	5 years
Dangerous Goods Transport Document	3 months after completion of the flight
Dangerous Goods Acceptance Checklist	3 months after completion of the flight

[Amdt. 4, 01.12.06]

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SUBPART Q – FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

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SUBPART R – TRANSPORT OF DANGEROUS GOODS BY AIR

JAR-OPS 3.1150 Terminology

(a) Terms used in this Subpart have the following meanings:

(1) *Acceptance Check List*. A document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met.

(2) *Cargo Aircraft*. Any aircraft which is carrying goods or property but not passengers. In this context the following are not considered to be passengers:

(i) A crew member;

(ii) An operator's employee permitted by, and carried in accordance with, the instructions contained in the Operations Manual;

(iii) An authorised representative of an Authority; or

(iv) A person with duties in respect of a particular shipment on board.

(3) *Dangerous Goods Accident*. An occurrence associated with and related to the transport of dangerous goods which results in fatal or serious injury to a person or major property damage. (See IEM OPS 3.1150(a)(3) & (a)(4).)

(4) *Dangerous Goods Incident*. An occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardises the aircraft or its occupants is also deemed to constitute a dangerous goods incident. (See IEM OPS 3.1150(a)(3) & (a)(4).)

(5) *Dangerous Goods Transport Document*. A document which is specified by the Technical Instructions. It is completed by the person who offers dangerous goods for air transport and contains information about those dangerous goods. The document bears a signed declaration indicating that the dangerous goods are fully and accurately described by their proper shipping names and UN**[**/ID**]** numbers

JAR-OPS 3.1150(a)(5) (continued)

[ ] and that they are correctly classified, packed, marked, labelled and in a proper condition for transport.

(6) *Freight Container*. A freight container is an article of transport equipment for radioactive materials, designed to facilitate the transport of such materials, either packaged or unpackaged, by one or more modes of transport.

(7) *Handling Agent*. An agency which performs on behalf of the operator some or all of the latter's functions including receiving, loading, unloading, transferring or other processing of passengers or cargo.

[(8) *ID number*. A temporary identification number for an item of dangerous goods which has not been assigned a UN number.**]**

(**[**9**]**) *Overpack*. An enclosure used by a single shipper to contain one or more packages and to form one handling unit for convenience of handling and stowage.

(**[**10**]**) *Package*. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

(**[**11**]**) *Packaging*. Receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the packing requirements.

(**[**12**]**) *Proper Shipping Name*. The name to be used to describe a particular article or substance in all shipping documents and notifications and, where appropriate, on packagings.

(**[**13**]**) *Serious Injury*. An injury which is sustained by a person in an accident and which:

(i) Requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received; or

(ii) Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

(iii) Involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

JAR-OPS 3.1150(a)(13) (continued)

(iv) Involves injury to any internal organ; or

(v) Involves second or third degree burns, or any burns affecting more than 5% of the body surface; or

(vi) Involves verified exposure to infectious substances or injurious radiation.

([14]) *State of Origin*. The Authority in whose territory the dangerous goods were first loaded on an aircraft.

([15]) *Technical Instructions*. The latest effective edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284AN/905), including the Supplement and any Addendum, approved and published by decision of the Council of the International Civil Aviation Organisation.

([16]) *UN Number*. The four-digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods to identify a substance or a particular group of substances.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.1155 Approval to transport Dangerous Goods
(See IEM OPS 3.1155)

An operator shall not transport dangerous goods unless approved to do so by the Authority.

JAR-OPS 3.1160 Scope

(a) An operator shall comply with the provisions contained in the Technical Instructions on all occasions when dangerous goods are carried, irrespective of whether the flight is wholly or partly within or wholly outside the territory of a State. (See IEM OPS 3.1160(a).)

(b) Articles and substances which would otherwise be classed as dangerous goods are excluded from the provisions of this Subpart, to the extent specified in the Technical Instructions, provided:

(1) They are required to be aboard the helicopter in accordance with the relevant JARs or for operating reasons (see IEM OPS 3.1160(b)(1));

(2) They are carried as catering or cabin service supplies;

JAR-OPS 3.1160(b) (continued)

(3) They are carried for use in flight as veterinary aid or as a humane killer for an animal (see IEM OPS 3.1160(b)(3));

(4) They are carried for use in flight for medical aid for a patient, provided that (see IEM OPS 3.1160(b)(4)):

(i) Gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;

(ii) Drugs, medicines and other medical matter are under the control of trained personnel during the time when they are in use in the helicopter;

(iii) Equipment containing wet cell batteries is kept and, when necessary secured, in an upright position to prevent spillage of the electrolyte; and

(iv) Proper provision is made to stow and secure all the equipment during take-off and landing and at all other times when deemed necessary by the commander in the interests of safety; or

(5) They are carried by passengers or crew members (see IEM OPS 3.1160(b)(5)).

(c) Articles and substances intended as replacements for those in (b)(1) [and (b)(2)] above shall be transported on a helicopter as specified in the Technical Instructions.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

JAR-OPS 3.1165 Limitations on the transport of Dangerous Goods

(a) An operator shall take all reasonable measures to ensure that articles and substances that are specifically identified by name or generic description in the Technical Instructions as being forbidden for transport under any circumstances are not carried on any helicopter.

(b) An operator shall take all reasonable measures to ensure that articles and substances or other goods that are identified in the Technical Instructions as being forbidden for transport in normal circumstances are only transported when:

(1) They are exempted by the States concerned under the provisions of the Technical Instructions (see IEM OPS 3.1165(b)(1)); or

JAR-OPS 3.1165(b) (continued)

(2) The Technical Instructions indicate they may be transported under an approval issued by the State of Origin.

JAR-OPS 3.1170 Classification

An operator shall take all reasonable measures to ensure that articles and substances are classified as dangerous goods as specified in the Technical Instructions.

JAR-OPS 3.1175 Packing
(See AMC OPS 3.1175)

An operator shall take all reasonable measures to ensure that dangerous goods are packed as specified in the Technical Instructions or in a way which will provide an equivalent level of safety subject to the approval of the Authority.

JAR-OPS 3.1180 Labelling and Marking

(a) An operator shall take all reasonable measures to ensure that packages, overpacks and freight containers are labelled as specified in the Technical Instructions.

(b) An operator shall take all reasonable measures to ensure packages, overpacks and freight containers are marked as specified in the Technical Instructions or as specified by the Authority. (See AMC OPS 3.1180(b).)

(c) Where dangerous goods are carried on a flight which takes place wholly or partly outside the territory of a State, labelling and marking must be in the English language in addition to any other language requirements.

JAR-OPS 3.1185 Dangerous Goods Transport Document

(a) An operator shall ensure that, except when otherwise specified in the Technical Instructions, dangerous goods are accompanied by a dangerous goods transport document.

(b) Where dangerous goods are carried on a flight which takes place wholly or partly outside the territory of a State, the English language must be used for the dangerous goods transport document in addition to any other language requirements.

JAR-OPS 3.1190 *Intentionally blank*

JAR-OPS 3.1195 Acceptance of Dangerous Goods

(a) An operator shall not accept dangerous goods for transport until the package, overpack or freight container has been inspected in accordance with the acceptance procedures in the Technical Instructions.

(b) An operator or his handling agent shall use an acceptance check list. The acceptance check list shall allow for all relevant details to be checked and shall be in such form as will allow for the recording of the results of the acceptance check by manual, mechanical or computerised means.

JAR-OPS 3.1200 Inspection for Damage, Leakage or Contamination

(a) An operator shall ensure that:

(1) Packages, overpacks and freight containers are inspected for evidence of leakage or damage immediately prior to loading on a helicopter, as specified in the Technical Instructions;

(2) Leaking or damaged packages, overpacks or freight containers are not loaded on a helicopter;

(3) Any package of dangerous goods found on a helicopter and which appears to be damaged or leaking is removed or arrangements made for its removal by an appropriate authority or organisation. In this case the remainder of the consignment shall be inspected to ensure it is in a proper condition for transport and that no damage or contamination has occurred to the helicopter or its load; and

(4) Packages, overpacks and freight containers are inspected for signs of damage or leakage upon unloading from a helicopter and, if there is evidence of damage or leakage, the area where the dangerous goods were stowed is inspected for damage or contamination.

JAR-OPS 3.1205 Removal of Contamination

(a) An operator shall ensure that:

(1) Any contamination found as a result of the leakage or damage of dangerous goods is removed without delay; and

(2) A helicopter which has been contaminated by radioactive materials is immediately taken out of service and not returned until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

JAR-OPS 3.1210 Loading Restrictions
(See AMC OPS 3.1210(a))

(a) *Passenger Cabin, Flight Deck and Cargo Compartments*. An operator shall ensure that dangerous goods are loaded, segregated, stowed, secured and carried in a helicopter as specified in the Technical Instructions or as approved by the Authority.

(b) *Dangerous Goods Designated for Carriage Only on Cargo Aircraft*. An operator shall ensure that packages of dangerous goods bearing the 'Cargo Aircraft Only' label are carried on a cargo aircraft and loaded as specified in the Technical Instructions.

JAR-OPS 3.1215 Provision of Information

(a) *Information to Ground Staff.* An operator shall ensure that:

(1) Information is provided to enable ground staff to carry out their duties with regard to the transport of dangerous goods, including the actions to be taken in the event of incidents and accidents involving dangerous goods; and

(2) Where applicable, the information referred to in sub-paragraph (a)(1) above is also provided to his handling agent.

(b) *Information to Passengers and Other Persons* (see AMC OPS 3.1215(b))

(1) An operator shall ensure that information is promulgated as required by the Technical Instructions so that passengers are warned as to the types of goods which they are forbidden from transporting aboard a helicopter; and

(2) An operator and, where applicable, his handling agent shall ensure that notices are

JAR-OPS 3.1215(b)(2) (continued)

provided at acceptance points for cargo giving information about the transport of dangerous goods.

(c) *Information to Crew Members*. An operator shall ensure that information is provided in the Operations Manual to enable crew members to carry out their responsibilities in regard to the transport of dangerous goods, including the actions to be taken in the event of emergencies arising involving dangerous goods.

(d) *Information to the Commander*. An operator shall ensure that the commander is provided with written information, as specified in the Technical Instructions **[**(See Table 1 of Appendix 1 to JAR-OPS 3.1065 for the document storage period)**]**.

(e) *Information in the Event of a helicopter Incident or Accident* (See AMC OPS 3.1215(e))

(1) The operator of a helicopter which is involved in a helicopter incident shall, on request, provide any information required to minimise the hazards created by any dangerous goods carried.

(2) The operator of a helicopter which is involved in a helicopter accident shall, as soon as possible, inform the appropriate authority of the State in which the helicopter accident occurred of any dangerous goods carried.

[Amdt. 2, 01.01.02]

JAR-OPS 3.1220 Training programmes
(See AMC OPS 3.1220)
(See IEM OPS 3.1220)

(a) An operator shall establish and maintain staff training programmes, as required by the Technical Instructions, which **[**shall**]** be approved by the Authority.

(b) *Operators not holding a permanent approval to carry dangerous goods*. An operator shall ensure that:

(1) Staff who are engaged in general cargo **[**and baggage**]** handling have received training to carry out their duties in respect of dangerous goods. As a minimum this training must cover the areas identified in Column 1 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, **[ ]** how to identify **[**them and what requirements apply to the carriage of such goods by passengers**]**; and

JAR-OPS 3.1220(b) (continued)

(2) The following personnel:

(i) Crew members;

(ii) Passenger handling staff; and

(iii) Security staff employed by the operator who deal with the screening of passengers and their baggage, have received training which, as a minimum, must cover the areas identified in Column 2 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify them and what requirements apply to the carriage of such goods by passengers.

Table 1

[

AREAS OF TRAINING	1	2
General philosophy	X	X
Limitations on Dangerous Goods in air transport		X
Package marking and labelling	X	X
Dangerous Goods in passengers baggage	X	X
Emergency procedures	X	X

]

Note: 'X' indicates an area to be covered.

(c) *Operators holding a permanent approval to carry dangerous goods*. An operator shall ensure that:

(1) Staff who are engaged in the acceptance of dangerous goods have received training and are qualified to carry out their duties. As a minimum this training must cover the areas identified in Column 1 of Table 2 and be to a depth sufficient to ensure the staff can take decisions on the acceptance or refusal of dangerous goods offered for carriage by air;

(2) Staff who are engaged in ground handling, storage and loading of dangerous goods have received training to enable them to carry out their duties in respect of dangerous goods. As a minimum this training must cover the areas identified in Column 2 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them;

(3) Staff who are engaged in general cargo [and baggage] handling have received training to enable them to carry out their duties in respect of dangerous goods. As a minimum this training must cover the areas identified in

JAR-OPS 3.1220(c)(3) (continued)

Column 3 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods, [ ] how to handle and load them [and what requirements apply to the carriage of such goods by passengers];

(4) Flight crew members have received training which, as a minimum, must cover the areas identified in Column 4 of Table 2. Training must be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how they should be carried on a helicopter; and

(5) The following personnel:

(i) Passenger handling staff;

(ii) Security staff employed by the operator who deal with the screening of passengers and their baggage; and

(iii) Crew members other than flight crew members, have received training which, as a minimum, must cover the areas identified in Column 5 of Table 2. Training must be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and what requirements apply to the carriage of such goods by passengers or, more generally, their carriage on a helicopter.

Table 2

[

AREAS OF TRAINING	1	2	3	4	5
Limitations on Dangerous Goods in air transport	X	X		X	X
Classification of Dangerous Goods	X				
List of Dangerous Goods	X	X		X	
Packaging specifications and markings	X				
Storage and loading procedures	X	X	X	X	
Dangerous Goods in passengers baggage	X		X	X	X
Emergency procedures	X	X	X	X	X

]

Note: 'x' indicates an area to be covered.

[(d) An operator shall ensure that all staff who receive training undertake a test to verify understanding of their responsibilities.]

[(e)] An operator shall ensure that all staff who require dangerous goods training receive recurrent training at intervals of not longer than 2 years.

JAR-OPS 3.1220 (continued)

[(f)] An operator shall ensure that records of dangerous goods training are maintained for all staff trained in accordance with sub-paragraph (d) above.

[(g)] An operator shall ensure that his handling agent's staff are trained in accordance with the applicable column of Table 1 or Table 2.

[Amdt. 2, 01.01.02]

JAR-OPS 3.1225 Dangerous Goods Incident and Accident Reports
(See AMC OPS 3.1225)

[(a)] An operator shall report dangerous goods incidents and accidents to the Authority. An initial report shall be despatched within 72 hours of the event unless exceptional circumstances prevent this.

[(b) An operator shall also report to the Authority undeclared or misdeclared dangerous goods discovered in cargo or passengers' baggage. An initial report shall be despatched within 72 hours of the discovery unless exceptional circumstances prevent this.]

[Amdt. 2, 01.01.02]

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SUBPART S – SECURITY

JAR-OPS 3.1235 Security requirements

An operator shall ensure that all appropriate personnel are familiar, and comply, with the relevant requirements of the national security programmes of the State of the operator.

JAR-OPS 3.1240 Training programmes

An operator shall establish, maintain and conduct approved training programmes which enable the operator's personnel to take appropriate action to prevent acts of unlawful interference such as sabotage or unlawful seizure of helicopters and to minimise the consequences of such events should they occur.

JAR-OPS 3.1245 Reporting acts of unlawful interference

Following an act of unlawful interference on board a helicopter the commander or, in his absence the operator, shall submit, without delay, a report of such an act to the designated local authority and the Authority in the State of the operator.

JAR-OPS 3.1250 Helicopter search procedure checklist

An operator shall ensure that all helicopters carry a checklist of the procedures to be followed for that type in searching for concealed weapons, explosives or other dangerous devices. **[**An operator shall also support the checklist with guidance on the course of action to be taken should a bomb or suspicious object be found.**]**

[Amdt. 3, 01.04.04]

JAR-OPS 3.1255 Flight crew compartment security

If installed, the flight crew compartment door on all helicopters operated for the purpose of carrying passengers shall be capable of being locked from within the compartment in order to prevent unauthorised access.

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SECTION 2 – ACCEPTABLE MEANS OF COMPLIANCE AND INTERPRETATIVE/ EXPLANATORY MATERIAL (AMC & IEM)

1 *GENERAL*

1.1 This Section contains Acceptable Means of Compliance and Interpretative/Explanatory Material that has been agreed for inclusion in JAR-OPS 3.

1.2 Where a particular JAR paragraph does not have an Acceptable Means of Compliance or any Interpretative/Explanatory Material, it is considered that no supplementary material is required.

2 *PRESENTATION*

2.1 The Acceptable Means of Compliance and Interpretative/Explanatory Material are presented in full page width on loose pages, each page being identified by the date of issue or the Change number under which it is amended or reissued.

2.2 A numbering system has been used in which the Acceptable Means of Compliance or Interpretative/Explanatory Material uses the same number as the JAR paragraph to which it refers. The number is introduced by the letters AMC or IEM to distinguish the material from the JAR itself.

2.3 The acronyms AMC and IEM also indicate the nature of the material and for this purpose the two types of material are defined as follows:

Acceptable Means of Compliance (AMC) illustrate a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met. It should however be noted that where a new AMC is developed, any such AMC (which may be additional to an existing AMC) will be amended into the document following consultation under the NPA procedure.

Interpretative/Explanatory Material (IEM) helps to illustrate the meaning of a requirement.

2.4 New AMC or IEM material may, in the first place, be made available rapidly by being published as a Temporary Guidance Leaflet (TGL). Operations TGLs can be found in the Joint Aviation Authorities Administrative & Guidance Material, Section 4 - Operations, Part Three: Temporary Guidance. The procedures associated with Temporary Guidance Leaflets are included in the Operations Joint Implementation Procedures, Section 4 - Operations, Part 2 Chapter 10.

Note: Any person who considers that there may be alternative AMCs or IEMs to those published should submit details to the Operations Director, with a copy to the Regulation Director, for alternatives to be properly considered by the JAA. Possible alternative AMCs or IEMs may not be used until published by the JAA as AMCs, IEMs or TGLs.

2.5 Explanatory Notes not forming part of the AMC or IEM text appear in a smaller typeface.

2.6 New, amended or corrected text is enclosed within heavy brackets.

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AMC/IEM B – GENERAL

ACJ to Appendix 1 to JAR-OPS 3.005(d)
The JAA HEMS philosophy
See Appendix 1 to JAR-OPS 3.005(d)

1 Introduction

This ACJ outlines the JAA HEMS philosophy. Starting with a description of acceptable risk and introducing a taxonomy used in other industries, it describes how risk has been addressed in the HEMS appendix to provide a system of safety to the appropriate standard. It discusses the difference between HEMS, Air Ambulance and SAR - in regulatory terms. It also discusses the application of Operations to Public Interest Sites in the HEMS context.

2 Acceptable risk

The broad aim of any aviation legislation is to permit the widest spectrum of operations with the minimum risk. In fact it may be worth considering who/what is at risk and who/what is being protected. In the view of the JAA Helicopter Sub-Committee (HSC) three groups are being protected:

- Third parties (including property) - highest protection.
- Passengers (including patients)
- Crew members (including task specialists) - lowest

It is for the Authority to facilitate a method for the assessment of risk - or as it is more commonly known, safety management.

3 Risk management

Safety management textbooks[1] describe four different approaches to the management of risk. All but the first have been used in the production of the HEMS appendix and, if we consider that the engine failure accountability of Class I performance equates to zero risk, then all four are used (this of course is not strictly true as there are a number of helicopter parts - such as the tail rotor which, due to a lack of redundancy, cannot satisfy the criteria):

Applying the taxonomy to HEMS gives:

- Zero Risk; no risk of accident with a harmful consequence - Class 1 performance (within the qualification stated above) - the HEMS Operating Base.
- De Minimis; minimised to an acceptable safety target - for example the exposure time concept where the target is less than 5×10^{-8} (in the case of elevated landing sites at hospitals in a congested hostile environment the risk is contained to the deck edge strike case - and so in effect minimised to an exposure of seconds).
- Comparative Risk; comparison to other exposure - the carriage of a patient with a spinal injury in an ambulance that is subject to ground effect compared to the risk of a HEMS flight (consequential and comparative risk).
- As Low as Reasonably Practical; where additional controls are not economically or reasonably practical - operations at the HEMS operational site (the accident site).

It is stated in JAR-OPS 3.005(d) that "...HEMS operations shall be conducted in accordance with the requirement contained in JAR-OPS 3 except for the variations contained in Appendix 1 to JAR-OPS 3.005(d) for which a special approval is required."

In simple terms there are three areas in HEMS operations where risk, beyond that allowed in the main body of JAR-OPS 3, is defined and accepted:

- in the en-route phase; where alleviation is given from height and visibility rules;
- at the accident site; where alleviation is given from the performance and size requirement; and
- at an elevated hospital site in a congested hostile environment; where alleviation is given from the deck edge strike - providing elements of the Appendix 1 to JAR-OPS 3.517(a) are satisfied.

[1] Managing the Risks of Organizational Accidents – Professor James Reason

ACJ to Appendix 1 to JAR-OPS 3.005(d) (continued)

In mitigation against these additional and considered risks, experience levels are set, specialist training is required (such as instrument training to compensate for the increased risk of inadvertent entry into cloud); and operation with two crew (two pilots, or one pilot and a HEMS crew member) is mandated. (HEMS crews - including medical passengers - are also expected to operate in accordance with good CRM principles.)

4 Air ambulance

In regulatory terms, air ambulance is considered to be a normal transport task where the risk is <u>no higher</u> than for operations to the full JAR-OPS 3 compliance. This is not intended to contradict/complement medical terminology but is simply a statement of policy; none of the risk elements of HEMS should be extant and therefore none of the additional requirements of HEMS need be applied.

If we can provide a road ambulance analogy:

- If called to an emergency; an ambulance would proceed at great speed, sounding its siren and proceeding against traffic lights - thus matching the risk of operation to the risk of a potential death (= HEMS operations).

- For a transfer of a patient (or equipment) where life and death (or consequential injury of ground transport) is not an issue; the journey would be conducted without sirens and within normal rules of motoring - once again matching the risk to the task (= air ambulance operations).

<u>The underlying principle is; the aviation risk should be proportional to the task.</u>

It is for the medical professional to decide between HEMS or air ambulance - not the pilot! For that reason, medical staff who undertake to task medical sorties should be fully aware of the additional risks that are (potentially) present under HEMS operations (and the pre-requisite for the operator to hold a HEMS approval). (For example in some countries, hospitals have principle and alternative sites. The patient may be landed at the safer alternative site (usually in the grounds of the hospital) thus eliminating risk - against the small inconvenience of a short ambulance transfer from the site to the hospital.)

Once the decision between HEMS or air ambulance has been taken by the medical professional, the commander makes an operational judgement over the conduct of the flight.

Simplistically, the above type of air ambulance operations <u>could</u> be conducted by any operator holding an AOC (HEMS operators hold an AOC) - and usually are when the carriage of medical supplies (equipment, blood, organs, drugs etc.) is undertaken and when urgency is not an issue.

5 Search and rescue (SAR)

SAR operations, because they are conducted with substantial alleviations from operational and performance standards; are strictly controlled; the crews are trained to the appropriate standard; and they are held at a high state of readiness. Control and tasking is usually exercised by the Police (or the Military or Coastguard in a maritime State) and mandated under State Regulations.

It was not intended when JAR-OPS 3 was introduced, that HEMS operations would be conducted by operators not holding an AOC or operating to other than HEMS standards. It was also not expected that the SAR label would be used to circumvent the intent of JAR-OPS 3 or permit HEMS operations to a lesser standard.

6 Operating under a HEMS approval

The HEMS appendix originally contained the definitions for Air Ambulance and SAR - introduced to clarify the differences between the three activities. In consideration that, in some States, confusion has been the result, all references to activities other than HEMS have now been removed from the appendix and placed into ACJ material.

There are only two possibilities; transportation as passengers or cargo under the full auspices of JAR-OPS 3 (this does not permit any of the alleviations of the HEMS appendix - landing and take-off performance must be in compliance with the performance subparts of JAR-OPS 3); or operations under a HEMS approval.

7 HEMS operational sites

ACJ to Appendix 1 to JAR-OPS 3.005(d) (continued)

The HEMS philosophy attributes the appropriate levels of risk for each operational site; this is derived from practical considerations and in consideration of the probability of use. The risk is expected to be inversely proportional to the amount of use of the site. The types of site are:

HEMS operating base; from which all operations will start and finish. There is a high probability of a large number of take-offs and landings at this heliport and for that reason no alleviation from operating procedures or performance rules are contained in the HEMS appendix.

HEMS operating site; because this is the primary pick up site related to an incident or accident, its use can never be pre-planned and therefore attracts alleviations from operating procedures and performance rules - when appropriate.

The hospital site; is usually at ground level in hospital grounds or, if elevated, on a hospital building. It may have been established during a period when performance criteria was not a consideration. The amount of use of such sites depends on their location and their facilities; normally, it will be greater than that of the HEMS operating site but less than for a HEMS operating base. Such sites attract some alleviations under the HEMS rules.

8 Problems with hospital sites

During implementation of JAR-OPS 3, it was established that a number of States had encountered problems with the impact of performance rules where helicopters were operated for HEMS. Although States accept that progress should be made towards operations where risks associated with a critical power unit failure are eliminated, or limited by the exposure time concept, a number of landing sites exist which do not (or never can) allow operations to Performance Class 1 or 2 requirements.

These sites are generally found in a congested hostile environment:

- in the grounds of hospitals; or
- on hospital buildings;

The problem of hospital sites is mainly historical and, whilst the Authority could insist that such sites not be used - or used at such a low weight that critical power unit failure performance is assured, it would seriously curtail a number of existing operations.

Even though the rule for the use of such sites in hospital grounds for HEMS operations (Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(A)) attracts alleviation until 2005, it is only partial and will still impact upon present operations.

Because such operations are performed in the public interest, it was felt that the Authority should be able to exercise its discretion so as to allow continued use of such sites provided that it is satisfied that an adequate level of safety can be maintained - notwithstanding that the site does not allow operations to Performance Class 1 or 2 standards. However, it is in the interest of continuing improvements in safety that the alleviation of such operations be constrained to existing sites, and for a limited period.

It is felt that the use of public interest sites should be controlled. This will require that a State directory of sites be kept and approval given <u>only</u> when the operator has an entry in the Route Manual Section of the Operations Manual.

The directory (and the entry in the Operations Manual) should contain for each approved site; the dimensions; any non-conformance with Annex 14; the main risks; and, the contingency plan should an incident occur. Each entry should also contain a diagram (or annotated photograph) showing the main aspects of the site.

9 Summary

In summary, the following points are considered to be germane to the JAA philosophy and HEMS regulations:

- Absolute levels of safety are conditioned by society.
- Potential risk must only be to a level appropriate to the task.
- Protection is afforded at levels appropriate to the occupants.
- The HEMS appendix addresses a number of risk areas and mitigation is built in.

ACJ to Appendix 1 to JAR-OPS 3.005(d) (continued)

- Only HEMS operations are dealt with by the appendix.

- There are three main categories of HEMS sites and each is addressed appropriately.

- State alleviation from the requirement at a hospital site is available but such alleviations should be strictly controlled by a system of registration.

- SAR is a State controlled activity and the label should not be used by operators to circumvent HEMS regulations.

10 References

a. Managing the Risks of Organizational Accidents - Professor James Reason.

[Amdt. 2, 01.01.02]

[ACJ to Appendix 1 to JAR-OPS 3.005(d), paragraph (a)(4)
HEMS mission
(See Appendix 1 to JAR-OPS 3.005(d), paragraph (a)(4))

1 A HEMS mission normally starts and ends at the HEMS Operating Base following tasking by the "HEMS Dispatch Centre". Tasking can also occur when airborne, or on the ground at locations other than the HEMS Operating Base.

2 It is intended that the following elements be regarded as integral parts of the HEMS mission

- flights to and from the HEMS Operating Site when initiated by the HEMS Dispatch Centre;

- flights to and from a heliport for the delivery or pick-up of medical supplies and/or persons required for completion of the HEMS mission;

- flights to and from a heliport for refuelling required for completion of the HEMS mission.

All these flights are subject to the applicable requirements and alleviations of the HEMS appendix.**]**

[Amdt. 5, 01.06.07]

ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (b)
HEMS - Contents of the Operations Manual
See Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (b)

1 The Operations Manual should contain instructions for the conduct of flights, adapted to the operations area, including at least the following:

a. operating minima;

b. recommended routes for regular flights to surveyed sites (with the minimum flight altitude);

c. guidance for the selection of the HEMS operating site in case of a flight to an unsurveyed site;

d. the safety altitude for the area overflown; and

e. procedures to be followed in case of inadvertent entry into cloud.

[Amdt. 2, 01.01.02]

ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(B)
Operations to a HEMS operating site located in a hostile environment
See Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(B)

The alleviation from engine failure accountability at a HEMS Operating Site extends to HEMS/HHO where: a HEMS crew member; or a medical passenger; or ill or injured persons and other persons directly involved in the HEMS flight - are required to be hoisted as part of the HEMS flight.

[Amdt. 2, 01.01.02]

IEM to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(2)(i)(C)
HEMS operating site
See Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(C)

When selecting a HEMS operating site it should have a minimum dimension of at least 2D. For night operations, unsurveyed HEMS operating sites should have dimensions of at least 4D in length and 2D in width.

[Amdt. 2, 01.01.02]

ACJ to Appendix 1 to JAR - OPS 3.005(d) sub-paragraph (c)(3)(ii)(B)
Relevant Experience
See Appendix 1 to JAR - OPS 3.005(d) sub-paragraph (c)(3)(ii)(B)

The experience considered should take into account the geographical characteristics (sea, mountain, big cities with heavy traffic, etc.)

[Amdt. 2, 01.01.02]

ACJ to Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(3)(iii)
Recency
See Appendix 1 to JAR-OPS 3.005(d) sub-paragraph(c)(3)(iii)

For the purposes of this requirement, recency may be obtained in a VFR helicopter using vision limiting devices such as goggles or screens, or in a STD.

[Amdt. 2, 01.01.02]

ACJ to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(3)(iv)
HEMS crew member
See Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(3)(iv)

1. When the crew is composed of one pilot and one HEMS crew member, the latter should be seated in the front seat (copilot seat) during the flight, so as to be able to accomplish the tasks that the commander may delegate, as necessary:

a. assistance in navigation;

b. assistance in radio communication/ radio navigation means selection;

c. reading of check-lists ;

d. monitoring of parameters;

e. collision avoidance;

f. assistance in the selection of the landing site;

g. assistance in the detection of obstacles during approach and take-off phases;

2. The commander may also delegate to the HEMS crew member tasks on the ground:

a. assistance in preparing the helicopter and dedicated medical specialist equipment for subsequent HEMS departure;

b. assistance in the application of safety measures during ground operations with rotors turning (including: crowd control, embarking and disembarking of passengers, refuelling etc.).

3. When a HEMS crew member is carried it is his primary task to assist the commander. However, there are occasions when this may not be possible:

a. At a HEMS operating site a commander may be required to fetch additional medical supplies, the HEMS crew member may be left to give assistance to ill or injured persons whilst the commander undertakes this flight. (This is to be regarded as exceptional and is only to be conducted at the discretion of the commander, taking into account the dimensions and environment of the HEMS operating site.)

b. After arriving at the HEMS Operating Site, the installation of the stretcher may preclude the HEMS crew member from occupying the front seat.

c. If the medical passenger requires the assistance of the HEMS crew member in flight.

d. If the alleviations of 3.a, 3.b or 3.c are used, reduction of operating minima contained in Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(4) should not be used.

e. With the exception of 3.a above, a commander should not land at a HEMS operating site without the HEMS crew member assisting from the front seat (copilot seat).

4. When two pilots are carried, there is no requirement for a HEMS crew member provided that the pilot non-flying (PNF) performs the aviation tasks of a HEMS crew member.

[Amdt. 2, 01.01.02]

AMC to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(3)(iv)(B)(B2)
Helicopter Emergency Medical Service
See Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (c)(3)(iv)(B)(B2)

A flight following system is a system providing contact with the helicopter throughout its operational area.

ACJ to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (e)(1)(ii)(B)
Line checks
See Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (e)(1)(ii)(B)

Where due to the size, the configuration, or the performance of the helicopter, the line check cannot be conducted on an operational flight, it may be conducted on a specially arranged representative flight. This flight may be immediately adjacent to, but not simultaneous with, one of the biannual proficiency checks.

[Amdt. 2, 01.01.02]

IEM to Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (e)(4)
Ground Emergency Service Personnel
See Appendix 1 to JAR-OPS 3.005(d), sub-paragraph (e)(4)

The task of training large numbers of emergency service personnel is formidable. Wherever possible, helicopter operators should afford every assistance to those persons responsible for training emergency service personnel in HEMS support.

IEM to Appendix 1 to JAR-OPS 3.005(e)
Helicopter operations over a hostile environment located outside a congested area
See Appendix 1 to JAR-OPS 3.005(e)

1 The subject Appendix has been produced to allow a number of existing operations to continue. It is expected that the alleviation will be used only in the following circumstances:

1.1 *Mountain Operations;* where present generation multi-engined aircraft cannot meet the requirement of Performance Class 1 or 2 at altitude.

1.2 *Operations in Remote Areas;* where existing operations are being conducted safely; and where alternative *surface* transportation will not provide the same level of safety as single-engined helicopters; and where, because of the low density of population, economic circumstances do not justify the replacement of single-engined by multi-engined helicopters (as in the case of remote arctic settlements).

2 The State issuing the AOC and the State in which operations will be conducted should give prior approval.

3 If both approvals have been given by a single State, it should not withhold, without justification, approval for aircraft of another State.

4 Such approvals should only be given after both States have considered the technical and economic justification for the operation.

[Ch. 1, 01.02.99]

ACJ to Appendix 1 to JAR-OPS 3.005(f) sub-paragraph (b)(3) and Appendix 1 to JAR-OPS 3.005(g) sub-paragraph (a)(3)
Local operations
See Appendix 1 to JAR-OPS 3.005(f) sub-paragraph (b)(3) and Appendix 1 to JAR-OPS 3.005(g) sub-paragraph (a)(3)

1. Part of Appendix 1 to JAR-OPS 3.005(f) (and the whole of Appendix 1 to JAR-OPS 3.005(g)) contain alleviations for “local operations”. For such operations it is intended that approval will constrain the definition of “local” to be within a distance of 20 - 25nm. However, such arbitrary distances have always presented difficulties as there are always special factors which could influence such a decision. Authorities are therefore not expected to authorise local operations beyond 25nm without good operational reasons.

2. In defining “local operations” (as described in 1. above), the Authority should, except where such operations specifically “include” cross border excursions (such as sight seeing flights in the Mont Blanc or Matterhorn areas), constrain operations to be within the State boundary.

[Amdt. 2, 01.01.02]

[ACJ to Appendix 1 to JAR-OPS 3.005(f) paragraph (d)(19))
Recent experience (designated groups)
(See Appendix 1 to JAR-OPS 3.005(f) paragraph (d)(19))

1. The following helicopters and designated groups (which contain helicopters with similar characteristics) may be used for the purpose of recency obtained in accordance with Appendix 1 to JAR-OPS 3.005(f) paragraph (d)(19):

(a) Group 1 - Bell 206/206L, Bell 407.

(b) Group 2 - Hughes 369, MD 500 N, MD 520 N, MD 600.

(c) Group 3 - SA 341/342, EC 120, EC 130.

(d) Group 4 - SA 313/318, SA 315/316/319, AS 350.

(e) Group 5 - (All types listed in Appendix 1 to JAR-FCL 2.245(b)(3)), R22, R44.

2. Additional groups may be constructed or other types may be added to the designated groups if acceptable to the Authority.**]**

[Amdt. 3, 01.04.04]

IEM to Appendix 1 to JAR-OPS 3.005(f)
Operations for small helicopters (VFR day only)
See Appendix 1 to JAR-OPS 3.005(f)

1. Appendix 1 to JAR-OPS 3.005(f) contains prohibitions and alleviations when operating small helicopters VFR day only.

1.1 Where a rule in JAR-OPS 3 contains a paragraph that already allows an alternative method of compliance to be submitted for approval it is not discussed (in this IEM or the Appendix).

1.2 Where a rule is partially applicable (some paragraphs IFR some paragraphs VFR), the rule is not referenced (in this IEM or the Appendix) and normal interpretation should be applied.

IEM to Appendix 1 to JAR-OPS 3.005(f) (continued)

2. The following rules are considered not to apply for small helicopters operating to Appendix 1 to JAR-OPS 3.005(f):

JAR-OPS 3.075 Method of carriage of persons

JAR-OPS 3.105 Unauthorised carriage

JAR-OPS 3.225 Heliport Operating Minima

JAR-OPS 3.230 Departure and Approach procedures

JAR-OPS 3.295 Selection of heliports

JAR-OPS 3.395 Ground proximity detection

JAR-OPS 3.405 Commencement and continuations of approach

Subpart E except JAR-OPS 3.465 and Appendix 1 to JAR-OPS 3.465

JAR-OPS 3.652 IFR or night operations - Flight and navigational instruments and associated equipment

JAR-OPS 3.655 Additional equipment for single pilot operation under IFR

JAR-OPS 3.670 Airborne Weather Radar Equipment

JAR-OPS 3.695 Public address system

JAR-OPS 3.700 Cockpit voice recorders 1

JAR-OPS 3.705 Cockpit voice recorders 2

JAR-OPS 3.715 Flight data recorders 1

JAR-OPS 3.720 Flight data recorders 2

JAR-OPS 3.810 Megaphones

JAR-OPS 3.815 Emergency lighting

JAR-OPS 3.855 Audio Selector Panel

JAR-OPS 3.865 Communication and Navigation equipment for operations under IFR, or under VFR over routes not navigated by reference to visual landmarks

[Amdt. 2, 01.01.02]

ACJ to Appendix 1 to JAR-OPS 3.005(h), sub-paragraph (d)(2)(iv)
Criteria for two pilot HHO
See Appendix 1 to JAR-OPS 3.005(h), sub-paragraph (d)(2)(iv)

A crew of two pilots may be required when:

1. The weather conditions are below VFR minima at the offshore vessel or structure.

2. There are adverse weather conditions at the HHO site (i.e. turbulence, vessel movement, visibility).

3. The type of helicopter requires a second pilot to be carried because of cockpit visibility; or handling characteristics; or lack of automatic flight control systems.

[Amdt. 2, 01.01.02]

[ACJ to Appendix 1 to JAR-OPS 3.005(i)
Helicopter operations to/from a public interest site
See Appendix 1 to JAR-OPS 3.005(i)

1 General

Appendix 1 to JAR-OPS 3.005(i) - containing alleviations for public interest sites - was introduced in January 2002 to address problems that had been encountered by member States at hospital (and

ACJ to Appendix 1 to JAR-OPS 3.005(i) (continued)

lighthouse) sites due to the applicable performance requirements of Subparts G and H. These problems were enumerated in ACJ to Appendix 1 to JAR-OPS 3.005(d) paragraph 8, part of which is reproduced below. **]**

[*...8 Problems with hospital sites*

During implementation of JAR-OPS 3, it was established that a number of States had encountered problems with the impact of performance rules where helicopters were operated for HEMS. Although States accept that progress should be made towards operations where risks associated with a critical power unit failure are eliminated, or limited by the exposure time concept, a number of landing sites exist which do not (or never can) allow operations to Performance Class 1 or 2 requirements.

These sites are generally found in a congested hostile environment:

- *in the grounds of hospitals; or*
- *on hospital buildings;*

The problem of hospital sites is mainly historical and, whilst the Authority could insist that such sites not be used - or used at such a low weight that critical power unit failure performance is assured, it would seriously curtail a number of existing operations.

Even though the rule for the use of such sites in hospital grounds for HEMS operations (Appendix 1 to JAR-OPS 3.005(d) sub-paragraph (c)(2)(i)(A)) attracts alleviation until 2005, it is only partial and will still impact upon present operations.

Because such operations are performed in the public interest, it was felt that the Authority should be able to exercise its discretion so as to allow continued use of such sites provided that it is satisfied that an adequate level of safety can be maintained - notwithstanding that the site does not allow operations to Performance Class 1 or 2 standards. However, it is in the interest of continuing improvements in safety that the alleviation of such operations be constrained to existing sites, and for a limited period. ..

As stated in this ACJ and embodied in the text of the appendix, the solution was short term (until 31 December 2004). During the comment period of NPA 18, representations were made to the JAA that the alleviation should be extended to 2009. The review committee, in not accepting this request, had in mind that this was a short-term solution to address an immediate problem, and a permanent solution should be sought.

2. Public Interest Sites after 1 January 2005

Although elimination of such sites would remove the problem, it is recognized that phasing out, or rebuilding existing hospital and lighthouse heliports, is a long-term goal which may not be cost-effective, or even possible, in some States.

It should be noted however that existing paragraph (c) of the appendix limits the problem by confining approvals to public interest sites established before 1 July 2002 (established in this context means either: built before that date; or brought into service before that date – this precise wording was used to avoid problems associated with a ground level heliport where no building would be required). Thus the problem of these sites is contained and reducing in severity. This date was set approximately 6 months after the intended implementation of this original appendix.

From 1st January 2005 the approval of a public interest site will be confined to those sites where a CAT A procedure alone cannot solve the problem. The determination of whether the helicopter can or cannot be operated in accordance with Subpart G (Performance Class 1) should be established with the helicopter at a realistic payload and fuel to complete the mission. However, in order to reduce the risk at those sites, the application of the requirements contained in paragraph (d)(2) of the appendix will be required.

Additionally and in order to promote understanding of the problem, the text contained in paragraph (e) of the appendix has been amended to refer to Subpart G of JAR-OPS 3 and not to Annex 14 as in the original appendix. Thus Part C of the Operations Manual should reflect the non-conformance with that Subpart.

The following paragraphs discuss the problem and solutions.

3. The problem associated with public interest sites

ACJ to Appendix 1 to JAR-OPS 3.005(i) (continued)

There are a number of problems: some of which can be solved with the use of appropriate helicopters and procedures; and others which, because of the size of the heliport or the obstacle environment, cannot. They consist of:

a. Helicopters that cannot meet the performance criteria required by Subpart G;

b. The size of the FATO of the heliport (smaller than that required by the manufacturers' procedure); **]**

[c. An obstacle environment that prevents the use of the manufacturers procedure (obstacles in the back-up area)

d. An obstacle environment that does not allow recovery following a power unit failure in the critical phase of take-off (a line of buildings requiring a demanding gradient of climb) at a realistic payload and fuel to complete the mission.

e. A ground level heliport (exposure is not permitted);

3.1 *Problems associated with a*; it was recognised at the time of the adoption of the original appendix that, although the number of helicopters not meeting the absolute performance criteria of a. above were dwindling, existing HEMS and lighthouse fleets could not be replaced until 2005. (There is still a possibility that limited production will not allow the complete replacement of such limited power helicopters before the 2004 date; it is therefore suggested that Authorities should, providing an order position can be established by the operator, allow the continued use of such helicopters for a limited period, without the additional mitigation required by paragraph (d)(2) of the appendix.)

3.2 *Problems associated with b.*; the inability to climb and conduct a rejected landing back to the heliport following an engine failure before the Decision Point (DP).

3.3 *Problems associated with c*.; as in b.

3.4 *Problems associated with d;* climb into an obstacle following an engine failure after DP.

3.5 *Problems associated with e.*; may be related to;

- the size of the FATO which is too small for the manufacturers' procedure;
- no room for back-up;
- an obstacle in the take-off path; or
- a mixture of all three.

With the exception of case a., problems cannot be solved in the immediate future but can, when mitigated with the use of the latest generation of helicopters (operated at a weight that can allow useful payloads and endurance), minimise exposure to risk.

4. Long Term Solution

Although not offering a complete solution, it was felt that a significant increase in safety could be achieved by applying an additional performance margin to such operations. This solution could also be seen as mitigation proportional to the problem and would allow the time restriction of 2004 to be removed.

The required performance level of 8% climb gradient in the first segment, reflects ICAO Annex 14 Volume II in Table 4-3 – Dimensions and slopes of obstacle limitations surfaces for Performance Class 2.

The performance delta is achieved without the provision of further manufacturers data by using existing graphs to provide the RTOM.

If we examine the solution in relation to the original problem the effects can be seen.

4.1 *Solution with relation to b.;* although the problem still exists, the safest procedure is a dynamic take-off reducing the time taken to achieve Vstayup and thus allowing VFR recovery – if the failure occurs at or after Vy and 200 feet, an IFR recovery is possible.

4.2 *Solution with relation to c.;* as in b. above.

4.3 *Solution with relation to d.;* once again this does not give a complete solution, however the performance delta minimise the time during which a climb over the obstacle cannot be achieved.

4.4 *Solution with relation to e.;* as in 4.1 to 4.3 above.**]**

[Amdt. 3, 01.04.04]

[ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (a)(1)
Improvement program for Public Interest Sites
(See Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (a)(1)

1. General

Although it is accepted that there will be a number of public interest sites that will remain for some time, it is in the interest of safety that the numbers are reduced and eventually, as a goal, all sites eliminated. A reduction of sites can be achieved in two ways:

a. By an improvement in the performance of helicopters such that HOGE OEI is possible at weights where the mission can be performed.

b. By the use of a site improvement program: to take out of service those sites where the exposure is greatest; or by improving sites such that the performance requirement can be met.

2. Improvement in Performance

The advent of more powerful modern twin-engine helicopters has put into reach the ability to achieve the aim stated in 1.a. above. A number of these helicopters are, in 2003, almost at the point where HOGE OEI with mission payload is possible. However, although technically feasible, it is not economically justifiable to require an immediate and complete re-equipping of all HEMS fleets.

3. Improvement of Sites

Where a site could be improved by redevelopment, for example by increasing the size of the FATO, it should be done; where the problems of a site are due to the obstacle environment, a program to re-site the facility or remove the obstacle(s) should be a undertaken as a priority.

4. Summary

As was stated in paragraph 1. above, it is in the interest of States to reduce the risk of an accident due to an engine failure on take-off or landing. This could be achieved with a combination of policies: the use more appropriate helicopters; or, improvement by redevelopment of a site; or, the re-siting of facilities to alternative locations.

Some States have already undertaken to remove or improve public interest sites by using one, or more of the above methods. For those States where a compliance program is under way, the choice of reduction by elimination or redevelopment should not be put on hold whilst waiting for new generation helicopters. The improvement policy should be achieved in a reasonable time horizon – and this should be an element of the compliance program.

The approval to operate to public interest sites could be conditional upon such improvement programs being put into place. Unless such a policy is instituted, there will be no incentive for public interest sites to be eliminated in a reasonable time horizon.**]**

[Amdt. 3, 01.04.04]

[ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (d)(2)
Helicopter mass limitation for operations at a public interest site
(See Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (d)(2))

The helicopter mass limitation at take-off or landing specified in Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (d)(2) should be determined using the climb performance data from 35 ft to 200 ft at Vtoss (First segment of the take-off flight path) contained in the Category A supplement of the Helicopter Flight Manual (or equivalent manufacturer data acceptable to the JAA according to IEM OPS 3.480(a)(1) and (a)(2)).

The first segment climb data to be considered is established for a climb at the take-off safety speed Vtoss, with the landing gear extended (when the landing gear is retractable), with the critical power unit

ACJ to Appendix 1 to JAR-OPS 3.005(i) sub-paragraph (a)(1) (continued)

inoperative and the remaining power units operating at an appropriate power rating (the 2 min 30 sec or 2 min One Engine Inoperative power rating, depending on the helicopter type certification). The appropriate Vtoss, is the value specified in the Category A performance section of the Helicopter Flight Manual for vertical take-off and landing procedures (VTOL or Helipad or equivalent).

The ambient conditions at the heliport (pressure-altitude and temperature) should be taken into account. **]**

[The data is usually provided in charts one of the following ways:

- Height gain in ft over a horizontal distance of 100 ft in the first segment configuration (35 ft to 200 ft, Vtoss, 2 min 30 sec / 2 min OEI power rating). This chart should be entered with a height gain of 8 ft per 100 ft horizontally travelled, resulting in a mass value for every pressure-altitude/temperature combination considered.

- Horizontal distance to climb from 35 ft to 200 ft in the first segment configuration (Vtoss, 2 min 30 sec / 2 min OEI power rating). This chart should be entered with a horizontally distance of 628 m (2 062 ft), resulting in a mass value for every pressure-altitude/temperature combination considered.

- Rate of climb in the first segment configuration (35 ft to 200 ft, Vtoss, 2 min 30 sec / 2 min OEI power rating). This chart can be entered with a rate of climb equal to the climb speed (Vtoss) value in knots (converted to True Airspeed) multiplied by 8·1, resulting in a mass value for every pressure-altitude/temperature combination considered.**]**

[Amdt. 3, 01.04.04]

AMC OPS 3.035
Quality System
See JAR-OPS 3.035

1 Introduction

1.1 In order to show compliance with JAR-OPS 3.035, an operator should establish his Quality System in accordance with the instructions and information contained in the succeeding paragraphs.

2 General

2.1 Terminology

a. The terms used in the context of the requirement for an operator's Quality System have the following meanings:

i. Accountable Manager. The person acceptable to the Authority who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to the standard required by the Authority, and any additional requirements defined by the operator.

ii. Quality Assurance. All those planned and systematic actions necessary to provide adequate confidence that operational and maintenance practices satisfy given requirements.

iii. Quality Manager. The manager, acceptable to the Authority, responsible for the management of the Quality System, monitoring function and requesting remedial actions.

2.2 Quality Policy

2.2.1 An operator should establish a formal written Quality Policy Statement that is a commitment by the Accountable Manager as to what the Quality System is intended to achieve. The Quality Policy should reflect the achievement and continued compliance with JAR-OPS 3 together with any additional standards specified by the operator.

2.2.2 The Accountable Manager is an essential part of the AOC holder's management organisation. With regard to the text in JAR OPS 3.175(h) and the above terminology, the term 'Accountable Manager' is intended to mean the Chief Executive/President/Managing Director/Director General/General Manager etc. of the operator's organisation, who by virtue of his position has overall responsibility (including financial) for managing the organisation.

AMC OPS 3.035 (continued)

2.2.3 The position of the Accountable Manager in the organisation should be such that at least the Nominated Postholders for Operations and Maintenance and the Quality Manager have direct access to him.

2.2.4 The Accountable Manager will have overall responsibility for the AOC holders Quality System including the frequency, format and structure of the internal management evaluation activities as prescribed in paragraph 4.9 below.

2.3 Purpose of the Quality System

2.3.1 The Quality System should enable the operator to monitor compliance with JAR-OPS 3, the Operations Manual, maintenance management exposition, and any other standards specified by that operator, or the Authority, to ensure safe operations and airworthy aircraft.

2.4 Quality Manager

2.4.1 The function of the Quality Manager to monitor compliance with, and the adequacy of, procedures required to ensure safe operational practices and airworthy helicopters, as required by JAR-OPS 3.035(a), may be carried out by more than one person by means of different, but complementary, Quality Assurance Programmes.

2.4.2 The primary role of the Quality Manager is to verify, by monitoring activity in the fields of flight operations, maintenance, crew training and ground operations, that the standards required by the Authority, and any additional requirements defined by the operator, are being carried out under the supervision of the relevant Nominated Postholder.

2.4.3 The Quality Manager should be responsible for ensuring that the Quality Assurance Programme is properly established, implemented and maintained.

2.4.4 The Quality Manager should:

a. Have direct access to the Accountable Manager;

b. Not be one of the nominated post holders; and

c. Have access to all parts of the operator's organisation.

2.4.5 In the case of small/very small operators (see paragraph 7.3 below), the posts of the Accountable Manager and the Quality Manager may be combined. However, in this event, quality audits should be conducted by independent personnel. In accordance with paragraph 2.4.4.b above, it will not be possible for the Accountable Manager to be one of the nominated postholders.

3 Quality System

3.1 Introduction

3.1.1 The operator's Quality System should ensure compliance with and adequacy of operational and maintenance activities requirements, standards and procedures.

3.1.2 The operator should specify the basic structure of the Quality System applicable to the operation.

3.1.3 The Quality System should be structured according to the size and complexity of the operation to be monitored ('small operators' see also paragraph 7 below).

3.2 Scope

3.2.1 As a minimum, the Quality System should address the following:

a. The provisions of JAR-OPS;

b. The operator's additional standards and operating procedures;

c. The operator's Quality Policy;

d. The operator's organisational structure;

e. Responsibility for the development, establishment and management of the Quality System;

f. Documentation, including manuals, reports and records;

g. Quality Procedures;

AMC OPS 3.035 (continued)

h. Quality Assurance Programme;

i. The required financial, material, and human resources; and

j. Training requirements.

3.2.2 The quality system should include a feedback system to the Accountable Manager to ensure that corrective actions are both identified and promptly addressed. The feedback system should also specify who is required to rectify discrepancies and non-compliance in each particular case, and the procedure to be followed if remedial action is not completed within an appropriate timescale.

3.3 Relevant Documentation

3.3.1 Relevant documentation includes the relevant part(s) of the Operations Manual and the Operator's Maintenance Management Exposition, which may be included in a separate Quality Manual.

3.3.2 In addition, relevant documentation should also include the following:

a. Quality Policy;

b. Terminology;

c. Specified operational standards;

d. A description of the organisation;

e. The allocation of duties and responsibilities;

f. Procedures to ensure regulatory compliance;

g. The Quality Assurance Programme, reflecting;

i. Schedule of the monitoring process;

ii. Audit procedures;

iii. Reporting procedures;

iv. Follow-up and remedial action procedures;

v. Recording system;

h. The training syllabus; and

i. Document control.

4 Quality Assurance Programme (See JAR-OPS 3.035(b).)

4.1 Introduction

4.1.1 The Quality Assurance Programme should include all planned and systematic actions necessary to provide confidence that all operations and maintenance are conducted in accordance with all applicable requirements, standards and procedures.

4.1.2 When establishing a Quality Assurance Programme, consideration should, at least, be given to the paragraphs 4.2 to 4.9 below:

4.2 Quality Inspection

4.2.1 The primary purpose of a quality inspection is to observe a particular event/action/document etc., in order to verify whether established procedures and requirements are followed during the accomplishment of that event and whether the required standard is achieved.

4.2.2 Typical subject areas for quality inspections are:

a. Actual flight operation;

b. Ground De/Anti-icing, if appropriate;

c. Flight Support Services;

d. Load Control;

e. Maintenance;

AMC OPS 3.035 (continued)

f. Technical Standards; and

g. Training Standards.

4.3 Audit

4.3.1 An audit is a systematic, and independent comparison of the way in which an operation is being conducted against the way in which the published procedures say it should be conducted.

4.3.2 Audits should include at least the following procedures and processes:

a. A statement explaining the scope of the audit;

b. Planning and preparation;

c. Gathering and recording evidence; and

d. Analysis of the evidence.

4.3.3 Techniques which contribute to an effective audit are:

a. Interviews or discussions with personnel;

b. A review of published documents;

c. The examination of an adequate sample of records;

d. The witnessing of the activities which make up the operation; and

e. The preservation of documents and the recording of observations.

4.4 Auditors

4.4.1 An operator should decide, depending on the complexity of the operation, whether to make use of a dedicated audit team or a single auditor. In any event, the auditor or audit team should have relevant operational and/or maintenance experience.

4.4.2 The responsibilities of the auditors should be clearly defined in the relevant documentation.

4.5 Auditor's Independence

4.5.1 Auditors should not have any day-to-day involvement in the area of the operation and/or maintenance activity which is to be audited. An operator may, in addition to using the services of full-time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors. An operator whose structure and size does not justify the establishment of full-time auditors, may undertake the audit function by the use of part-time personnel from within his own organisation or from an external source under the terms of an agreement acceptable to the Authority. In all cases the operator should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist is familiar with the type of operation and/or maintenance conducted by the operator.

4.5.2 The operator's Quality Assurance Programme should identify the persons within the company who have the experience, responsibility and authority to:

a. Perform quality inspections and audits as part of ongoing Quality Assurance;

b. Identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings;

c. Initiate or recommend solutions to concerns or findings through designated reporting channels;

d. Verify the implementation of solutions within specific timescales;

e. Report directly to the Quality Manager.

4.6 Audit Scope

4.6.1 Operators are required to monitor compliance with the procedures they have designed to ensure safe operations, airworthy aircraft and the serviceability of both operational and safety equipment. In doing so they should as a minimum, and where appropriate, monitor:

AMC OPS 3.035 (continued)

a. Organisation;

b. Plans and Company objectives;

c. Operational Procedures;

d. Flight Safety;

e. Operator certification (AOC/Operations specification);

f. Supervision;

g. Helicopter Performance;

h. All Weather Operations;

i. Communications and Navigational Equipment and Practices;

j. Mass, Balance and Helicopter Loading;

k. Instruments and Safety Equipment;

l. Manuals, Logs, and Records;

m. Flight and Duty Time Limitations, Rest Requirements, and Scheduling;

n. Helicopter Maintenance/Operations interface;

o. Use of the MEL;

p. Maintenance Programmes and Continued Airworthiness;

q. Airworthiness Directives management;

r. Maintenance Accomplishment;

s. Defect Deferral;

t. Flight Crew;

u. Cabin Crew, if appropriate;

v. Dangerous Goods;

w. Security; and

x. Training.

4.7 Audit Scheduling

4.7.1 A Quality Assurance Programme should include a defined audit schedule and a periodic review cycle area by area. The schedule should be flexible, and allow unscheduled audits when trends are identified. Follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective.

4.7.2 An operator should establish a schedule of audits to be completed during a specified calendar period. All aspects of the operation should be reviewed within every period of 12 months in accordance with the programme unless an extension to the audit period is accepted as explained below. An operator may increase the frequency of audits at his discretion but should not decrease the frequency without the agreement of the Authority. It is considered unlikely that a frequency of greater than 24 months would be acceptable for any audit topic.

4.7.3 When an operator defines the audit schedule, significant changes to the management, organisation, operation, or technologies should be considered as well as changes to the regulatory requirements.

4.8 Monitoring and Corrective Action

4.8.1 The aim of monitoring within the Quality System is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy, operational, and maintenance standards are continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up. The operator should establish and publish a procedure to monitor regulatory compliance on

AMC OPS 3.035 (continued)

a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory performance.

4.8.2 Any non-compliance identified as a result of monitoring should be communicated to the manager responsible for taking corrective action or, if appropriate, the Accountable Manager. Such non-compliance should be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.

4.8.3 The Quality Assurance Programme should include procedures to ensure that corrective actions are taken in response to findings. These procedures should monitor such actions to verify their effectiveness and that they have been completed. Organisational responsibility and accountability for the implementation of corrective action resides with the department cited in the report identifying the finding. The Accountable Manager will have the ultimate responsibility for resourcing the corrective action and ensuring, through the Quality Manager, that the corrective action has re-established compliance with the standard required by the Authority, and any additional requirements defined by the operator.

4.8.4 Corrective action

a. Subsequent to the quality inspection/audit, the operator should establish:

i. The seriousness of any findings and any need for immediate corrective action;

ii. The origin of the finding;

iii. What corrective actions are required to ensure that the non-compliance does not recur;

iv. A schedule for corrective action;

v. The identification of individuals or departments responsible for implementing corrective action; and

vi. Allocation of resources by the Accountable Manager, where appropriate.

4.8.5 The Quality Manager should:

a. Verify that corrective action is taken by the manager responsible in response to any finding(s) of non-compliance;

b. Verify that corrective action includes the elements outlined in paragraph 4.8.4 above;

c. Monitor the implementation and completion of corrective action;

d. Provide management with an independent assessment of corrective action, implementation and completion;

e. Evaluate the effectiveness of corrective action through the follow-up process.

4.9 Management Evaluation

4.9.1 A management evaluation is a comprehensive, systematic, documented review of operational policies, procedures, and systems and should consider:

a. The results of inspections, audits and any other indicators; and

b. The overall effectiveness of the management organisation in achieving stated objectives.

4.9.2 A management evaluation should identify and correct trends, and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the authority to resolve issues and take action.

4.9.3 The Accountable Manager should decide upon the frequency, format, and structure of internal management evaluation activities.

4.10 Recording

4.10.1 Accurate, complete, and readily accessible records documenting the results of the Quality Assurance Programme should be maintained by the operator. Records are essential data to enable an operator to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and addressed.

AMC OPS 3.035 (continued)

4.10.2 The following records should be retained for a period of 5 years:

a. Audit Schedules;

b. Inspection and Audit reports;

c. Responses to findings;

d. Corrective action reports;

e. Follow-up and closure reports; and

f. Management Evaluation reports.

5 Quality Assurance Responsibility for Sub-Contractors

5.1 Sub-Contractors

5.1.1 Operators may decide to sub-contract out certain activities to external agencies for the provision of services related to areas such as:

a. Ground De-icing/Anti-icing;

b. Maintenance;

c. Ground handling;

d. Flight Support (including Performance calculations, flight planning, navigation database and despatch);

e. Training; and

f. Manual preparation.

5.1.2 The ultimate responsibility for the quality of the product or service always remains with the operator. A written agreement should exist between the operator and the sub-contractor clearly defining the services and quality to be provided. The sub-contractor's activities relevant to the agreement should be included in the operator's Quality Assurance Programme.

5.1.3 The operator should ensure that the sub-contractor has the necessary authorisation/approval when required, and commands the resources and competence to undertake the task. If the operator requires the sub-contractor to conduct activity which exceeds the sub-contractor's authorisation/approval, the operator is responsible for ensuring that the sub-contractor's quality assurance takes account of such additional requirements.

6 Quality System Training

6.1 General

6.1.1 An operator should establish effective, well planned and resourced quality related training for all personnel.

6.1.2 Those responsible for managing the Quality System should receive training covering:

a. An introduction to the concept of the Quality System;

b. Quality management;

c. The Concept of Quality Assurance;

d. Quality manuals;

e. Audit techniques;

f. Reporting and recording; and

g. The way in which the Quality System will function in the company.

6.1.3 Time should be provided to train every individual involved in quality management and for briefing the remainder of the employees. The allocation of time and resources should be governed by the size and complexity of the operation concerned.

6.2 Sources of Training

AMC OPS 3.035 (continued)

6.2.1 Quality management courses are available from the various National or International Standards Institutions, and an operator should consider whether to offer such courses to those likely to be involved in the management of Quality Systems. Operators with sufficient appropriately qualified staff should consider whether to carry out in-house training.

7 Organisations with 20 or less full time employees

7.1 Introduction

The requirement to establish and document a Quality System, and to employ a Quality Manager applies to all operators. References to large and small operators elsewhere in the requirements are governed by aircraft capacity (i.e. more or less than 10 seats) and by mass (greater or less than 3 175 kg maximum certificated take-off mass (MCTOM)). Such terminology is not relevant when considering the scale of an operation and the Quality System required. In the context of quality systems therefore, operators should be categorised according to the number of full time staff employees.

7.2 Scale of Operation

7.2.1 Operators who employ 5 or less full time staff are considered to be 'very small' while those employing between 6 and 20 full time employees are regarded as 'small' operators as far as quality systems are concerned. Full-time in this context means employed for not less than 35 hours per week excluding vacation periods.

7.2.2 Complex quality systems could be inappropriate for small or very small operators and the clerical effort required to draw up manuals and procedures for a complex system may stretch their resources. It is therefore accepted that such operators should tailor their quality systems to suit the size and complexity of their operation and allocate resources accordingly.

7.3 Quality Systems for small/very small Operators

7.3.1 For the 'very small' operator it may be appropriate to develop a Quality Assurance Programme that employs a checklist. The checklist should have a supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent overview of the checklist content and achievement of the Quality Assurance should be undertaken.

7.3.2 The 'small' operator may decide to employ an internal or external system or a combination of the two. In these circumstances it would be acceptable for external specialists and or qualified organisations to manage the quality system on behalf of the Quality Manager.

7.3.3 If the independent quality monitoring function is being conducted by an organisation other than the one carrying out the operations, it is necessary for the audit schedule to be shown in the relevant documentation.

7.3.4 Whatever arrangements are made, the operator retains the ultimate responsibility for quality activities and corrective actions.

[Ch. 1, 01.02.99]

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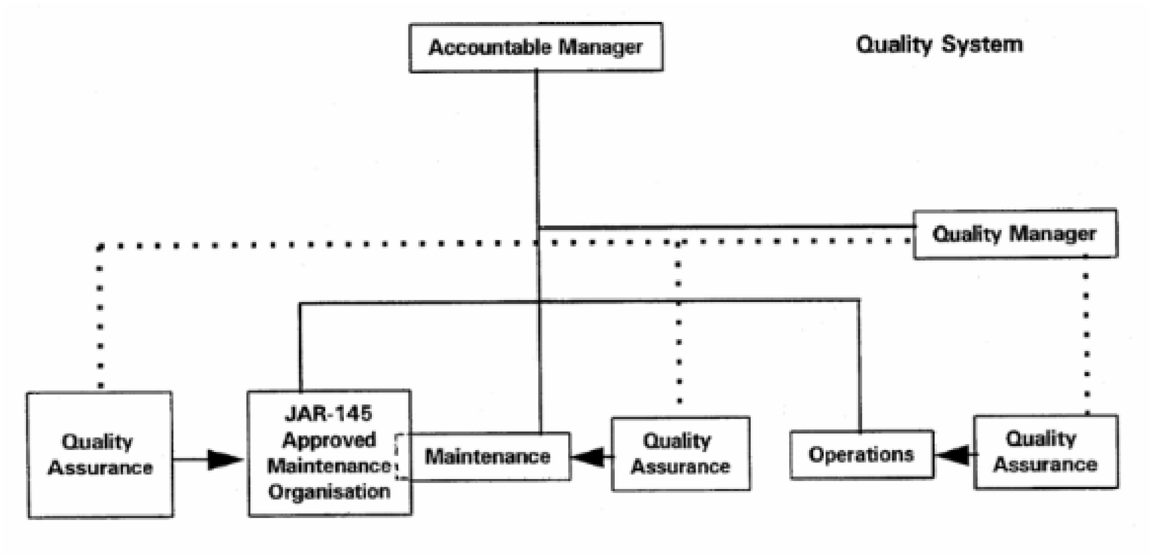
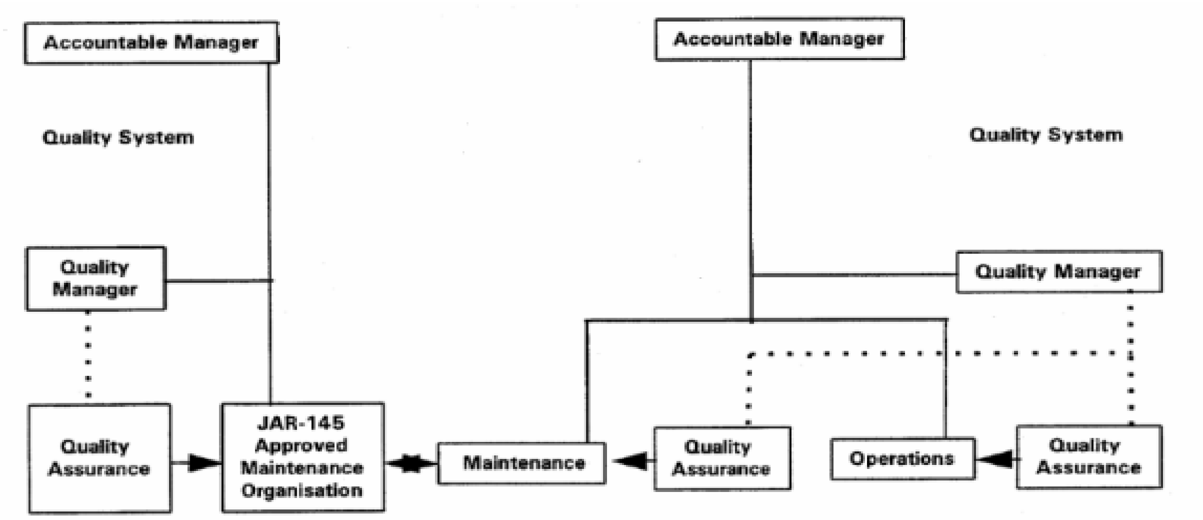
IEM OPS 3.035
Quality System - Organisation examples
See JAR-OPS 3.035

The following diagrams illustrate two typical examples of Quality organisations.

1 Quality System within an AOC holder's organisation when the AOC holder also holds a JAR-145 approval.



2 Quality Systems related to an AOC holder's organisation where aircraft maintenance is contracted out to a JAR-145 approved organisation which is not integrated with the AOC holder:



Note: The Quality System and Quality Audit Programme of the AOC holder should assure that the maintenance carried out by the JAR-145 approved organisation is in accordance with requirements specified by the AOC holder.

IEM OPS 3.037
Accident prevention and flight safety programme
See JAR-OPS 3.037

1 Guidance material for the establishment of a safety programme can be found in:

a. ICAO Doc 9422 (Accident Prevention Manual); and

b. ICAO Doc 9376 (Preparation of an Operational Manual).

2 Where available, use may be made of analysis of flight data recorder information (See also JAR-OPS 3.160(c).)

[Ch. 1, 01.02.99]

[ACJ OPS 3.037(a)(2)
Occurrence Reporting Scheme
See JAR-OPS 3.037(a)(2)

1. The overall objective of the scheme described in JAR-OPS 3.037(a)(2) is to use reported information to improve the level of flight safety and not to attribute blame.

2. The detailed objectives of the scheme are:

a. To enable an assessment of the safety implications of each relevant incident and accident to be made, including previous similar occurrences, so that any necessary action can be initiated; and

b. To ensure that knowledge of relevant incidents and accidents is disseminated so that other persons and organisations may learn from them.

3. The scheme is an essential part of the overall monitoring function; it is complementary to the normal day to day procedures and 'control' systems and is not intended to duplicate or supersede any of them. The scheme is a tool to identify those occasions where routine procedures have failed. (Occurrences that have to be reported and responsibilities for submitting reports are described in JAR-OPS 3.420.)

4. Occurrences should remain in the database when judged reportable by the person submitting the report as the significance of such reports may only become obvious at a later date.**]**

[Amdt. 3, 01.04.04]

IEM OPS 3.065
Carriage of weapons of war and munitions of war
See JAR-OPS 3.065

1 There is no internationally agreed definition of weapons of war and munitions of war. Some States may have defined them for their particular purposes or for national need.

2 It should be the responsibility of the operator to check, with the State(s) concerned, whether or not a particular weapon or munition is regarded as a weapon of war or munition of war. In this context, States which may be concerned with granting approvals for the carriage of weapons of war or munitions of war are those of origin, transit, overflight and destination of the consignment and the State of the operator.

3 Where weapons of war or munitions of war are also dangerous goods by definition (e.g. torpedoes, bombs, etc.), Subpart R will also apply.

(See also IEM OPS 3.070)

[Ch. 1, 01.02.99]

IEM OPS 3.070
Carriage of sporting weapons
See JAR-OPS 3.070

1 There is no internationally agreed definition of sporting weapons. In general they may be any weapon which is not a weapon of war or munition of war (See IEM OPS 3.065). Sporting weapons include hunting knives, bows and other similar articles. An antique weapon, which at one time may have been a weapon of war or munition of war, such as a musket, may now be regarded as a sporting weapon.

2 A firearm is any gun, rifle or pistol which fires a projectile.

3 In the absence of a specific definition, for the purpose of JAR-OPS and in order to provide some guidance to operators, the following firearms are generally regarded as being sporting weapons:

a. Those designed for shooting game, birds and other animals;

b. Those used for target shooting, clay-pigeon shooting and competition shooting, providing the weapons are not those on standard issue to military forces;

c. Airguns, dart guns, starting pistols, etc.

4 A firearm, which is not a weapon of war or munition of war, should be treated as a sporting weapon for the purposes of its carriage on a helicopter.

5 Other procedures for the carriage of sporting weapons may need to be considered if the helicopter does not have a separate compartment in which the weapons can be stowed. These procedures should take into account the nature of the flight, its origin and destination, and the possibility of unlawful interference. As far as possible, the weapons should be stowed so they are not immediately accessible to the passengers (e.g. in locked boxes, in checked baggage which is stowed under other baggage or under fixed netting). If procedures other than those in JAR-OPS 3.070(b)(1) are applied, the commander should be notified accordingly.

[Ch. 1, 01.02.99]

ACJ OPS 3.125
Documents to be carried
See JAR-OPS 3.125

In case of loss or theft of documents specified in JAR-OPS 3.125, the operation is allowed to continue until the flight reaches the base or a place where a replacement document can be provided.

[Amdt. 2, 01.01.02]

IEM OPS 3.160(a)
Preservation of recordings
See JAR-OPS 3.160(a)

The phrase ‘to the extent possible’ means that either:

1. There may be technical reasons why all of the data cannot be preserved, or

2. The helicopter may have been despatched with unserviceable recording equipment as permitted by JAR-OPS 3.700(f), 3.705(f), 3.715(h), or 3.720(h).

[Amdt. 2, 01.01.02]

AMC/IEM C – OPERATOR CERTIFICATION & SUPERVISION

[ACJ OPS 3.175(i)
Nominated Postholders - Competence
See JAR-OPS 3.175(i*)*

1. *General.*

1.1 A nominee for postholder should be able to demonstrate experience and the ability to perform effectively the functions associated with the post and with the scale of the operation; and

1.2 Nominated postholders should have:

1.2.1 Practical experience and expertise in the application of aviation safety standards and safe operating practices;

1.2.2 Comprehensive knowledge of:

a. JAR-OPS and any associated requirements and procedures;

b. The AOC holder's Operations Specifications;

c. The need for, and content of, the relevant parts of the AOC holder's Operations Manual;

1.2.3 Familiarity with Quality Systems;

1.2.4 Appropriate management experience.

2. *Flight Operations.* The nominated postholder or his deputy should hold, or have held, a Flight Crew Licence appropriate to the type of operation conducted under the AOC in accordance with the following:

2.1 If the AOC includes helicopters certificated for a minimum crew of 2 pilots - An Airline Transport Pilot's Licence issued or validated by a JAA Member State:

2.2 If the AOC is limited to helicopters certificated for a minimum crew of 1 pilot - A Commercial Pilot's Licence issued or validated by a JAA Member State.

3. For larger companies or companies with complex structures, postholders should be expected to satisfy the Authority that they possess the appropriate experience and licensing requirements which are listed in paragraphs 4 to 6 below.

4. *Maintenance System.* The nominated postholder should possess the following:

4.1 Relevant engineering degree, or aircraft maintenance technician with additional education acceptable to the Authority. ‘Relevant engineering degree’ means an engineering degree from Aeronautical, Mechanical, Electrical, Electronic, Avionic or other studies relevant to the maintenance of aircraft/aircraft components.

4.2 Thorough familiarity with the organisation's Maintenance Management Exposition.

4.3 Knowledge of the relevant type(s) of helicopter;

4.4 Knowledge of maintenance methods.

5. *Crew Training.* The nominated postholder or his deputy should be a current Type Rating Instructor on a type operated under the AOC.

5.1 The nominated Postholder should have a thorough knowledge of the AOC holder’s crew training concept for Flight Crew and for Cabin Crew when relevant.

6. *Ground Operations.* The nominated postholder should have a thorough knowledge of the AOC holder’s ground operations concept**.]**

[Amdt. 3, 01.04.04]

[ACJ OPS 3.175(j)
Combination of nominated postholder's responsibilities
See JAR-OPS 3.175(j)

1. The acceptability of a single person holding several posts, possibly in combination with being the accountable manager as well, will depend upon the nature and scale of the operation. The two main areas of concern are competence and an individual's capacity to meet his responsibilities.

2. As regards competence in the different areas of responsibility, there should not be any difference from the requirements applicable to persons holding only one post.

3. The capacity of an individual to meet his responsibilities will primarily be dependent upon the scale of the operation. However the complexity of the organisation or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances.

4. In most circumstances, the responsibilities of a nominated postholder will rest with a single individual. However, in the area of ground operations, it may be acceptable for these responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

5. The intent of JAR-OPS 3.175 is neither to prescribe any specific organisational hierarchy within the operator's organisation on a JAA wide basis nor to prevent an Authority from requiring a certain hierarchy before it is satisfied that the management organisation is suitable.**]**

[Amdt. 3, 01.04.04]

[ACJ OPS 3.175(j) & (k)
Employment of staff
See JAR-OPS 3.175(j) & (k*)*

In the context of JAR-OPS 3.175(j) & (k), the expression "full-time staff" means members of staff who are employed for not less than (an average of) 35 hours per week excluding vacation periods. For the purpose of establishing the scale of operation, administrative staff, not directly involved in operations or maintenance, should be excluded.**]**

[Amdt. 3, 01.04.04]

IEM OPS 3.175
The management organisation of an AOC holder
See JAR-OPS 3.175(g) - (o)

1 Function and Purpose

1.1 The safe conduct of air operations is achieved by an operator and an Authority working in harmony towards a common aim. The functions of the two bodies are different, well defined, but complementary. In essence, the operator complies with the standards set through putting in place a sound and competent management structure. The Authority working within a framework of law statutes), sets and monitors the standards expected from operators.

2 Responsibilities of Management

2.1 The responsibilities of management related to JAR-OPS Part 3 should include at least the following five main functions:

a. Determination of the operator's flight safety policy;

b. Allocation of responsibilities and duties and issuing instructions to individuals, sufficient for implementation of company policy and the maintenance of safety standards;

c. Monitoring of flight safety standards;

d. Recording and analysis of any deviations from company standards and ensuring corrective action;

e. Evaluating the safety record of the company in order to avoid the development of undesirable trends.

IEM OPS 3.175(c)(2)
Principal place of business
See JAR-OPS 3.175(c)(2)

1 JAR-OPS 3.175(c)(2) requires an operator to have his principal place of business located in the State responsible for issuing the AOC.

2 In order to ensure proper jurisdiction by that State over the operator, the term ‘principal place of business’ is interpreted as meaning the State in which the administrative headquarters and the operator’s operational and maintenance management are based.

IEM OPS 3.185(b)
Maintenance management exposition details
See JAR-OPS 3.185(b)

1 The operator's organisation’s maintenance management exposition should reflect the details of any sub-contract(s).

2 A change of aeroplane type or of the JAR-145 approved maintenance organisation may require the submission of an acceptable amendment to the operator's management exposition.

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AMC/IEM D – OPERATIONAL PROCEDURES

[ACJ OPS 3.195
Operational Control
(See JAR-OPS 3.195)

1 Operational control means the exercise by the operator, in the interest of safety, of responsibility for the initiation, continuation, termination or diversion of a flight. This does not imply a requirement for licensed flight dispatchers or a full flight watch system.

2 The organisation and methods established to exercise operational control should be included in the operations manual and should cover at least a description of responsibilities concerning the initiation, continuation, termination or diversion of each flight**.]**

[Amdt. 3, 01.04.04]

AMC OPS 3.210(a)
Establishment of procedures
See JAR-OPS 3.210(a)

An operator should specify the contents of safety briefings for all cabin crew members prior to the commencement of a flight or series of flights.

IEM OPS 3.210(b)
Establishment of procedures
See JAR-OPS 3.210

When an operator establishes procedures and a checklist system for use by cabin crew with respect to the helicopter cabin, at least the following items should be taken into account:

ITEM	PRE-TAKE-OFF	IN-FLIGHT	PRE-LANDING	POST-LANDING
1. Brief of cabin crew by the senior cabin crew member prior to commencement of a flight or series of flights.	x			
2. Check of safety equipment in accordance with operator's policies and procedures.	x			
3. Security checks as required by Subpart S (JAR-OPS 3.1250).	x			x
4. Supervision of passenger embarkation and disembarkation (JAR-OPS 3.075; JAR-OPS 3.105; JAR-OPS 3.270; JAR- OPS 3.280; JAR-OPS 3.305).	x			x
5. Securing of passenger cabin (e.g. seat belts, cabin cargo/baggage etc. (JAR-OPS 3.280; JAR-OPS 3.285; JAR-OPS 3.310).	x		x	
6. Securing of galleys and stowage of equipment (JAR-OPS 3.325).	x		x	
7. Intentionally left blank.				
8. Intentionally left blank.				
9. 'Cabin secure' report to flight crew.	x		x	
10. Operation of cabin lights.	x	if required	x	

IEM OPS 3.210(b) (continued)

ITEM	PRE-TAKE-OFF	IN-FLIGHT	PRE-LANDING	POST-LANDING
11. Cabin crew at crew stations for take-off and landing. (JAR-OPS 3.210(c)/IEM OPS 3.210(c), JAR-OPS 3.310).	x		x	x
12. Surveillance of passenger cabin.	x	x	x	x
13. Prevention and detection of fire in the cabin, galleys and toilets and instructions for actions to be taken.	x	x	x	x
14. Action to be taken when turbulence is encountered. (See also JAR-OPS 3.320 and JAR-OPS 3.325).	x	x		
15. Intentionally left blank.	x			
16. Reporting of any deficiency and/or unserviceability of equipment.	x	x	x	x

[Ch. 1, 01.02.99]

[ACJ OPS 3.210(d)

The intent of this paragraph is to ensure that the pilot remains at the controls when the rotors are turning under power whilst not preventing ground runs being conducted by qualified personnel other than pilots. The operator should ensure that the qualification of personnel, other than pilots, who are authorised to conduct ground runs is described in the appropriate manual.**]**

[Amdt. 5, 01.07.07]

AMC No 1 to OPS 3.220
Authorisation of Heliports by the operator
See JAR-OPS 3.220

1 When defining sites for use as heliports (including infrequent or temporary heliports) for the type(s) of helicopter(s) and operation(s) concerned, an operator should take account of the following:

2 An adequate site is a site which the operator considers to be satisfactory, taking account of the applicable performance requirements and site characteristics (guidance on standards and criteria are contained in ICAO Annex 14 Volume 2 and in the ICAO 'Heliport Manual' (Doc 9261-AN/903)).

3 The operator should have in place a procedure for the survey of sites by a competent person. Such a procedure should take account for possible changes to the site characteristics which may have taken place since last surveyed.

4 Sites which are pre-surveyed should be specifically authorised in the operator's Operations Manual. The Operations Manual should contain diagrams or/and ground and aerial photographs, and depiction (pictorial) and description of:

a. The overall dimensions of the site;

b. Location and height of relevant obstacles to approach and take-off profiles, and in the manoevring area;

c. Approach and take-off flight paths;

d. Surface condition (blowing dust/snow/sand);

e. Helicopter types authorised with reference to performance requirements;

f. Provision of control of third parties on the ground (if applicable);

AMC No 1 to OPS 3.220 (continued)

g. Procedure for activating site with land owner or controlling authority;

h. Other useful information, for example appropriate ATS agency and frequency;

j. Lighting (if applicable);

5 For sites which are not pre-surveyed, the Operator should have in place a procedure which enables the pilot to make, from the air, a judgment on the suitability of a site. Items (a) to (f) inclusive in (4) above should be considered.

6 Operations to non pre-surveyed sites by night (except in accordance with Appendix 1 to 3.005(d) - (c)(2)(i)(C)) should not be permitted.

AMC No 2 to OPS 3.220
Authorisation of Heliports by the operator - Helidecks
See JAR-OPS 3.220
See JAR-OPS 3.1045

1 The content of Part C of the Operations Manual relating to the specific authorisation of helidecks should contain both the listing of helideck limitations in a Helideck Limitations List (HLL) and a pictorial representation (template) of each helideck showing all necessary information of a permanent nature. The HLL will show, and be amended as necessary to indicate, the most recent status of each helideck concerning non-compliance with ICAO Annex 14 Volume 2, limitations, warnings, cautions or other comments of operational importance. An example of a typical template is shown in Figure 1.

2 In order to ensure that the safety of flights is not compromised, the operator should obtain relevant information and details for compilation of the HLL, and the pictorial representation, from the owner/operator of the helideck.

3 When listing helidecks, if more than one name of the helideck exists, the most common name should be used, other names should also be included. After renaming a helideck, the old name should be included in the HLL for the ensuing 6 months.

4 All helideck limitations should be included in the HLL. Helidecks without limitations should also be listed. With complex installations and combinations of installations (e.g. co-locations), a separate listing in the HLL, accompanied by diagrams where necessary, may be required.

5 Each helideck should be assessed (based on limitations, warnings, cautions or comments) to determine its acceptability with respect to the following which, as a minimum, should cover the factors listed below:

a. The physical characteristics of the helideck.

b. The preservation of obstacle protected surfaces is the most basic safeguard for all flights.

These surfaces are:

(i) The minimum 210° obstacle free surface (OFS);

(ii) The 150° limited obstacle surface (LOS); and

(iii) The minimum 180° falling "5:1" - gradient with respect to significant obstacles. If this is infringed or if an adjacent installation or vessel infringes the obstacle clearance surfaces or criteria related to a helideck, an assessment should be made to determine any possible negative effect which may lead to operating restrictions.

c. Marking and lighting:

(i) Adequate perimeter lighting;

(ii) Adequate floodlighting;

(iii) Status lights (NB for night and day operations e.g. Aldis Lamp);

(iv) Dominant obstacle paint schemes and lighting;

(v) Helideck markings; and

AMC No 2 to OPS 3.220 (continued)

(vi) General installation lighting levels. Any limited authorisation in this respect should be annotated "daylight only operations" on the HLL.

d. Deck surface:

(i) Surface friction;

(ii) Helideck net;

(iii) Drainage system;

(iv) Deck edge netting;

(v) Tie down system; and

(vi) Cleaning of all contaminants.

e. Environment:

(i) Foreign Object Damage;

(ii) Physical turbulence generators;

(iii) Bird control,

(iv) Air quality degradation due to exhaust emissions, hot gas vents or cold gas vents; and

(v) Adjacent helidecks may need to be included in air quality assessment.

f. Rescue and fire fighting:

(i) Primary and complementary media types, quantities, capacity and systems personal protective equipment and clothing, breathing apparatus; and

(ii) Crash box;

g. Communications & Navigation:

(i) Aeronautical Radio(s);

(ii) R/T callsign to match helideck name and side identification which should be simple and unique;

(iii) NDB or equivalent (as appropriate);

(iv) Radio log; and

(v) Light signal (e.g. Aldis Lamp).

h. Fuelling facilities:

(i) In accordance with the relevant national guidance and regulations;

i. Additional operational and handling equipment:

(i) Windsock;

(ii) Wind recording;

(iii) Deck motion recording and reporting where applicable;

(iv) Passenger briefing system;

(v) Chocks;

(vi) Tie downs; and

(vii) Weighing scales.

j. Personnel:

(i) Trained helideck staff (e.g. Helicopter Landing Officer/Helicopter Deck Assistant and fire fighters etc.).

k. Other:

(i) as appropriate.

AMC No 2 to OPS 3.220 (continued)

6 For helidecks about which there is incomplete information, a 'limited' authorisation based on the information available may be issued by the operator prior to the first helicopter visit. During subsequent operations and before full authorisation is given, information should be gathered and the following procedures should apply:

a. Pictorial (static) representation:

(i) Template (see figure 1) blanks should be available, to be filled out during flight preparation on the basis of the information given by the helideck owner/operator and flight crew observations.

(ii) Where possible, suitably annotated photographs may be used until the HLL and template has been completed.

(iii) Until the HLL and Template has been completed, operational restrictions (e.g. performance, routing etc.) may be applied.

(iv) Any previous inspection reports should be obtained by the operator.

(v) An inspection of the helideck should be carried out to verify the content of the completed HLL and template, following which the helideck may be fully authorised for operations.

b. With reference to the above, the HLL should contain at least the following:

(i) HLL revision date and number;

(ii) Generic list of helideck motion limitations;

(iii) Name of Helideck;

(iv) 'D'-value of the helideck; and

(v) Limitations, warnings, cautions and comments.

c. The template should contain at least the following (see example below):

(i) Installation/Vessel name;

(ii) R/T Callsign;

(iii) Helideck Identification Marking;

(iv) Side Panel Identification Marking;

(v) Helideck elevation;

(vi) Maximum installation/vessel height;

(vii) 'D' Value;

(viii) Type of installation/vessel;

- Fixed manned
- Fixed unmanned
- Ship type (e.g. diving support vessel)
- Semi-submersible
- Jack-up

(ix) Name of owner/operator;

(x) Geographical position;

(xi) Com/Nav Frequencies and Ident;

(xii) General drawing preferably looking into the helideck with annotations showing location of derrick, masts, cranes, flare stack, turbine and gas exhausts, side identification panels, windsock etc.;

(xiii) Plan view drawing, chart orientation from the general drawing, to show the above. The plan view will also show the 210 degree bisector orientation in degrees true;

(xiv) Type of fuelling:

AMC No 2 to OPS 3.220 (continued)

- Pressure and Gravity
- Pressure only
- Gravity only
- None

(xv) Type and nature of fire fighting equipment;

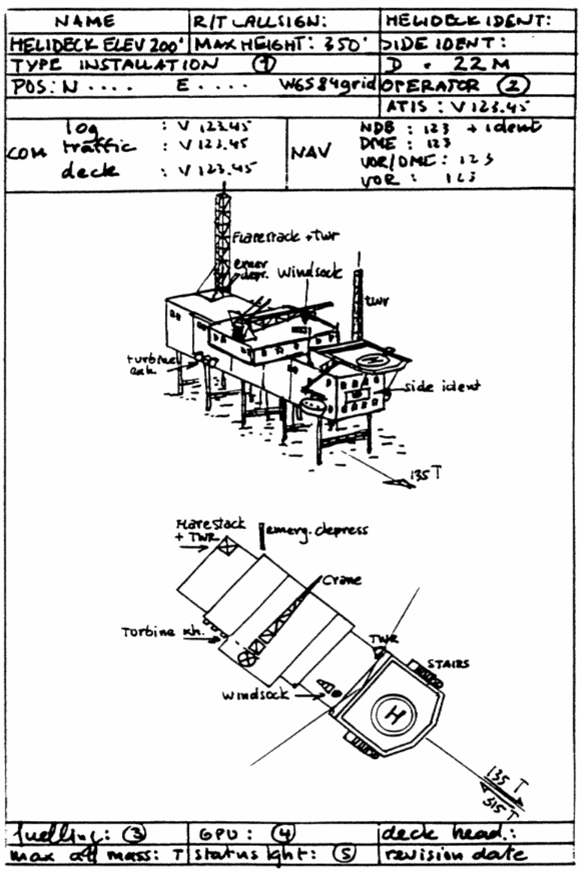
(xvi) Availability of GPU;

(xvii) Deck heading;

(xviii) Maximum allowable mass;

(xix) Status light (Yes/No); and

(xx) Revision date of publication.



1. Fixed manned; fixed unmanned; small ship; large ship; semi-submersible; jack-up.
2. NAM, AMOCO etc.
3. Pressure/gravity; pressure; gravity; no.
4. Yes; no; 28V DC.
5. Yes; no.

Figure 1 – Helideck Template

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

IEM OPS 3.240(a)(6)
Coastal Transit
See JAR-OPS 3.240(a)(6)

1 Introduction

1.1 A helicopter operating overwater in Performance Class 3, has to have certain equipment fitted. This equipment varies with the distance from land that the helicopter is expected to operate. The aim of this IEM is to discuss that distance, bring into focus what fit is required and to clarify the operator's responsibility, when a decision is made to conduct coastal transit operations.

1.2 In the case of operations north of 45N or south of 45S, the coastal corridor facility may or may not be available in a particular state, as it is related to the State definition of open sea area as described in the definition of hostile environment and IEM 3.480(a)(12).

1.3 Where the term Coastal Transit is used, it means the conduct of operations overwater within the coastal corridor in conditions where there is reasonable expectation that; the flight can be conducted safely in the conditions prevailing; and, following an engine failure, a safe forced landing and successful evacuation can be achieved; and survival of the crew and passengers can be assured until rescue is effected.

1.4 Coastal corridor is a variable distance from the coastline to a maximum distance corresponding to 3 minutes flying at normal cruising speed.

2 Establishing the width of the coastal corridor.

2.1 The distance from land of Coastal Transit, is defined the boundary of a corridor that extends from the land, to a maximum distance of up to 3 minutes at normal cruising speed (approximately 5 - 6 nm). Land in this context includes sustainable ice (see a. to c. below) and, where the coastal region includes islands, the surrounding waters may be included in the corridor and aggregated with the coast and each other. Coastal transit need not be applied to inland waterways, estuary crossing or river transit.

a. In some areas, the formation of ice is such that it can be possible to land, or force land, without hazard to the helicopter or occupants. Unless the Authority considers that operating to, or over, such ice fields is unacceptable, the operator may regard the definition of the “land” extends to these areas.

The interpretation of the following rules may be conditional on a. above:

JAR-OPS 3.240(a)(6)

JAR-OPS 3.825

JAR-OPS 3.827

JAR-OPS 3.830

JAR-OPS 3.843

c. In view of the fact that such featureless and flat white surfaces could present a hazard and could lead to white-out conditions, the definition of land does not extend to flights over ice fields in the following rules:

JAR-OPS 3.650(i)

JAR-OPS 3.660

2.2 The width of the corridor is variable from not safe to conduct operations in the conditions prevailing, to the maximum of 3 minutes wide. A number of factors will, on the day, indicate if it can be used - and how wide it can be. These factors will include but not be restricted to:

a. The meteorological conditions prevailing in the corridor;

b. The instrument fit of the aircraft;

c. The certification of the aircraft - particularly with regard to floats;

d. The sea state;

e. The temperature of the water;

IEM OPS 3.240(a)(6) (continued)

f. The time to rescue; and

g. The survival equipment carried.

These can be broadly divided into three functional groups:

Those which meet the requirement for safe flying - a. and b..

Those which meet the requirement for a safe forced landing and evacuation - a., b., c. and d..

Those which meet the requirement for survival following a forced landing and successful evacuation - a., d., e., f. and g..

3 Requirement for safe flying

3.1 It is generally recognised that when flying out of sight of land in certain meteorological conditions, such as occur in high pressure weather patterns (goldfish bowl - no horizon, light winds and low visibility), the absence of a basic panel (and training) can lead to disorientation. In addition, lack of depth perception in these conditions demands the use of a radio altimeter with an audio voice warning as an added safety benefit - particularly when autorotation to the surface of the water may be required.

3.2 In these conditions a helicopter, without the required instruments and radio altimeter, should be confined to a corridor in which a pilot can maintain reference using the visual cues on the land.

4 Requirement for a safe forced landing and evacuation

4.1 Weather and sea state both affect the outcome of an autorotation following an engine failure. It is recognised that the measurement of sea state is problematical and when assessing such conditions, good judgement has to be exercised by the operator and the commander.

4.2 Where floats have been certificated only for emergency use (and not for ditching), operations must be limited to those sea states which meet the requirement for such use - where a safe evacuation is possible.

(Ditching certification requires compliance with a comprehensive number of requirements relating to rotorcraft water entry, flotation and trim, occupant egress and occupant survival. Emergency flotation systems, generally fitted to smaller Part 27 rotorcraft, are approved against a broad requirement that the equipment must perform its intended function and not hazard the rotorcraft or its occupants. In practice, the most significant difference between ditching and emergency flotation systems is substantiation of the water entry phase. Ditching requirements call for water entry procedures and techniques to be established and promulgated in the Flight Manual. The fuselage/flotation equipment must thereafter be shown to be able to withstand loads under defined water entry conditions which relate to these procedures. For emergency flotation equipment, there is no requirement to define the water entry technique and no specific conditions defined for the structural substantiation.)

5 Requirements for survival

5.1 Survival of crew members and passengers, following a successful autorotation and evacuation, is dependant on the clothing worn, the equipment carried and worn, the temperature of the sea and the sea state (see IEM OPS 3.827). Search and rescue response/capability consistent with the anticipated exposure should be available before the conditions in the corridor can be considered non-hostile.

5.2 Coastal Transit can be conducted (including north of 45N and south of 45S - when the definition of open sea areas allows) providing the requirements of paragraph 3 and 4 are met, and the conditions for a non-hostile coastal corridor are satisfied.

[Amdt. 2, 01.01.02]

IEM OPS 3.243
Operations in areas with specific navigation performance requirements
See JAR-OPS 3.243

1 The requirements and procedures relating to areas in which minimum navigation performance specifications are prescribed, based on Regional Air Navigation Agreements, are covered (as indicated for the type of navigation performance specification) in the following documentation:

IEM OPS 3.243 (continued)

a. RNP information and associated procedures - ICAO DOC 9613; and

b. EUROCONTROL Standards on Area Navigation to comply with RNP/RNAV.

c. JAA TGL No 2 - Advisory material for the airworthiness approval of navigation systems for use in European Airspace designated for Basic RNAV Operations.

2 The following explanatory material has been developed to explain the subject of Required Navigation Performance (RNP) more fully:

a. Objective of RNP - The RNP concept will replace the conventional method of ensuring required navigation performance by requiring the carriage of specific navigation equipment by worldwide, uniform standards of navigation performance for defined airspace and/or flight procedures. It is therefore up to an operator to decide which system(s) he will utilise to meet the requirements. However, the operator must ensure that the system(s) used is certificated for operations in the airspace concerned.

b. Navigational Accuracy - RNP is defined as a statement of the navigational accuracy required for operation within a defined area of airspace. Navigational accuracy is based upon a combination of navigation sensor error, airborne sensor error, display error and flight technical error in the horizontal plane. The level of accuracy is expressed as a single parameter and it defines the distance from helicopter's intended position within which the aircraft must be maintained for at least 95% of the total flying time. As an example, RNP 4 means that all aircraft remain within 4 nm of their intended positions for at least 95% of the total flying time.

c. RNP Types for En-Route Operations - In order to consider the requirements for navigation performance for various areas of airspace and/or routes, RNP types have been defined for worldwide, uniform application in en-route operations as follows:

i. RNP 1 requires highly accurate position information and will be associated with high-density continental traffic. Full exploitation of the benefits of RNP 1 (in connection with area navigation (RNAV)) will require that a high percentage of aircraft achieves this level of navigation performance.

ii. RNP 4 will normally be applied in continental areas in which the route structure is presently based on VOR/DME.

[Ch. 1, 01.02.99]

IEM OPS 3.250
Establishment of Minimum Flight Altitudes
See JAR-OPS 3.250

1 The following are examples of some of the methods available for calculating minimum flight altitudes.

2 KSS Formula

2.1 Minimum obstacle clearance altitude (MOCA). MOCA is the sum of:

i. The maximum terrain or obstacle elevation whichever is highest; plus

ii. 1 000 ft for elevation up to and including 6 000 ft; or

iii 2 000 ft for elevation exceeding 6 000 ft

rounded up to the next 100 ft.

2.1.1 The lowest MOCA to be indicated is 2 000 ft.

2.1.2 From a VOR station, the corridor width is defined as a borderline starting 5 nm either side of the VOR, diverging 4° from centreline until a width of 20 nm is reached at 70 nm out, thence paralleling the centreline until 140 nm out, thence again diverging 4° until a maximum width of 40 nm is reached at 280 nm out. Thereafter the width remains constant.

IEM OPS 3.250 (continued)

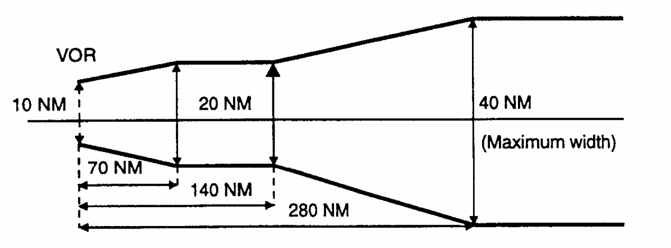


FIGURE 1

2.1.3 From an NDB, similarly, the corridor width is defined as a borderline starting 5 nm either side of the NDB diverging 7° until a width of 20 nm is reached 40 nm out, thence paralleling the centreline until 80 nm out, thence again diverging 7° until a maximum width of 60 nm is reached 245 nm out. Thereafter the width remains constant.

2.1.4 MOCA does not cover any overlapping of the corridor.

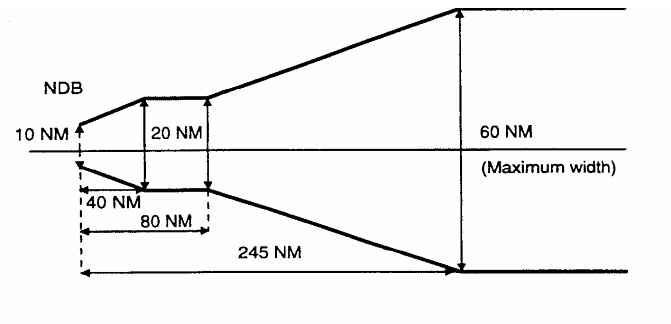


FIGURE 2

2.2 Minimum off–route altitude (MORA). MORA is calculated for an area bounded by every or every second LAT/LONG square on the Route Facility Chart (RFC)/Terminal Approach Chart (TAC) and is based on a terrain clearance as follows:

i. Terrain with elevation up to 6 000 ft (2 000 m) – 1 000 ft above the highest terrain and obstructions;

ii. Terrain with elevation above 6 000 ft (2 000 m) – 2 000 ft above the highest terrain and obstructions.

3 Jeppesen Formula

3.1 MORA is a minimum flight altitude computed by Jeppesen from current ONC or WAC charts. Two types of MORAs are charted which are:

i. Route MORAs e.g. 9 800a; and

ii. Grid MORAs e.g. 98.

3.2 Route MORA values are computed on the basis of an area extending 10 nm to either side of route centreline and including a 10 nm radius beyond the radio fix/reporting point or mileage break defining the route segment.

3.3 MORA values clear all terrain and man–made obstacles by 1 000 ft in areas where the highest terrain elevation or obstacles are up to 5 000 ft. A clearance of 2 000 ft is provided above all terrain or obstacles which are 5 001 ft and above.

3.4 A Grid MORA is an altitude computed by Jeppesen and the values are shown within each Grid formed by charted lines of latitude and longitude. Figures are shown in thousands and hundreds of feet (omitting the last two digits so as to avoid chart congestion). Values followed by ± are believed not to exceed the altitudes shown. The same clearance criteria as explained in paragraph 3.3 above apply.

IEM OPS 3.250 (continued)

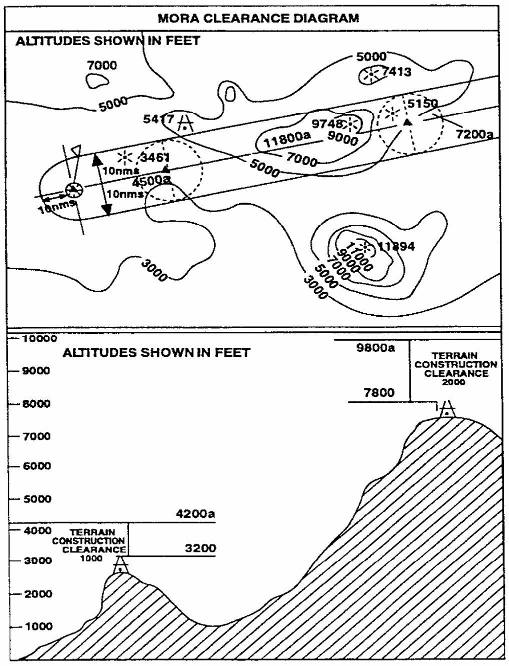


FIGURE 3

4 ATLAS Formula

4.1 Minimum safe En–route Altitude (MEA). Calculation of the MEA is based on the elevation of the highest point along the route segment concerned (extending from navigational aid to navigational aid) within a distance on either side of track as specified below:

i. Segment length up to 100 nm – 10 nm (See Note 1 below).

ii. Segment length more than 100 nm – 10% of the segment length up to a maximum of 60 nm See Note 2 below).

Note 1: This distance may be reduced to 5 nm within TMAs where, due to the number and type of available navigational aids, a high degree of navigational accuracy is warranted.

Note 2: In exceptional cases, where this calculation results in an operationally impracticable value, an additional special MEA may be calculated based on a distance of not less than 10 nm either side of track. Such special MEA will be shown together with an indication of the actual width of protected airspace.

4.2 The MEA is calculated by adding an increment to the elevation specified above as appropriate:

Elevation of highest point	Increment
Not above 5 000 ft	1 500 ft
Above 5 000 ft but not above 10 000 ft	2 000 ft
Above 10 000 ft	10% of elevation plus 1 000 ft

NOTE: For the last route segment ending over the initial approach fix, a reduction to 1 000 ft is permissible within TMAs where, due to the number and type of available navigation aids, a high degree of navigational accuracy is warranted.

The resulting value is adjusted to the nearest 100 ft.

4.3 Minimum safe Grid Altitude (MGA). Calculation of the MGA is based on the elevation of the highest point within the respective grid area.

The MGA is calculated by adding an increment to the elevation specified above as appropriate:

Elevation of highest point	Increment
Not above 5 000 ft	1 500 ft

AMC OPS 3.250 (continued)

Above 5 000 ft but not above 10 000 ft	2 000 ft
Above 10 000 ft	10% of elevation plus 1 000 ft

The resulting value is adjusted to the nearest 100 ft.

AMC OPS 3.255
Fuel Policy
See JAR-OPS 3.255

An operator should base the company fuel policy, including calculation of the amount of fuel to be carried, on the following planning criteria:

1 The amount of:

1.1 Taxy fuel, which should not be less than the amount, expected to be used prior to take-off. Local conditions at the departure heliport and APU consumption should be taken into account.

1.2 Trip fuel, which should include:

a. Fuel for take-off and climb from heliport elevation to initial cruising level/altitude, taking into account the expected departure routing;

b. Fuel from top of climb to top of descent, including any step climb/descent;

c. Fuel from top of descent to the point where the approach procedure is initiated, taking into account the expected arrival procedure; and

d. Fuel for approach and landing at the destination heliport.

1.3 Contingency fuel, which should be:

a. For IFR flights, or for VFR flights in a hostile environment, 10% of the planned trip fuel; or

b. For VFR flights in a non-hostile environment, 5% of the planned trip fuel;

1.4 Alternate fuel, which should be:

a. Fuel for a missed approach from the applicable MDA/DH at the destination heliport to missed approach altitude, taking into account the complete missed approach procedure;

b. Fuel for a climb from missed approach altitude to cruising level/altitude;

c. Fuel for the cruise from top of climb to top of descent;

d. Fuel for descent from top of descent to the point where the approach is initiated, taking into account the expected arrival procedure; and

e. Fuel for executing an approach and landing at the destination alternate heliport selected in accordance with JAR-OPS 3.295.

f. For helicopters operating to or from helidecks located in a hostile environment, 10% of a. to e. above.

1.5 Final reserve fuel, which should be:

a. For VFR flights navigating by day with reference to visual landmarks, 20 minutes fuel at best range speed; or

b. For IFR flights or when flying VFR and navigating by means other than by reference to visual landmarks or at night, fuel to fly for 30 minutes at holding speed at 1 500 ft (450 m) above the destination heliport in standard conditions calculated with the estimated mass on arrival above the alternate, or the destination, when no alternate is required.

1.6 Extra fuel, which should be at the discretion of the commander.

2 Isolated heliport IFR procedure. If an operator's fuel policy includes planning to an isolated heliport flying IFR, or when flying VFR and navigating by means other than by reference to visual landmarks, for which a destination alternate does not exist, the amount of fuel at departure should include:

AMC OPS 3.255 (continued)

a. Taxy fuel;

b. Trip fuel;

c. Contingency fuel calculated in accordance with sub-paragraph 1.3 above;

d. Additional fuel to fly for two hours at holding speed including final reserve fuel; and

e. Extra fuel at the discretion of the commander.

3 Sufficient fuel should be carried at all times to ensure that following the failure of a power unit which occurs at the most critical point along the route, the helicopter is able to:

a. Descend as necessary and proceed to an adequate heliport; and

b. Hold there for 15 minutes at 1 500 ft (450 m) above heliport elevation in standard conditions; and

c. Make an approach and landing. (See IEM OPS 3.500(a)(5) and IEM OPS 3.530(a)(5)).

[Amdt. 2, 01.01.02]

IEM OPS 3.255(c)(3)(i)
Contingency Fuel
See JAR-OPS 3.255(c)(3)(i)

1 At the planning stage, not all factors which could have an influence on the fuel consumption to the destination heliport can be foreseen. Therefore, contingency fuel is carried to compensate for items such as:

i. Deviations of an individual helicopter from the expected fuel consumption data;

ii. Deviations from forecast meteorological conditions; and

iii. Deviations from planned routings and/or cruising levels/altitudes.

IEM OPS 3.260
Carriage of persons with Reduced Mobility
See JAR-OPS 3.260

1 A person with reduced mobility (PRM) is understood to mean a person whose mobility is reduced due to physical incapacity (sensory or locomotory), an intellectual deficiency, age, illness or any other cause of disability when using transport and when the situation needs special attention and the adaptation to a person's need of the service made available to all passengers.

2 In normal circumstances PRMs should not be seated adjacent to an emergency exit.

3 In circumstances in which the number of PRMs forms a significant proportion of the total number of passengers carried on board:

a. The number of PRMs should not exceed the number of able-bodied persons capable of assisting with an emergency evacuation; and

b. The guidance given in paragraph 2 above should be followed to the maximum extent possible.

AMC OPS 3.270
Cargo carriage in the passenger cabin
See JAR-OPS 3.270

1 In establishing procedures for the carriage of cargo in the passenger cabin of a helicopter, an operator should observe the following:

a. That the weight of the cargo does not exceed the structural loading limit(s) of the cabin floor or seat(s);

b. That the number/type of restraint devices and their attachment points should be capable of restraining the cargo in accordance with JAR-29.787 or equivalent;

AMC OPS 3.270 (continued)

c. That the location of the cargo should be such that, in the event of an emergency evacuation, it will not hinder egress nor impair the cabin crew's view.

[Ch. 1, 01.02.99]

[ACJ No. 1 to JAR-OPS 3.280
Passenger Seating
See JAR-OPS 3.280
See ACJ No. 2 to JAR-OPS 3.280

1 An operator should make provision so that:

a. Those passengers who are allocated seats which permit direct access to emergency exits, appear to be reasonably fit, strong and able to assist the rapid evacuation of the helicopter in an emergency after an appropriate briefing by the crew;

b. In all cases, passengers who, because of their condition, might hinder other passengers during an evacuation or who might impede the crew in carrying out their duties, should not be allocated seats which permit direct access to emergency exits. If the operator is unable to establish procedures which can be implemented at the time of passenger 'check-in', he should establish an alternative procedure acceptable to the Authority that the correct seat allocations will, in due course, be made.

2 The above text does not apply to helicopters where the normal exit also serves as an emergency exit. However in these circumstances, the operator should apply discretion when choosing passengers to sit next to a normal exit to ensure that evacuation is not hindered in the case of an emergency.**]**

[Amdt. 3, 01.04.04]

[ACJ No. 2 to JAR-OPS 3.280
Passenger Seating
See JAR-OPS 3.280
See ACJ No. 1 to JAR-OPS 3.280

1 The following categories of passengers are among those who should not be allocated to, or directed to seats which permit direct access to emergency exits:

a. Passengers suffering from obvious physical, or mental, handicap to the extent that they would have difficulty in moving quickly if asked to do so;

b. Passengers who are either substantially blind or substantially deaf to the extent that they might not readily assimilate printed or verbal instructions given;

c. Passengers who because of age or sickness are so frail that they have difficulty in moving quickly;

d. Passengers who are so obese that they would have difficulty in moving quickly or reaching and passing through the adjacent emergency exit;

e. Children (whether accompanied or not) and infants;

f. Deportees or persons in custody; and,

g. Passengers with animals.

Note: "Direct access" means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.**]**

[Amdt. 3, 01.04.04]

AMC OPS 3.295(c)(1)
Selection of Heliports
See JAR-OPS 3.295(c)(1)

1 Any alleviation from the requirement to select an alternate heliport for a flight to a coastal heliport under IFR is applicable only to helicopters routing from offshore, and should be based on an individual safety case assessment.

2 The following should be taken into account:

2.1. Suitability of the weather based on the landing forecast for the destination;

2.2. The fuel required to meet the IFR requirements of JAR-OPS 3.255 less alternate fuel;

2.3. Where the destination coastal heliport is not directly on the coast it should be:

a. Within a distance that, with the fuel specified in 2.2. above, the helicopter can, at any time after crossing the coastline, return to the coast, descend safely and carry out a visual approach and landing with VFR fuel reserves intact, and

b. Geographically sited so that the helicopter can, within the Rules of the Air, and within the landing forecast:

(i) proceed inbound from the coast at 500 ft AGL and carry out a visual approach and landing; or

(ii) proceed inbound from the coast on an agreed route and carry out a visual approach and landing.

2.4. Procedures for coastal heliports should be based on a landing forecast no worse than:

a. By Day. A cloud base of DH/MDH + 400 ft, and a visibility of 4 km, or, if descent over the sea is intended, a cloud base of 600 ft and a visibility of 4 km.

b. By Night. A cloud base of 1 000 ft and a visibility of 5 km.

2.5. The descent to establish visual contact with the surface should take place over the sea or as part of the instrument approach;

2.6. Routings and procedures for coastal heliports nominated as such should be included in the Operations Manual Part C - Route and Heliport Instructions and Information;

2.7. The MEL should reflect the requirement for Airborne Radar and Radio Altimeter for this type of operation;

2.8. Operational limitations for each coastal heliport should be acceptable to the Authority.

[Amdt. 2, 01.01.02]

IEM OPS 3.295(c)(1)
Selection of Heliports
See JAR-OPS 3.395(c)(1)

1 The procedures contained in AMC OPS 3.295(c)(1) are weather critical. Consequently, a "Landing forecast" conforming to the standards contained in the Regional Air Navigation Plan and ICAO Annex 3 has been specified.

2 The "Landing forecast" consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or heliport during the two-hour period immediately following the time of issue. It contains surface wind, visibility, significant weather and cloud elements, and may contain other significant information, such as barometric pressure and temperature, as agreed between the meteorological authority and the operators concerned.

3 The detailed description of the landing forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3, together with the operationally desirable accuracy of the forecast elements. In particular, the value of the observed cloud height and visibility elements should remain within the +/- 30% of the forecast values in 90% of the cases.

4 The landing forecast most commonly takes the form of a routine or special selected meteorological report in the METAR code to which a TREND is added. The code words "NOSIG", i.e. no significant change

IEM OPS 3.295(c)(1) (continued)

expected; “BECMG” (becoming); or “TEMPO” (temporarily); followed by the expected change, are used. The two-hour period of validity of the forecast commences at the time of the meteorological report.

[Amdt. 2, 01.01.02]

AMC OPS 3.295(e)
Selection of Heliports
See JAR-OPS 3.295(e)

1 Offshore alternate deck landing environment

The landing environment of a helideck that is proposed for use as an Offshore Alternate should be pre-surveyed and, as well as the physical characteristics, the effect of wind direction and strength, and turbulence established. This information, which should be available to the Commander at the planning stage and in flight, should be published in an appropriate form in the Operations Manual Part C (including the orientation of the helideck) such that the suitability of the helideck for use as an Offshore Alternate, can be assessed. The alternate helideck should meet the criteria for size and obstacle clearance appropriate to the performance requirements of the type of helicopter concerned.

2 Performance considerations

The use of an Offshore Alternate is restricted to helicopters which can achieve One Engine Inoperative (OEI) In Ground Effect (IGE) hover at an appropriate power rating at the Offshore alternate. Where the surface of the Offshore alternate helideck, or prevailing conditions (especially wind velocity), precludes an OEI In Ground Effect hover (IGE), OEI Out of Ground Effect (OGE) hover performance at an appropriate power rating should be used to compute the landing mass. The landing mass should be calculated from graphs provided in the relevant Part B of the Operations Manual. (When arriving at this landing mass, due account should be taken of helicopter configuration, environmental conditions and the operation of systems which have an adverse effect on performance.) The planned landing mass of the helicopter including crew, passengers, baggage, cargo plus 30 minutes Final Reserve fuel, should not exceed the OEI landing mass at the time of approach to the Offshore alternate.

3 Weather considerations

3.1 Meteorological Observations

When the use of an Offshore Alternate is planned, the meteorological observations at the destination and alternate should be taken by an Observer acceptable to the Authority responsible for the provision of meteorological services. (Automatic meteorological observations stations may be used if acceptable).

3.2 Weather Minima

When the use of an Offshore alternate is planned, an operator should not select a helideck as a destination or offshore alternate unless the aerodrome forecast, indicates that, during a period commencing one hour before and ending one hour after the expected time of arrival at the destination and offshore alternate, the weather conditions will be at or above the planning minima shown in Table 1 below.

Table 1

	Day	Night
Cloud Base	600 ft	800 ft
Visibility	4 km	5 km

3.3 Conditions of Fog

Where fog is forecast, or has been observed within the last two hours within 60 nm of the destination or alternate, offshore alternates should not be used.

4 Actions at Point of No Return

Before passing the Point of No Return - which should not be more that 30 minutes from the destination - the following actions should have been completed:

AMC OPS 3.295(e) (continued)

4.1 Confirmation that navigation to the destination and offshore alternate can be assured.

4.2 Radio contact with the destination and offshore alternate (or master station) has been established.

4.3. The landing forecast at the destination and offshore alternate have been obtained and confirmed to be at or above the required minima.

4.4 The requirements for One Engine Inoperative landing (see paragraph 2 above) have been checked (in light of the latest reported weather conditions) to ensure that they can be met.

4.5 To the extent possible, having regard to information on current and forecast use of the offshore alternate and on conditions prevailing, the availability of the offshore alternate should be guaranteed by the duty holder (the rig operator in the case of fixed installations and the owner in the case of mobiles) until the landing at the destination, or the offshore alternate, has been achieved (or until offshore shuttling has been completed).

5 Offshore shuttling

Provided that the actions in paragraph 4 above have been completed, offshore shuttling, using an offshore alternate, may be carried out.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

IEM OPS 3.295(e)
Off-shore alternates
See JAR-OPS 3.295(e)

When operating off shore, any spare payload capacity should be used to carry additional fuel if it would facilitate the use of an onshore alternate.

IEM OPS 3.295(e)(4)
Selection of Heliports - landing forecast
See JAR-OPS 3.295(e)(4)

1 The procedures contained in AMC OPS 3.295(e) are weather critical. Consequently, meteorological data conforming to the standards contained in the Regional Air Navigation Plan and ICAO Annex 3 has been specified. As the following meteorological data is point specific, caution should be exercised when associating it with nearby heliports (or helidecks).

2 Meteorological Reports (METARs)

2.1 Routine and special meteorological observations at offshore installations should be made during periods and at a frequency agreed between the meteorological authority and the operator concerned. They should comply with the requirements contained in the meteorological section of the ICAO Regional Air Navigation Plan, and should conform to the standards and recommended practices, including the desirable accuracy of observations, promulgated in ICAO Annex 3.

2.2 Routine and selected special reports are exchanged between meteorological offices in the METAR or SPECI code forms prescribed by the World Meteorological Organisation.

3 Aerodrome Forecasts (TAFS)

3.1 The aerodrome forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or heliport during a specified period of validity, which is normally not less than 9 hours, or more than 24 hours in duration. The forecast includes surface wind, visibility, weather and cloud, and expected changes of one or more of these elements during the period. Additional elements may be included as agreed between the meteorological authority and the operators concerned. Where these forecasts relate to offshore installations, barometric pressure and temperature should be included to facilitate the planning of helicopter landing and take-off performance.

3.2 Aerodrome forecasts are most commonly exchanged in the TAF code form, and the detailed description of an aerodrome forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3, together with the operationally desirable accuracy elements. In particular, the observed

IEM OPS 3.295(e)(4) (continued)

cloud height should remain within +/- 30% of the forecast value in 70% of cases, and the observed visibility should remain within +/- 30% of the forecast value in 80% 0f cases.

4 Landing Forecasts (TRENDS)

4.1 The landing forecast consists of a concise statement of the mean or average meteorological conditions expected at an aerodrome or heliport during the two-hour period immediately following the time of issue. It contains surface wind, visibility, significant weather and cloud elements, and other significant information, such as barometric pressure and temperature, as may be agreed between the meteorological authority and the operators concerned.

4.2 The detailed description of the landing forecast is promulgated in the ICAO Regional Air Navigation Plan and also in ICAO Annex 3, together with the operationally desirable accuracy of the forecast elements. In particular, the value of the observed cloud height and visibility elements should remain within +/-30% of the forecast values in 90% of the cases.

4.3 Landing forecasts most commonly take the form of routine or special selected meteorological reports in the METAR code, to which either the code words “NOSIG”, i.e. no significant change expected; “BECMG” (becoming), or “TEMPO” (temporarily), followed by the expected change, are added. The two-hour period of validity commences at the time of the meteorological report.

[Amdt. 2, 01.01.02]

AMC OPS 3.300
Submission of ATS Flight plan
See JAR-OPS 3.300

1 Flights without ATS flight plan. When unable to submit or to close the ATS flight plan due to lack of ATS facilities or any other means of communications to ATS, an operator should establish procedures, instructions and a list of authorised persons to be responsible for alerting search and rescue services.

2 To ensure that each flight is located at all times, these instructions should:

a. Provide the authorised person with at least the information required to be included in a VFR Flight plan, and the location, date and estimated time for re-establishing communications;

b. If an aircraft is overdue or missing, provide for notification to the appropriate ATS or Search and Rescue facility; and

c. Provide that the information will be retained at a designated place until the completion of the flight.

IEM OPS 3.305
Re/defuelling with passengers embarking, on board or disembarking
See JAR-OPS 3.305

When re/defuelling with passengers on board, ground servicing activities and work inside the helicopter, such as catering and cleaning, should be conducted in such a manner that they do not create a hazard and that the aisles and emergency doors are unobstructed.

IEM OPS 3.307
Refuelling/Defuelling with wide-cut fuel
See JAR-OPS 3.307

1 'Wide-cut fuel' (designated JET B, JP-4 or AVTAG) is an aviation turbine fuel that falls between gasoline and kerosene in the distillation range and consequently, compared to kerosene (JET A or JET A1), it has properties of higher volatility (vapour pressure), lower flash point and lower freezing point.

2 Wherever possible, an operator should avoid the use of wide-cut fuel types. If a situation arises such that only wide-cut fuels are available for refuelling/defuelling, operators should be aware that mixtures of wide-cut fuels and kerosene turbine fuels can result in the air/fuel mixture in the tank being in the combustible range at ambient temperatures. The extra precautions set out below are advisable to avoid arcing in the tank due to electrostatic discharge. The risk of this type of arcing can be minimised by the use

IEM OPS 3.307 (continued)

of static dissipation additive in the fuel. When this additive is present in the proportions stated in the fuel specification, the normal fuelling precautions set out below are considered adequate.

3 Wide-cut fuel is considered to be “involved” when it is being supplied or when it is already present in aircraft fuel tanks.

4 When wide-cut fuel has been used, this should be recorded in the Technical Log. The next two uplifts of fuel should be treated as though they too involved the use of wide-cut fuel.

5 When refuelling/defuelling with turbine fuels not containing a static dissipator, and where wide-cut fuels are involved, a substantial reduction in fuelling flow rate is advisable. Reduced flow rate, as recommended by fuel suppliers and/or aeroplane manufactureres, has the following benefits:

a. It allows more time for any static charge build-up in the fuelling equipment to dissipate before the fuel enters the tank;

b. It reduces any charge which may build up due to splashing; and

c. Until the fuel inlet point is immersed, it reduces misting in the tank and consequently the extension of the flammable range of the fuel.

6 The flow rate reduction necessary is dependent upon the fuelling equipment in use and the type of filtration employed on the helicopter fuelling distribution system. It is difficult, therefore, to quote precise flow rates. Reduction in flow rate is advisable when pressure fuelling is employed.

[Ch. 1, 01.02.99]

IEM OPS 3.310(b)
Cabin crew seating positions
See JAR-OPS 3.310(b)

1 When determining cabin crew seating positions, the operator should ensure that they are:

i. Close to a floor level exit;

ii. Provided with a good view of the area(s) of the passenger cabin for which the cabin crew member is responsible; and

iii. Evenly distributed throughout the cabin, in the above order of priority.

2 Paragraph 1 above should not be taken as implying that, in the event of there being more such cabin crew stations than required cabin crew, the number of cabin crew members should be increased.

[ACJ OPS 3.346
Flight in expected or actual icing conditions
See JAR-OPS 3.346

1 The procedures to be established by an operator should take account of the design, the equipment or the configuration of the helicopter and also of the training which is needed. For these reasons, different helicopter types operated by the same company may require the development of different procedures. In every case, the relevant limitations are those which are defined in the Helicopter Flight Manual (HFM) and other documents produced by the manufacturer.

2 For the required entries in the Operations Manual, the procedural principles which apply to flight in icing conditions are referred to under Appendix 1 to JAR-OPS 3.1045, A 8.3.8 and should be cross-referenced, where necessary, to supplementary, type-specific data under Appendix 1 to JAR-OPS 3.1045, B 4.1.

3 Technical content of the Procedures. The operator should ensure that the procedures take account of the following:

a. JAR-OPS 3.675;

b. The equipment and instruments which must be serviceable for flight in icing conditions; **]**

ACJ OPS 3.346 (continued)

[c. The limitations on flight in icing conditions for each phase of flight. These limitations may be imposed by the helicopter's de-icing or anti-icing equipment or the necessary performance corrections which have to be made;

d. The criteria the Flight Crew should use to assess the effect of icing on the performance and/or controllability of the helicopter;

e. The means by which the Flight Crew detects, by visual cues or the use of the helicopter's ice detection system, that the flight is entering icing conditions; and

f. The action to be taken by the Flight Crew in a deteriorating situation (which may develop rapidly) resulting in an adverse affect on the performance and/or controllability of the helicopter, due to either:

i. the failure of the helicopter's anti-icing or de-icing equipment to control a build-up of ice, and/or

ii. ice build-up on unprotected areas.

4 Training for despatch and flight in expected or actual icing conditions. The content of the Operations Manual, Part D, should reflect the training, both conversion and recurrent, which Flight Crew, and all other relevant operational personnel will require in order to comply with the procedures for despatch and flight in icing conditions.

4.1 For the Flight Crew, the training should include:

a. Instruction in how to recognise, from weather reports or forecasts which are available before flight commences or during flight, the risks of encountering icing conditions along the planned route and on how to modify, as necessary, the departure and in-flight routes or profiles;

b. Instruction in the operational and performance limitations or margins;

c. The use of in-flight ice detection, anti-icing and de-icing systems in both normal and abnormal operation; and

d. Instruction in the differing intensities and forms of ice accretion and the consequent action which should be taken.

4.2 For Crew members other than flight crew, the training should include;

a. Awareness of the conditions likely to produce surface contamination; and

b. The need to inform the Flight Crew of significant ice accretion.]

[Amdt. 3, 01.04.04]

[ACJ OPS 3.398
Airborne Collision Avoidance Systems (ACAS)
See JAR-OPS 3.398

1 Purpose

1.1 The purpose of this ACJ is to provide guidance to operators of aircraft that carry airborne collision avoidance systems (ACAS I) equipment. It includes information on the capabilities and limitations of the equipment, and the traffic advisories (TAs) it may generate, together with advice concerning the appropriate flight crew response. Information is also provided on details that should be included in checklists, and in Operations and Training Manuals.

1.2 A list of definitions is provided in Appendix A.

2 General

2.1 Notwithstanding that a flight may be made with an air traffic control clearance, it remains the duty of a commander to take all possible measures to ensure that his aircraft does not collide with any other aircraft. Information from an air traffic control (ATC) system may be available, but this may do no more than provide advice as to the proximity of an aircraft that is perceived to constitute a potential threat and, possibly, advise the commander as to how he might best manoeuvre his aircraft to avoid it.

ACAS provides flight crew with an independent back up to visual search and the ATC system by alerting them to collision hazards.]

ACJ OPS 3.398 (continued)

[As helicopter performance generally cannot comply with the avoidance criteria present in the algorithms for ACAS II, Resolution Advisories (RAs) and RA avoidance techniques are not covered by this ACJ. Unless otherwise stated in this document the term 'ACAS' refers to ACAS 1 systems

3 Examples of Limitations of ACAS Equipment

3.1 Dependence on Active Transponder Equipment

As ACAS relies upon information received from airborne transponders, it cannot detect the presence of aircraft whose transponders are unserviceable or which have not been selected to operate. TAs will not be produced in such circumstances, and they will not be produced in respect of any aircraft that does not carry transponder equipment, or one whose equipment is incompatible with the international standard.

3.2 Limited Capability

ACAS equipments are not capable of resolving the bearing, heading or vertical rates of intruders accurately. For this reason, pilots should not attempt to manoeuvre solely on the basis of TA information (for example in IMC).

3.3 Dependence on Altitude-Reporting Transponder Equipment

As a comparison cannot be made of both the intruder and the subject aircraft's altitudes or flight levels, ACAS is not dependent on Altitude-Reporting Transponder equipment (SSR Mode C or S). However a TA will be produced, if appropriate, in these circumstances. If this should occur, flight crew should not delay making a visual search supplemented, if the potential threat cannot be seen and gives cause for concern, with a request for assistance from ATC to help them to decide whether a change of flight path should be made.

3.4 False and Nuisance TAs

ACAS may generate false and nuisance TAs under normal and safe operating conditions.

3.4.1 False TAs may occur as a result of deficiencies in the equipment or data with which it is provided.

3.4.2 Nuisance TAs may occur if aircraft flight paths are computed by ACAS to result in potential conflicts, but the advisories are perceived by flight crew to be unwarranted due to:

a) the intended change of flight path of either aircraft or,

b) the observance that adequate separation exists and that it is being maintained by both aircraft.

TAs should be treated as genuine unless the intruder has been positively identified and assessed as constituting neither a threat nor a hazard.

3.5 Operating Limits

3.5.1 ACAS will be inhibited from producing a full range of TAs in such circumstances of flight as are outside the minimum altitudes specified for operation of the equipment. For this reason, flight crew should be aware of when ACAS will not provide a full range of TA information.

3.6 ACAS II Requirements versus Helicopter Performance

3.6.1 ACAS II relies on altitude reporting information from a SSR transponder transmitting in Mode C or Mode S. The resulting altitude deviations require minimum performance criteria to resolve the Resolution Advisory generated by the ACAS II software algorithms. For example the minimum rate of closing speed below Flight Level (FL) 100 is 480 knots, and the minimum Rate of Climb or Descent (RCOD) is 1 500 ft/MIN. Helicopters and most small fixed-wing aircraft cannot comply with these performance criteria and therefore installation of ACAS II (or ACAS III) will not be mandated for these types in the future.

4 Operations Manuals and Checklists

4.1 Operations Manuals should contain, in their introduction to ACAS, information similar to that given in Section 2 above. It should be emphasised that ACAS is not to be regarded as a substitute for the visual search expected to be maintained by flight crew, nor is it intended to replace a clearance given by ATC.

4.2 Technical details of the system should at least contain brief descriptions of:

Input sources, with reference to TAs;

Audio and visual indications of TAs. **]**

ACJ OPS 3.398 (continued)

[Equipment limitations.

4.3 Operational instructions should specify what checks flight crew should carry out prior to take-off to ensure that the ACAS equipment is serviceable, and the action they should take in the event that abnormal or fault conditions arise on the ground or in the air.

4.4 Minimum Equipment Lists should define a minimum despatch standard on occasions when ACAS may be partially or fully unserviceable. In this respect full account must be taken of any appropriate legislation that may exist, and of recommendations made by the Authority.

4.5 The Operations Manual should state clearly the actions to be taken by crews following receipt of TAs. Section 6 contains detailed guidance. Instructions should take full account of operational constraints consequent upon limitations of the equipment, such as are described in Section 3.

5 Training

5.1 The purpose for which training in the use of ACAS equipment should be provided is to ensure that pilots take appropriate action on receiving TAs.

5.2 Training should provide flight crew with information sufficient to enable them to understand the operation of ACAS equipment, including its capabilities and limitations, and the procedures they must use in response to any advisory information that may be generated.

5.3 The ground-training syllabus should include the following items:

5.3.1 Descriptions of equipment carried on board the aircraft together with associated controls, circuit protections, information displays and all audio and visual indications.

5.3.2 Abnormal or fault conditions, and such corrective or disabling actions as may be required.

5.3.3 Descriptive terms associated with ACAS, and such limitations as necessarily prevent the equipment from providing total protection from approaching aircraft.

5.3.4 The full sequence of events that may follow from the time an intruder aircraft is first determined to exist until such time as, both aircraft are again proceeding on their cleared or intended courses and, if appropriate, at their assigned altitudes or flight levels. Emphasis should be placed on the need to initiate manoeuvres promptly once these are deemed necessary.

5.4 In-flight training covering full ACAS operation including demonstration TAs is impractical. If appropriate a suitably equipped flight simulator is a more desirable way of providing training in the use of ACAS equipment and of providing crew with situations in which they may practice making proper responses.

5.5 Records of training provided and competency achieved should be raised and retained for a period of 2 years.

6 Action to be taken on Receiving TAs

6.1 The purposes of a TA are to alert flight crew to the presence of an intruder aircraft, which could require a change to the flight path of the subject aircraft, and to advise them that they should attempt to sight the potential threat.

6.2 Flight crew should immediately assimilate information provided by the TA, and commence a visual search of that portion of the sky within which the potential threat should be seen. They should prepare to manoeuvre the aircraft if necessary. If the potential threat cannot be seen and gives cause for concern, flight crew should seek advice from ATC.

6.3 If the potential threat is seen and is perceived as likely to result in a definite risk of collision, pilots should manoeuvre their aircraft as necessary ensuring where possible that the sky ahead is clear of other traffic.

6.4 When clear of the potential threat, and provided no other conflicts are seen to exist, the aircraft should be returned promptly to its intended flight path and ATC advised of any deviation from an air traffic control clearance.]

ACJ OPS 3.398 (continued)

[6.5 Aircraft Management

6.5.1 Operators should emphasise that flight crew should verify to the best of their ability that the airspace in which they intend to manoeuvre is clear of other aircraft, and that they should inform ATC as soon as it is possible to do so of any departure made from an air traffic control clearance.

6.5.2 It should be understood that any deviation from an air traffic control clearance has the potential to cause disruption to the controller's tactical plan, and so might result in a reduction in separation between aircraft other than those originally involved. Therefore it is vital that crews maintain an effective look-out and that they return to their intended flight path as soon as is safe and practical to do so.

Appendix A Definitions

1 ACAS: An acronym for airborne collision avoidance systems.

1.1 ACAS I: An airborne collision avoidance system which utilizes interrogations of, and replies from, airborne radar beacon transponders. It provides traffic advisories only.

1.2 ACAS II: An airborne collision avoidance system which utilizes interrogations of, and replies from, airborne radar beacon transponders. It provides traffic advisories, and resolution advisories in the vertical plane. Requires specific minimum aircraft performance.

1.3 ACAS III: An airborne collision avoidance system which utilizes interrogations of, and replies from, airborne radar beacon transponders. It provides traffic advisories, and resolution advisories in the vertical and horizontal planes. Requires specific minimum aircraft performance.

2 TCAS: An acronym for traffic alert and collision avoidance systems having specific capabilities. TCAS has been developed in the USA to implement ACAS.

Note: When used within this document the terms 'ACAS' and 'TCAS', if not followed by numeric identifiers, are generic and refer to any ACAS 1 or TCAS 1 system respectively.

3 Protected Volume: A volume of airspace enclosing the ACAS aircraft which, when penetrated by or containing an intruder, will normally result in the generation of a traffic advisory or a resolution advisory.

4 Closest Point of Approach (CPA**):** The occurrence of minimum range between own ACAS aircraft and an intruder. Thus range at closest point of approach is the smallest range between the two aircraft, and time of closest approach is the time at which this occurs.

5 Traffic Advisory (TA): Advisory information provided by ACAS to caution flight crews as to the proximity of a potential threat. It should occur when the time to CPA is sensed by ACAS to have reached a set value, usually 40 seconds.

5.1 Traffic advisories aid visual acquisition, and may include range, altitude, and bearing of the potential threat relative to the ACAS aircraft.

5.2 Traffic advisories without altitude may also be reported from non altitude-reporting transponder Mode A-equipped potential threats.

6 Traffic: An aircraft that has come within the surveillance range of ACAS.

7 Proximate Traffic**:** An aircraft that has come within ± 1 200 ft and 6 nm of ACAS.

8 Intruder: A transponder-equipped aircraft within the surveillance range of ACAS for which ACAS has an established track.

9 Potential Threat: An intruder that has penetrated the TA-protected volume.

10 Co-ordination: The process by which two ACAS-equipped aircraft select compatible RAs by the exchange of resolution advisory complements.

11 Subject Aircraft: The ACAS-equipped aircraft that may need to manoeuvre in order to maintain adequate separation from an established threat.

12 Genuine TA: The equipment provides a TA in accordance with its technical specification.

13 Nuisance TA: The equipment provides a TA in accordance with its technical specification, but no risk of collision exists. **]**

ACJ OPS 3.398 (continued)

[14 False TA: A fault or failure in the system causes the equipment to provide a TA that is not in accordance with its technical specification.

Note: The FAA have published a list of definitions, details of which vary slightly from some of those given above. Others which are likely to be significant are shown below:

a) Alert: An indicator (visual or auditory) which provides information to flight crew in a timely manner about a non-normal situation.

b) Intruder: A target which has satisfied the traffic advisory detection criteria.**]**

[Amdt. 3, 01.04.04]

IEM OPS 3.400
Approach and Landing Conditions
See JAR-OPS 3.400

The in-flight determination of the FATO suitability should be based on the latest available report, preferably not more than 30 minutes before the expected landing time.

IEM OPS 3.405(a)
Commencement and continuation of approach – Equivalent position
See JAR-OPS 3.405(a)

The 'equivalent position' mentioned in JAR-OPS 3.405 can be established by means of a DME distance, a suitably located NDB or VOR, SRE or PAR fix or any other suitable fix that independently establishes the position of the helicopter.

AMC OPS 3.420(e)
Dangerous Goods Occurrence Reporting
See JAR-OPS 3.420(e)

1 To assist the ground services in preparing for the landing of an helicopter in an emergency situation, it is essential that adequate and accurate information about any dangerous goods on board be given to the appropriate air traffic services unit. Wherever possible this information should include the proper shipping name and/or the UN/ID number, the class/division and for Class 1 the compatibility group, any identified subsidiary risk(s), the quantity and the location on board the helicopter.

2 When it is not considered possible to include all the information, those parts thought most relevant in the circumstances, such as the UN/ID numbers or classes/divisions and quantity, should be given.

[Amdt. 2, 01.01.02]

[ACJ OPS 3.426
Flight hours reporting
(See JAR-OPS 3.426)

The requirement of JAR-OPS 3.426 may be achieved by making available either:

- the flight hours flown by each helicopter – identified by its serial number and registration mark - during the elapsed calendar year; or

- the total flight hours of each helicopter – identified by its serial number and registration mark – on the 31st of December of the elapsed calendar year.

Where possible, the operator should have available, for each helicopter, the breakdown of hours for CAT, aerial work, general aviation. If the exact hours for the functional activity cannot be established, the estimated proportion will be sufficient.**]**

[Amdt. 5, 01.07.07]

AMC/IEM E – ALL WEATHER OPERATIONS

AMC OPS 3.430(b)(4)
Effect on Landing Minima of temporarily failed or downgraded Ground Equipment
See JAR-OPS 3.430(b)(4)

1 Introduction

1.1 This provides operators with instructions for flight crews on the effects on landing minima of temporary failures or downgrading of ground equipment.

1.2 Aerodrome facilities are expected to be installed and maintained to the standards prescribed in ICAO Annexes 10 and 14. Any deficiencies are expected to be repaired without unnecessary delay.

2 General. These instructions are intended for use both pre-flight and in-flight. It is not expected however that the commander would consult such instructions after passing the outer marker or equivalent position. If failures of ground aids are announced at such a late stage, the approach could be continued at the commander’s discretion. If, however, failures are announced before such a late stage in the approach, their effect on the approach should be considered as described in Tables 1A and 1B below, and the approach may have to be abandoned to allow this to happen.

3 Operations with no Decision Height (DH)

3.1 An operator should ensure that, for aeroplanes authorised to conduct no DH operations with the lowest RVR limitations, the following applies in addition to the content of Tables 1A and 1B, below:

i. RVR. At least one RVR value must be available at the aerodrome;

ii. FATO/runway lights

a. No FATO/runway edge lights, or no centre lights - Day only min RVR 200 m;

b. No TDZ lights - No restrictions;

c. No standby power to FATO/runway lights - Day only min RVR 200 m.

4. Conditions applicable to Tables 1A & 1B

i. Multiple failures of FATO/runway lights other than indicated in Table 1B are not acceptable.

ii. Deficiencies of approach and FATO/runway lights are treated separately.

iii. Category II or III operations. A combination of deficiencies in FATO/runway lights and RVR assessment equipment is not allowed.

iv. Failures other than ILS affect RVR only and not DH.

TABLE 1A – Failed or downgraded equipment – effect on landing minima

FAILED OR DOWNGRADED EQUIPMENT	EFFECT ON LANDING MINIMA				
	CAT III B (Note 1)	CAT III A	CAT II	CAT I	NON PRECISION
ILS stand-by transmitter	Not allowed		No effect		
Outer Marker	No effect if replaced by published equivalent position				Not applicable
Middle Marker	No effect				No effect unless used as MAPT
Touch Down Zone RVR assessment system	May be temporarily replaced with midpoint RVR if approved by the State of the Aerodrome. RVR may be reported by human observation			No effect	
Midpoint or Stopend RVR	No effect				
Anemometer for R/W in use	No effect if other ground source available				
Ceilometer	No effect				

Note 1 For Cat IIIB operations with no DH, see also paragraph 3, above.

TABLE 1B – Failed or downgraded equipment – effect on landing minima

FAILED OR DOWNGRADED EQUIPMENT	EFFECT ON LANDING MINIMA				
	CAT III B (Note 1)	CAT III A	CAT II	CAT I	NON PRECISION
Approach lights	Not allowed for operations with DH>50ft		Not allowed	Minima as for **[**nil**]** facilities	
Approach light except the last 210m	No effect		Not allowed	Minima as for **[**nil**]** facilities	
Approach light except the last 420m	No effect			Minima as for intermediate facilities	
Standby power for approach lights	No effect		RVR as for CAT I basic facilities		No effect
While FATO light system	Not allowed			Minima as for basic facilities Day only	
Edge Lights	Day only				
Centreline lights	RVR 300 m Day only		RVR 300 m – day 550 m - night	No effect	
Centreline lights spacing increased to 30 m	RVR 150 m	No effect			
Touch Down Zone lights	RVR 200m – day 300m - night	RVR 300m – day 550m - night		No effect	
Standby power for FATO lights	Not allowed			No effect	
Taxiway light system	No effect – except delays due to reduced movement rate				

Note 1 For Cat IIIB operations with no DH, see also paragraph 3, above.

[Amdt. 2, 01.01.02

IEM to Appendix 1 to JAR-OPS 3.430
Aerodrome Operating Minima
See Appendix 1 to JAR-OPS 3.430

The minima stated in this Appendix are based upon the experience of commonly used approach aids. This is not meant to preclude the use of other guidance systems such as Head Up Display (HUD) and Enhanced Visual Systems (EVS) but the applicable minima for such systems will need to be developed as the need arises.

[IEM to Appendix 1 to JAR-OPS 3.430 subparagraph (a)(3)(i)
Onshore heliport departure procedures
See Appendix 1 to JAR-OPS 3.430 subparagraph (a)(3)(i)

The cloud base and visibility should be such as to allow the helicopter to be clear of cloud at TDP, and for the pilot flying to remain in sight of the surface until reaching the minimum speed for flight in IMC given in the HFM.**]**

[Amdt. 2, 01.01.02]

IEM to Appendix 1 to JAR-OPS 3.430, sub-paragraph (d)
Establishment of minimum RVR for Category II Operations
See Appendix 1 to JAR-OPS 3.430, sub-paragraph (d)

1 General

1.1 When establishing minimum RVR for Category II Operations, operators should pay attention to the following information which originated in ECAC Doc 17 3rd Edition, Subpart A. It is retained as background information and, to some extent, for historical purposes although there may be some conflict with current practices.

1.2 Since the inception of precision approach and landing operations various methods have been devised for the calculation of aerodrome operating minima in terms of decision height and runway visual range. It is a comparatively straightforward matter to establish the decision height for an operation but establishing the minimum RVR to be associated with that decision height so as to provide a high probability that the required visual reference will be available at that decision height has been more of a problem.

1.3 The methods adopted by various States to resolve the DH/RVR relationship in respect of Category II operations have varied considerably; in one instance there has been a simple approach which entailed the application of empirical data based on actual operating experience in a particular environment. This has given satisfactory results for application within the environment for which it was developed. In another instance a more sophisticated method was employed which utilised a fairly complex computer programme to take account of a wide range of variables. However, in the latter case it has been found that with the improvement in the performance of visual aids, and the increased use of automatic equipment in the new larger aircraft, most of the variables cancel each other out and a simple tabulation can be constructed which is applicable to a wide range of aircraft. The basic principles which are observed in establishing the values in such a table are that the scale of visual reference required by a pilot at and below decision height depends on the task that he has to carry out, and that the degree to which his vision is obscured depends on the obscuring medium, the general rule in fog being that it becomes more dense with increase in height. Research using flight simulators coupled with flight trials has shown the following:

a. Most pilots require visual contact to be established about 3 seconds above decision height though it has been observed that this reduces to about 1 second when a fail-operational automatic landing system is being used;

b. To establish lateral position and cross-track velocity most pilots need to see not less than a 3 light segment of the centre line of the approach lights, or runway centre line, or runway edge lights;

c. For roll guidance most pilots need to see a lateral element of the ground pattern, i.e. an approach lighting cross bar, the landing threshold, or a barrette of the touchdown zone lighting;

IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (d) (continued)

d. To make an accurate adjustment to the flight path in the vertical plane, such as a flare, using purely visual cues, most pilots need to see a point on the ground which has a low or zero rate of apparent movement relative to the aircraft; and

e. With regard to fog structure, data gathered in the United Kingdom over a twenty-year period have shown that in deep stable fog there is a 90% probability that the slant visual range from eye heights higher than 15 ft above the ground will be less that the horizontal visibility at ground level, i.e. RVR. There are at present no data available to show what the relationship is between the Slant Visual Range and RVR in other low visibility conditions such as blowing snow, dust or heavy rain, but there is some evidence in pilot reports that the lack of contrast between visual aids and the background in such conditions can produce a relationship similar to that observed in fog.

2 Category II Operations

2.1 The selection of the dimensions of the required visual segments which are used for Category II operations is based on the following visual requirements:

a. A visual segment of not less than 90 metres will need to be in view at and below decision height for pilot to be able to monitor an automatic system;

b. A visual segment of not less than 120 metres will need to be in view for a pilot to be able to maintain the roll attitude manually at and below decision height; and

c. For a manual landing using only external visual cues, a visual segment of 225 metres will be required at the height at which flare initiation starts in order to provide the pilot with sight of a point of low relative movement on the ground.

Note: Before using a Category II ILS for automatic landing, the quality of the localiser between 50 ft and touchdown should be verified.

[Ch. 1, 01.02.99]

[IEM to Appendix 1 to JAR-OPS 3.430 subparagraph (i)
Airborne Radar Approach (ARA) for Overwater Operations
See Appendix 1 to JAR OPS 3.430 subparagraph (i)

1 General

1.1 The helicopter airborne radar approach procedure (ARA) may have as many as five separate segments. These are the arrival, initial, intermediate, final, and missed approach segments. In addition, the requirements of the circling manoeuvre to a landing under visual conditions should be considered. The individual approach segments can begin and end at designated fixes, however, the segments of an ARA may often begin at specified points where no fixes are available.

1.2 The fixes, or points, are named to coincide with the associated segment. For example, the intermediate segment begins at the Intermediate Fix (IF) and ends at the Final Approach Fix (FAF). Where no fix is available or appropriate, the segments begin and end at specified points; for example, Intermediate Point (IP) and final approach point (FAP). The order in which this IEM discusses the segments is the order in which the pilot would fly them in a complete procedure: that is, from the arrival through initial and intermediate to a final approach and, if necessary, the missed approach.

1.3 Only those segments which are required by local conditions applying at the time of the approach need be included in a procedure. In constructing the procedure, the final approach track, (which should be orientated so as to be substantially into wind) should be identified first as it is the least flexible and most critical of all the segments. When the origin and the orientation of the final approach have been determined, the other necessary segments should be integrated with it to produce an orderly manoeuvring pattern which does not generate an unacceptably high work-load for the flight crew.

1.4 Examples of Airborne Radar Approach procedures, vertical profile and missed approach procedures are contained in Figures 1 to 5.

2 Obstacle environment

2.1 Each segment of the ARA is located in an over-water area which has a flat surface at sea level. However, due to the passage of large vessels which are not required to notify their presence, the exact **]**

IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (i) (continued)

[obstacle environment cannot be determined. As the largest vessels and structures are known to reach elevations exceeding 500 ft amsl, the uncontrolled offshore obstacle environment applying to the arrival, initial and intermediate approach segments can reasonably be assumed to be capable of reaching to at least 500 ft amsl. But, in the case of the final approach and missed approach segments, specific areas are involved within which no radar returns are permitted. In these areas the height of wave crests and the possibility that small obstacles may be present which are not visible on radar, results in an uncontrolled surface environment which extends to an elevation of 50 ft amsl.

2.2 Under normal circumstances, the relationship between the approach procedure and the obstacle environment is governed according to the concept that vertical separation is very easy to apply during the arrival, initial and intermediate segments, while horizontal separation, which is much more difficult to guarantee in an uncontrolled environment, is applied only in the final and missed approach segments.

3 Arrival segment

3.1 The arrival segment commences at the last en-route navigation fix, where the aircraft leaves the helicopter route, and it ends either at the Initial Approach Fix (IAF) or, if no course reversal, or similar manoeuvre is required, it ends at the IF. Standard en-route obstacle clearance criteria should be applied to the arrival segment.

4 Initial approach segment

4.1 The initial approach segment is only required if a course reversal, race track, or arc procedure is necessary to join the intermediate approach track. The segment commences at the IAF and on completion of the manoeuvre ends at the intermediate point (IP). The Minimum Obstacle Clearance (MOC) assigned to the initial approach segment is 1 000 ft.

5 Intermediate approach segment

5.1 The intermediate approach segment commences at the IP, or in the case of "straight in" approaches, where there is no initial approach segment, it commences at the IF. The segment ends at the FAP and should not be less than 2 nm in length. The purpose of the intermediate segment is to align and prepare the helicopter for the final approach. During the intermediate segment the helicopter should be lined up with the final approach track, the speed should be stabilised, the destination should be identified on the radar, and the final approach and missed approach areas should be identified and verified to be clear of radar returns. The MOC assigned to the intermediate segment is 500 ft.

6 Final approach segment

6.1 The final approach segment commences at the FAP and ends at the missed approach point (MAPt). The final approach area, which should be identified on radar, takes the form of a corridor between the FAP and the radar return of the destination. This corridor should not be less than 2 nm wide in order that the projected track of the helicopter does not pass closer than 1 nm to the obstacles lying outside the area.

6.2 On passing the FAP, the helicopter will descend below the intermediate approach altitude, and follow a descent gradient which should not be steeper than 6·5%. At this stage vertical separation from the offshore obstacle environment will be lost. However, within the final approach area, the minimum descent height (MDH), or minimum descent altitude (MDA), will provide separation from the surface environment. Descent from 1 000 ft amsl to 200 ft amsl at a constant 6·5% gradient will involve a horizontal distance of 2 nm. In order to follow the guideline that the procedure should not generate an unacceptably high work-load for the flight crew, the required actions of levelling at MDH, changing heading at the Offset Initiation Point (OIP), and turning away at MAPt should not be planned to occur at the same time. Consequently, the FAP should not normally be located at less than 4 nm from the destination.

6.3 During the final approach, compensation for drift should be applied and the heading which, if maintained, would take the helicopter directly to the destination, should be identified. It follows that, at an OIP located at a range of 1·5 nm, a heading change of 10° is likely to result in a track offset of 15° at 1nm, and the extended centreline of the new track can be expected to have a mean position lying some 300 - 400 metres to one side of the destination structure. The safety margin built in to the 0·75 nm Decision Range (DR) is dependent upon the rate of closure with the destination. Although the airspeed should be in the range 60/90 kt during the final approach, the ground speed, after due allowance for wind velocity, should be no greater than 70 kts. **]**

IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (i) (continued)

[7 Missed approach segment

7.1 The missed approach segment commences at the MAPt and ends when the helicopter reaches minimum en-route altitude. The missed approach manoeuvre is a "turning missed approach" which must be of not less than 30° and should not, normally, be greater than 45°. A turn away of more than 45° does not reduce the collision risk factor any further, nor will it permit a closer decision range (DR). However, turns of more than 45° may increase the risk of pilot disorientation and, by inhibiting the rate of climb (especially in the case of a one engine inoperative (OEI) go-around), may keep the helicopter at an extremely low level for longer than is desirable.

7.2 The missed approach area to be used should be identified and verified as a clear area on the radar screen during the intermediate approach segment. The base of the missed approach area is a sloping surface at 2·5% gradient starting from MDH at the MAPt. The concept is that a helicopter executing a turning missed approach will be protected by the horizontal boundaries of the missed approach area until vertical separation of more than 130 ft is achieved between the base of the area, and the offshore obstacle environment of 500 ft amsl which prevails outside the area.

7.3 A missed approach area, taking the form of a 45° sector orientated left or right of the final approach track, originating from a point 5 nm short of the destination, and terminating on an arc 3 nm beyond the destination, will normally satisfy the requirements of a 30° turning missed approach.

8 The required visual reference

8.1 The visual reference required is that the destination shall be in view in order that a safe landing may be carried out.

9 Radar equipment

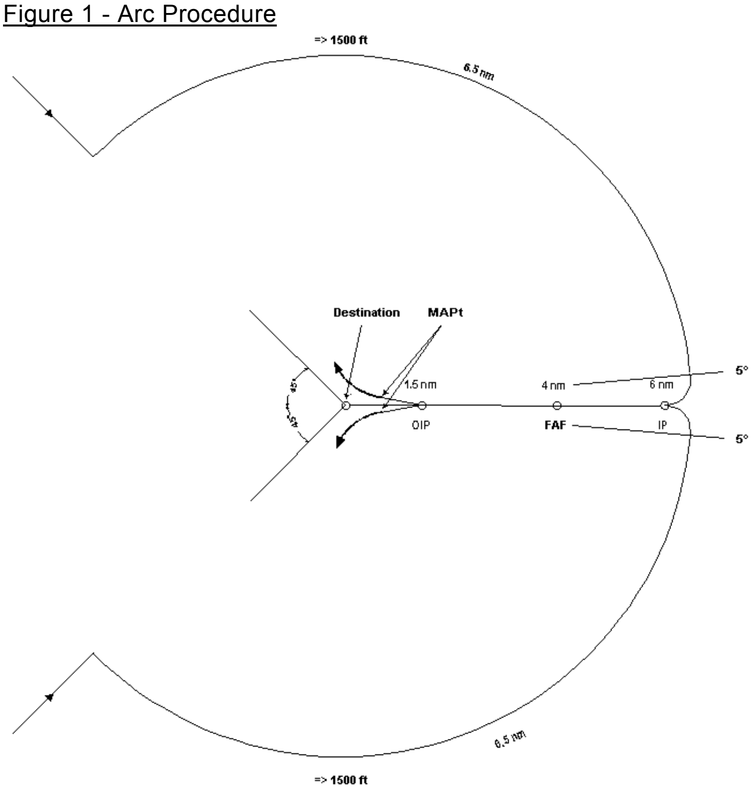
9.1 During the ARA procedure colour mapping radar equipment with a 120° sector scan and 2·5 nm range scale selected, may result in dynamic errors of the following order:

a. bearing/tracking error ± 4·5° with 95% accuracy;

b. mean ranging error - 250 m;

c. random ranging error ± 250 m with 95% accuracy.

Figure 1 - Arc Procedure



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IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (i) (continued)

[Figure 2 - Base Turn Procedure - Direct Approach

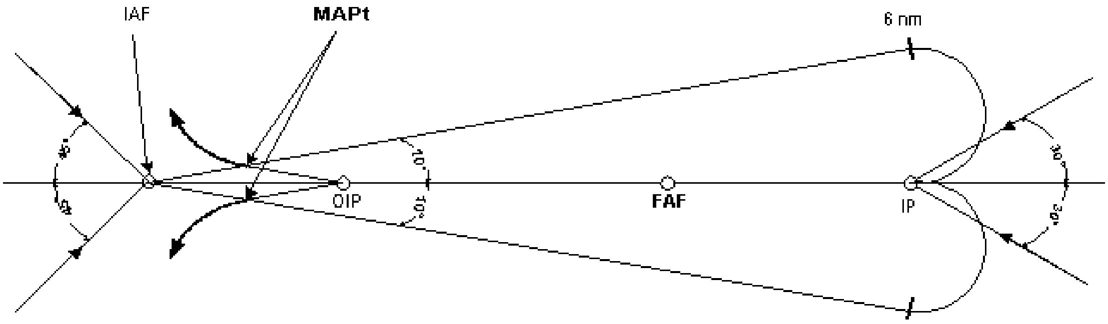


Figure 3 - Vertical Profile

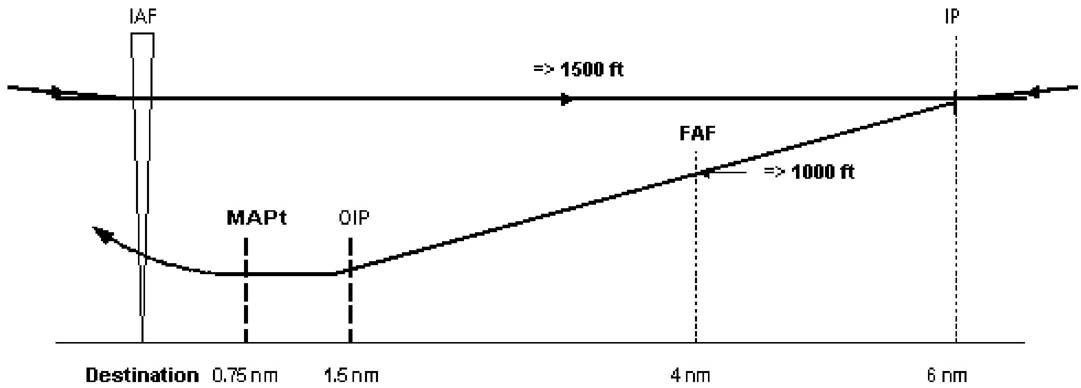
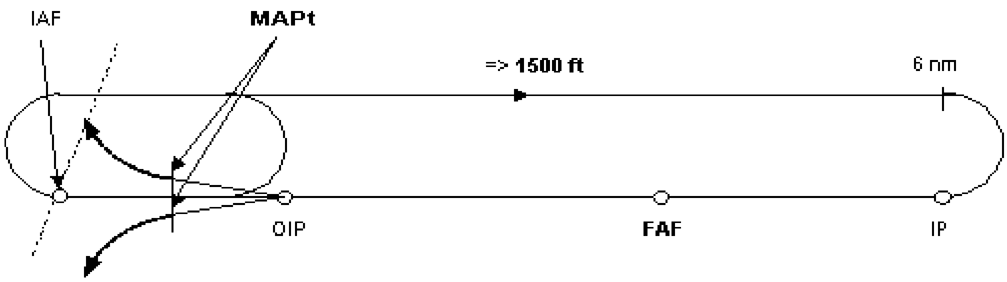


Figure 4 - Holding Pattern & Race Track Procedure



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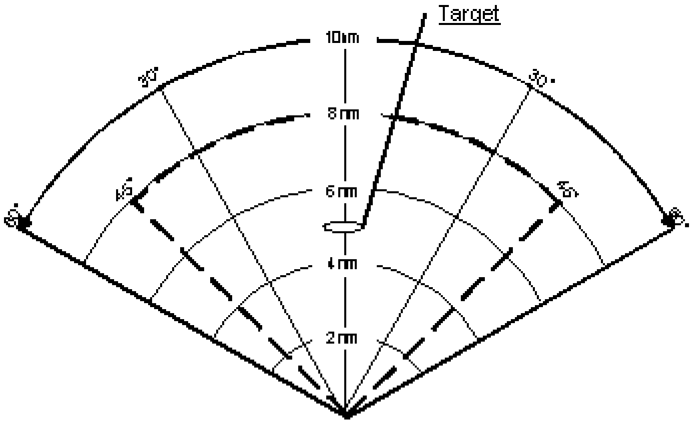
IEM to Appendix 1 to JAR-OPS 3.430 sub-paragraph (i) (continued)

[Figure 5 - Missed Approach Area Left & Right



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[Amdt. 2, 01.01.02]

[ACJ OPS 3.465
Minimum Visibility for VFR Operations
See JAR-OPS 3.465

When flight with a visibility of less than 5 km is permitted, the forward visibility should not be less than the distance travelled by the helicopter in 30 seconds so as to allow adequate opportunity to see and avoid obstacles (see table below).**]**

Visibility (m)	Advisory speed (kts)
800	50
1 500	100
2 000	120

]

[Amdt. 2, 01.01.02]

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AMC/IEM F – PERFORMANCE GENERAL

[ACJ OPS 3.475(c)(3)(ii)
Head-wind component for take-off and the take-off flight path
See JAR-OPS 3.475(c)(3)(ii)

When considering approving the use of reported wind components in excess of 50% for take-off and the take-off flight path the following should be considered:

1 The proximity to the FATO, and accuracy enhancements, of the wind measuring equipment; and

2 The existence of appropriate procedures in a supplement to the Flight Manual; and

3 The establishment of a safety case.**]**

[Amdt. 5, 01.07.07]

[ACJ] OPS 3.480(a)(1) and (a)(2)
Category A and Category B
See JAR-OPS 3.480(a)(1) and (a)(2)
[See JAR-OPS 3.485
See JAR-OPS 3.515(a)
See JAR-OPS 3.540(a)(1)]

1 Helicopters which have been certificated according to any of the following standards are considered to satisfy the Category A criteria of JAR-OPS 3.480(a)(1). Provided that they have the necessary performance information scheduled in the Flight Manual, such helicopters are therefore eligible for Performance Class 1 or 2 operations:

a. Certification as Category A under JAR-27 or JAR-29;

b. Certification as Category A under FAR Part 29;

c. Certification as Group A under BCAR Section G;

d. Certification as Group A under BCAR-29;

2 In addition to the above, certain helicopters have been certificated under FAR Part 27 and with compliance with FAR Part 29 engine isolation requirements as specified in FAA Advisory Circular AC 27-1. These helicopters may be accepted as eligible for Performance Class 1 or 2 operations provided that compliance is established with the following additional requirements of JAR-29:

JAR 29.1027(a)	Independence of engine and rotor drive system lubrication.
JAR 29.1187(e)	
JAR 29.1195(a) & (b)	Provision of a one-shot fire extinguishing system for each engine.
JAR 29.1197	
JAR 29.1199	
JAR 29.1201	
JAR 29.1323(c)(1)	Ability of the airspeed indicator to consistently identify the take-off decision point.

Note: The requirement to fit a fire extinguishing system may be waived if the helicopters manufacturer can demonstrate equivalent safety, based on service experience for the entire fleet showing that the actual incidence of fires in the engine fire zones has been negligible.

3 The JAR-OPS Part 3 performance operating rules of Subparts G, H and I were drafted in conjunction with the performance requirements of JAR-29 Issue 1 and FAR Part 29 at Amendment 29-39. For helicopters certificated under FAR Part 29 at an earlier amendment, or under BCAR Section G or

ACJ OPS 3.480(a)(1) and (a)(2) (continued)

BCAR-29, performance data will have been scheduled in the Helicopter Flight Manual according to these earlier requirements. This earlier scheduled data may not be fully compatible with the JAR-OPS Part 3 rules. Before Performance Class 1 or 2 operations are approved, it should be established that scheduled performance data is available which is compatible with the requirements of Subparts G or H respectively.

4 Any properly certificated and appropriately equipped helicopter is considered to satisfy the Category B criteria of JAR-OPS 3.480(a)(2). Such helicopters are therefore eligible for Performance Class 3 operations.

[Amdt. 5, 01.07.07]

IEM OPS 3.480(a)(1[3])
Terminology - Hostile environment
See JAR-OPS 3.480(a)(1[3])

Those open sea areas considered to constitute a hostile environment should be designated by an Authority in the appropriate Aeronautical Information Publication or other suitable documentation.

[Amdt. 5, 01.07.07]

[ACJ OPS 3.480(a)(32)
The application of TODRH
See JAR-OPS 3.480(a)(32)

1. DISCUSSION

Original definitions for helicopter performance were derived from aeroplanes; hence the definition of take-off distance owes much to operations from runways. Helicopters on the other hand can operate from runways, confined and restricted areas and rooftop heliports - all bounded by obstacles. As an analogy this is equivalent to a take-off from a runway with obstacles on and surrounding it.

It can therefore be seen that unless the original definitions from aeroplanes are tailored for helicopters, the flexibility of the helicopter might be constrained by the language of operational performance.

This paper concentrates on the critical term - Take-off Distance Required (TODRH) - and describes the methods to achieve compliance with it and, in particular, the alternative procedure described in ICAO Annex 6 Attachment A 4.1.1.2(b):

The take-off distance required does not exceed the takeoff distance available; or

As an alternative, the take-off distance required may be disregarded provided that the helicopter with the critical power-unit failure at the TDP can, when continuing the take-off, clear all obstacles between the end of the take-off distance available and the point at which it becomes established in a climb at VTOSS by a vertical margin of 10.7 m (35 ft) or more. An obstacle is considered to be in the path of the helicopter if its distance from the nearest point on the surface below the intended line of flight does not exceed 30 m or 1.5 times the maximum dimension of the helicopter, whichever is greater.

2. DEFINITION OF TODRH

The definition of TODRH from JAR-OPS 3.480(a)(31) is as follows:

(31) Take-off distance required (TODRH). The horizontal distance required from the start of the take-off to the point at which VTOSS, a selected height, and a positive climb gradient are achieved, following failure of the critical power-unit being recognised at TDP, the remaining power-unit(s) operating within approved operating limits. The selected height is to be determined with the use of Helicopter Flight Manual data, and is to be at least 10.7 m (35 ft) above:

(i) the take-off surface; or

(ii) as an alternative, a level defined by the highest obstacle in the take-off distance required.

The original definition of TODRH was based only on the first part of this definition.

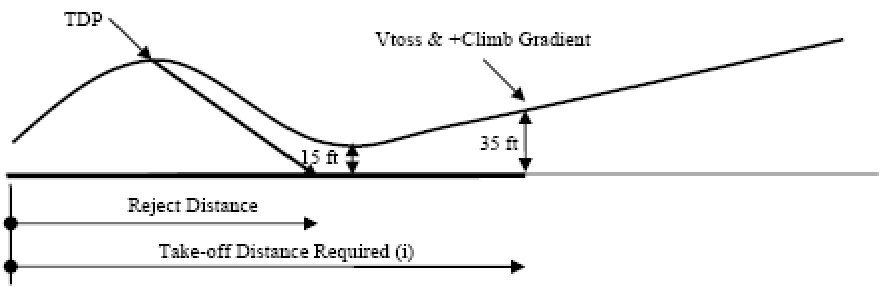
ACJ OPS 3.480(a)(32) (continued)

3. THE CLEAR AREA PROCEDURE (RUNWAY)

In the past, helicopters certificated in Category A would have had, at the least, a 'clear area' procedure. This procedure is analogous to an aeroplane Category A procedure and assumes a runway (either metalled or grass) with a smooth surface suitable for an aeroplane take-off (see Figure 1).

The helicopter is assumed to accelerate down the FATO (runway) outside of the HV diagram. If the helicopter has an engine failure before TDP, it must be able to land back on the FATO (runway) without damage to helicopter or passengers; if there is a failure at or after TDP the aircraft is permitted to lose height - providing it does not descend below a specified height above the surface (usually 15 ft if the TDP is above 15 ft). Errors by the pilot are taken into consideration but the smooth surface of the FATO limits serious damage if the error margin is eroded (e.g. by a change of wind conditions).

Figure 1 - Clear Area take-off



The operator only has to establish that the distances required are within the distance available (take-off distance and reject distance). The original definition of TODRH meets this case exactly.

From the end of the TODRH obstacle clearance is given by the climb gradient of the first or second climb segment meeting the requirement of JAR-OPS 3.495 (or for PC2 - JAR-OPS 3.525). The clearance margin from obstacles in the take-off flight path takes account of the distance travelled from the end of the take-off distance required and operational conditions (IMC or VMC).

4. CATEGORY A PROCEDURES OTHER THAN CLEAR AREA

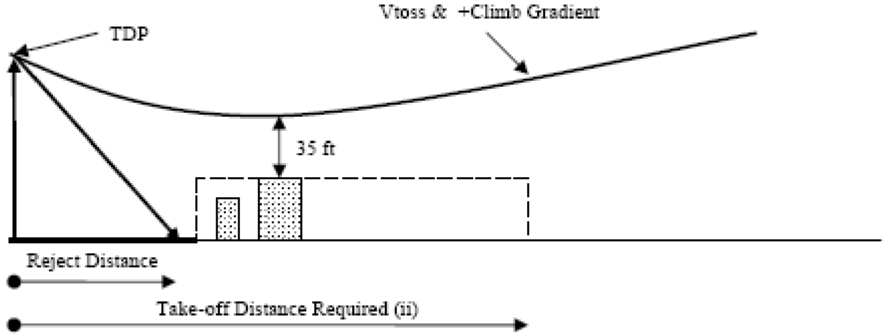
Procedures other than the clear area are treated somewhat differently. However, the short field procedure is somewhat of a hybrid as either part of the definition of TODRH can be utilised (the term 'helipad' is used in the following section to illustrate the principle only - it is not intended as a replacement for 'heliport').

4.1 Limited area, restricted area and helipad procedures (other than elevated)

The exact names of the procedure used for other than clear area are as many as there are manufacturers. However, principles for obstacle clearance are generic and the name is unimportant.

These procedures (see Figure 2 and Figure 3) are usually associated with an obstacle in the continued take-off area - usually shown as a line of trees or some other natural obstacle. As clearance above such obstacles is not readily associated with an accelerative procedure, as described in 3 above, a procedure using a vertical climb (or a steep climb in the forward, sideways or rearward direction) is utilised.

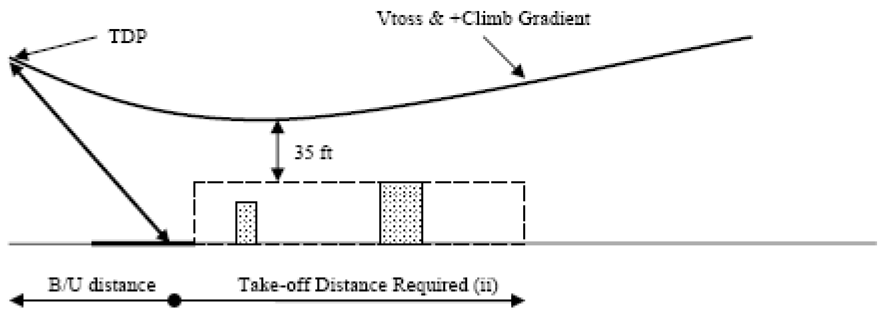
Figure 2 - Short Field take-off



ACJ OPS 3.480(a)(32) (continued)

With the added complication of a TDP principally defined by height together with obstacles in the continued take off area, a drop down to within 15 ft of the take-off surface is not deemed appropriate and the required obstacle clearance is set to 35 ft (usually called min-dip). The distance to the obstacle does not need to be calculated (provided it is outside the rejected distance required), as clearance above all obstacles is provided by ensuring that helicopter does not descend below the min-dip associated with a level defined by the highest obstacle in the continued take-off area.

Figure 3 - Helipad take-off



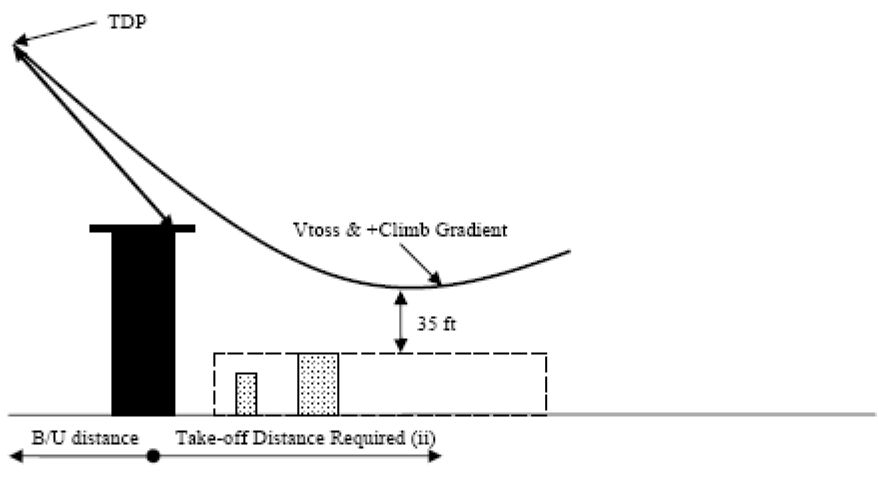
These procedures depend upon the alternative definition of TODRH.

As shown in Figure 3, the point at which Vtoss and a positive rate of climb are met defines the TODRH. Obstacle clearance from that point is assured by meeting the requirement of JAR-OPS 3.495 (or for PC2 - JAR-OPS 3.525). Also shown in Figure 3 is the distance behind the helipad which is the back-up distance (B/U distance).

4.2 Elevated helipad procedures

The elevated helipad procedure (see Figure 4) is a special case of the ground level helipad procedure discussed above.

Figure 4 - Elevate Helipad take-off



The main difference is that drop down below the level of the take-off surface is permitted. In the drop down phase, the Category A procedure ensures deck-edge clearance but, once clear of the deck-edge, the 35 ft clearance from obstacles relies upon the calculation of drop down. The alternative definition of the TODRH is applied.

Note: 35ft may be inadequate at particular elevated heliports which are subject to adverse airflow effects, turbulence, etc.**]**

[Amdt. 5, 01.07.07]

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[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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[Amdt. 5, 01.06.07]

[ACJ OPS 3.490(d)
Obstacle Clearance in the Back-up Area
See JAR-OPS 3.490(d)

The requirement in JAR-OPS 3.490(d) has been established in order to take into account the following factors:

In the back-up; the pilot has few visual cues and has to rely upon the altimeter and sight picture through the front window (if flight path guidance is not provided) to achieve an accurate rearward flight path.

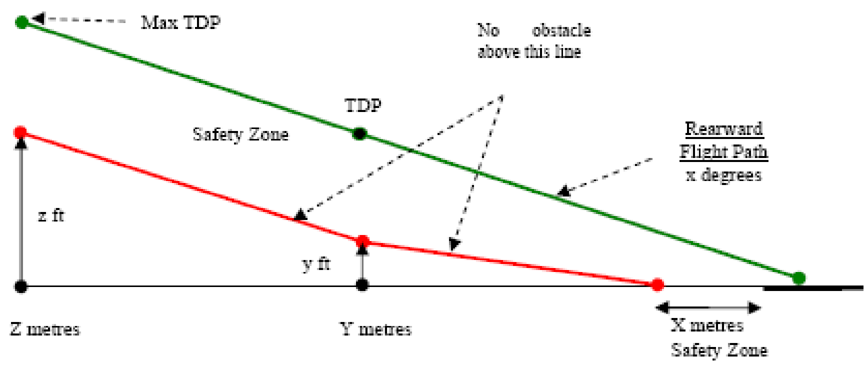
In the rejected take-off; the pilot has to be able to manage the descent against a varying forward speed whilst still ensuring an adequate clearance from obstacles until the helicopter gets in close proximity for landing on the FATO.

In the continued take-off; the pilot has to be able to accelerate to Vtoss whilst ensuring an adequate clearance from obstacles.

The requirements of JAR-OPS 3.490(d) may be achieved by establishing that, in the backup area:

- no obstacles are located within the safety zone below the rearward flight path when described in the helicopter flight manual (see figure 1); (in the absence of such data in the helicopter flight manual, the operator should contact the manufacturer in order to define a safety zone);or
- during the backup, the rejected take-off and the continued take-off manoeuvres, obstacle clearance has been demonstrated by a means acceptable to the authority.

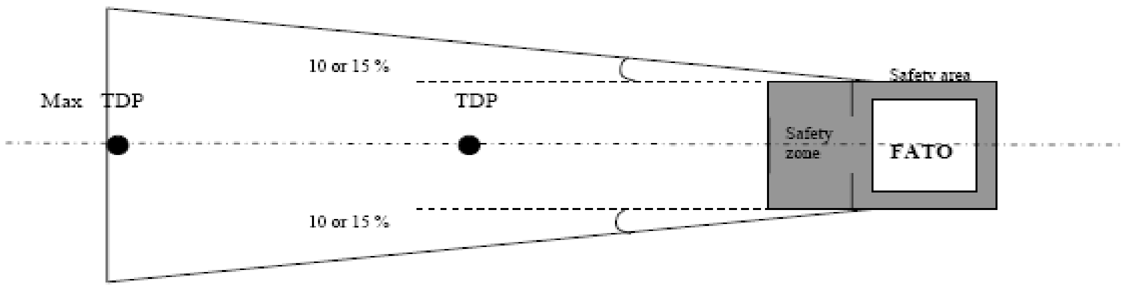
Figure 1 – rearward flight path



An obstacle, in the backup area, is considered if its lateral distance from the nearest point on the surface below the intended flight path is not further than half of the minimum FATO (or the equivalent term used in the Flight Manual) width defined in the Helicopter Flight Manual (or, when no width is defined 0.75 D), plus 0.25 times D (or 3m, whichever is greater); plus 0.10 for VFR day, or 0.15 for VFR night, of the distance travelled from the back of the FATO. (see figure 2).

ACJ OPS 3.490(d) continued)

Figure 2 – Obstacle accountability



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[Amdt. 5, 01.07.07]

[ACJ OPS 3.490 & 3.510
Application for alternative take-off and landing procedures

Discussion

A manufacturer's Category A procedure defines profiles and scheduled data for take-off, climb, performance at minimum operating speed and landing, under specific environmental conditions and masses.

Associated with these profiles and conditions are minimum operating surfaces, take-off distances, climb performance and landing distances; these are provided (usually in graphic form) with the take-off and landing masses and the Take-off Decision Point (TDP) and Landing Decision Point (LDP).

The landing surface and the height of the TDP are directly related to the ability of the helicopter - following a power-unit failure before or at TDP - to reject onto the surface under forced landing conditions. The main considerations in establishing the minimum size of the landing surface are the scatter during flight testing of the reject manoeuvre, with the remaining engine operating within approved limits, and the required usable cue environment.

Hence an elevated site with few visual cues - apart from the surface itself - would require a greater surface area in order that the helicopter can be accurately positioned during the reject manoeuvre within the specified area. This usually results in the stipulation of a larger surface for an elevated site than for a ground level site (where lateral cues may be present).

This could have the unfortunate side-effect that a heliport which is built 3m above the surface (and therefore elevated by definition) might be out of operational scope for some helicopters - even though there might be a rich visual cue environment where rejects are not problematical. The presence of elevated sites where ground level surface requirements might be more appropriate could be brought to the attention of the Authority.

It can be seen that the size of the surface is directly related to the requirement of the helicopter to complete a rejected take-off following a power-unit failure. If the helicopter has sufficient power such that a failure before or at TDP will not lead to a requirement for rejected take-off, the need for large surfaces is removed; sufficient power for the purpose of this ACJ is considered to be the power required for hover-out-of-ground-effect (HOGE) one-engine-inoperative (OEI).

Following a power-unit failure at or after the TDP, the continued take-off path provides OEI clearance from the take-off surface and the distance to reach a point from where climb performance in the first, and subsequent segments, is assured.

ACJ OPS 3.490 & 3.510 (continued)

If HOGE OEI performance exists at the height of the TDP, it follows that the continued take-off profile, which has been defined for a helicopter with a mass such that a rejected take-off would be required following a power-unit failure at or before TDP, would provide the same, or better, obstacle clearance and the same, or less, distance to reach a point where climb performance in the first, and subsequent segments, is assured.

If the TDP is shifted upwards, provided that the HOGE OEI performance is established at the revised TDP, it will not affect the shape of the continued take-off profile but should shift the min-dip upwards by the same amount that the revised TDP has been increased - with respect to the basic TDP.

Such assertions are concerned only with the vertical or the back-up procedures and can be regarded as achievable under the following circumstances:

1 When the procedure is flown, it is based upon a profile contained in the Helicopter Flight Manual (HFM) - with the exception of the necessity to perform a rejected take-off.

2 The HOGE OEI performance is specified as in AC 29-2C, MG 12 for the Human External Cargo (HEC) Class D requirements.

3 The TDP, if shifted upwards (or upwards and backward in the back-up procedure) will be the height at which the HOGE OEI performance is established.

4 If obstacles are permitted in the back-up area they should continue to be permitted with a revised TDP.

Methods of Application:

An operator may apply to the Authority for a reduction in the size of the take-off surface under the following conditions:

Compliance with the requirements of JAR-OPS 3.490, 3.495 and 3.510 can be assured with:

1 a procedure based upon an appropriate Category A take-off and landing profile scheduled in the HFM;

2 a take-off or landing mass not exceeding the mass scheduled in the HFM for a HOGE OEI in compliance with HEC Class D performance requirements ensuring that:

2.1 following a power-unit failure at or before TDP, there are adequate external references to ensure that the helicopter can be landed in a controlled manner; and

2.2 following a power-unit failure at or after the LDP there are adequate external references to ensure that the helicopter can be landed in a controlled manner.

An operator may apply to the Authority for an upwards shift of the TDP and LDP under the following conditions:

Compliance with the requirements of JAR-OPS 3.490, 3.495 and 3.510 can be assured with:

3 a procedure based upon an appropriate Category A take-off and landing profile scheduled in the HFM;

4 a take-off or landing mass not exceeding the mass scheduled in the HFM for a HOGE OEI in compliance with HEC Class D performance requirements ensuring that:

4.1 following a power-unit failure at or after TDP compliance with the obstacle clearance requirements of JAR-OPS 3.490(a)(2)(iv) and JAR-OPS 3.495 can be met; and

4.2 following a power-unit failure at or before the LDP the balked landing obstacle clearance requirements of JAR-OPS 3.510(a)(2) and JAR-OPS 3.495 can be met.

Alternatively, an operator may apply to the Authority for the use of the Category A ground level surface requirement for a specific elevated heliport when it can be demonstrated that the usable cue environment at that heliport would permit such a reduction.**]**

[Amdt. 5, 01.07.07]

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[Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

[ACJ] OPS 3.500[(b)(3)]
En-route - critical power unit inoperative (fuel jettison)
See JAR-OPS 3.500[(b)(3)].

The presence of obstacles along the en-route flight path may preclude compliance with JAR-OPS 3.500(a)(1) at the planned mass at the critical point along the route. In this case fuel jettison at the most critical point may be planned, provided that the procedures in AMC OPS 3.255 paragraph 3 are complied with.

[Amdt. 2, 01.01.02; Amdt. 5, 01.06.07]

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AMC/IEM H – PERFORMANCE CLASS 2

[ACJ to Subpart H
Operations in Performance Class 2
See Subpart H

1. INTRODUCTION

This paper describes Performance Class 2 as established in JAR-OPS 3, Subpart H. It has been produced for the purpose of:

a. discussing the underlying philosophy of Operations in Performance Class 2;

b. showing simple methods of compliance; and

c. explaining how to determine - with examples and diagrams:

- the take-off and landing masses;
- the length of the safe-forced-landing area;
- distances to establish obstacle clearance; and
- entry point(s) into Performance Class 1.

It discusses the derivation of Performance Class 2 from ICAO Annex 6 Part III and describes an alleviation which may be approved following a Risk Assessment.

It reproduces relevant definitions; examines the basic requirements; discusses the limits of operation; and considers the benefits of the use of Performance Class 2.

It contains examples of Performance Class 2 in specific circumstances, and explains how these examples may be generalised to provide the operators with methods of calculating landing distances and obstacle clearance.

2. DEFINITIONS

To assist in the reading of this paper, definitions from JAR-OPS 3, Subpart F have been reproduced:

Distance DR. DR is the horizontal distance that the helicopter has travelled from the end of the take-off distance available.

Defined point after take-off (DPATO). The point, within the take-off and initial climb phase, before which the helicopter's ability to continue the flight safely, with the critical power unit inoperative, is not assured and a forced landing may be required.

Defined point before landing (DPBL). The point within the approach and landing phase, after which the helicopter's ability to continue the flight safely, with the critical power unit inoperative, is not assured and a forced landing may be required.

Landing distance available (LDAH). The length of the final approach and take-off area plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height.

Landing distance required (LDRH). The horizontal distance required to land and come to a full stop from a point 15m (50ft) above the landing surface.

Performance Class 2. Performance Class 2 operations are those operations such that, in the event of critical power unit failure, performance is available to enable the helicopter to safely continue the flight, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required.

Safe forced landing. Unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface.

Take-off distance available. The length of the final approach and take-off area plus the length of any clearway (if provided) declared available and suitable for helicopters to complete the take-off.

The following terms, which are not defined in JAR-OPS 3 Subpart F, are used in the following text:

V_T. A target speed at which to aim at the point of minimum ground clearance (min-dip) during acceleration from TDP to Vtoss.

ACJ to Subpart H (continued)

$V_{50.}$ A target speed and height utilised to establish a Flight Manual distance (in compliance with the requirement of CS/JAR 29.63) from which climbout is possible.

$V_{stay\text{-}up.}$ A colloquial term used to indicate a speed at which a descent would not result following a power-unit failure. This speed is several knots lower than Vtoss at the equivalent take-off mass.

3. WHAT DEFINES PERFORMANCE CLASS 2

Performance Class 2 can be considered as Performance Class 3 take-off or landing, and Performance Class 1 climb, cruise and descent. It comprises an All Engines Operating (AEO) obstacle clearance regime for the take-off or landing phases, and a One Engine Inoperative (OEI) obstacle clearance regime for the climb, cruise, descent, approach and missed approach phases.

Note: For the purpose of performance calculations in JAR-OPS 3, the CS/JAR 29.67 Category A climb performance criteria is used:

- 150 ft/min at 1,000 ft (at Vy);

and depending on the choice of DPATO:

- 100 ft/min up to 200 ft (at Vtoss)

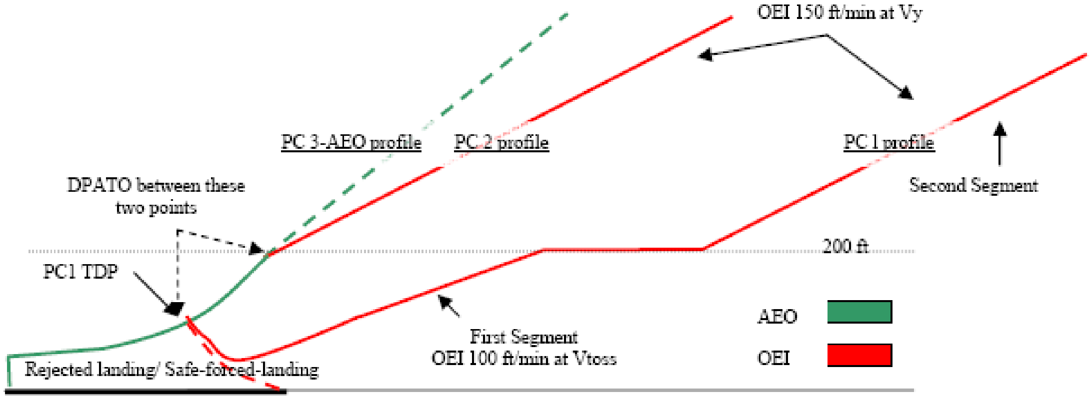
at the appropriate power settings.

3.1 Comparison of obstacle clearance in all Performance Classes

Figure 2 shows the profiles of the three Performance Classes - superimposed on one diagram.

Performance Class 1 (PC 1); from TDP, requires OEI obstacle clearance in all phases of flight; the construction of Category A procedures, provides for a flight path to the first climb segment, a level acceleration segment to Vy (which may be shown concurrent with the first segment), followed by the second climb segment from Vy at 200 ft (see Figure 1).

Figure 1 - All Performance Classes (a comparison)

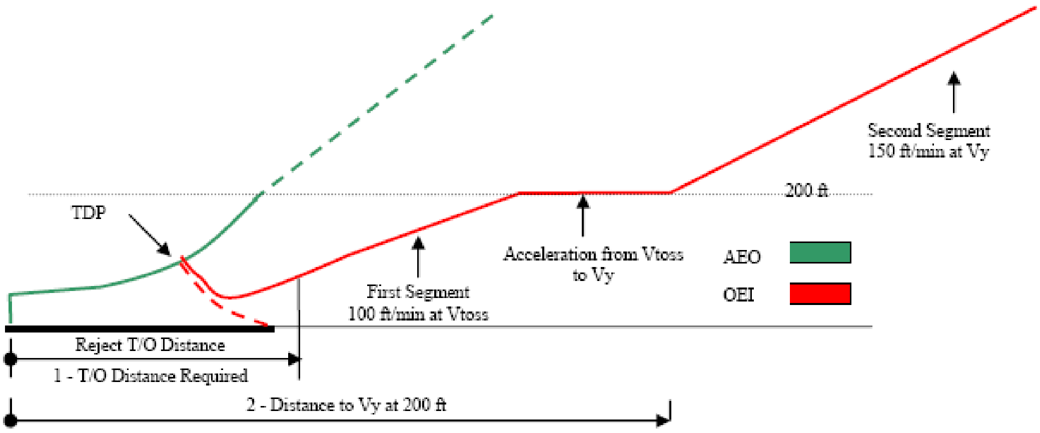


- Performance Class 2 (PC 2); requires AEO obstacle clearance to DPATO and OEI from then on. The take-off mass has the PC 1 second segment climb performance at its basis therefore, at the point where Vy at 200 ft is reached, Performance Class 1 is achieved (see also Figure 3).

- Performance Class 3 (PC 3); requires AEO obstacle clearance in all phases.

ACJ to Subpart H (continued)

Figure 2 - Performance Class 1 distances



3.2 Comparison of the discontinued take-off in all Performance Classes

- PC 1 - requires a prepared surface on which a rejected landing can be undertaken (no damage); and

- PC 2 and 3 - require a safe-forced-landing surface (some damage can be tolerated but there must be a reasonable expectancy of no injuries to persons in the aircraft or third parties on the surface).

4. THE DERIVATION OF PERFORMANCE CLASS 2

Subpart H - PC 2 is primarily based on the the text of ICAO Annex 6 Part III Section II and its attachments - which provide for the following:

a. Obstacle clearance before DPATO; the helicopter shall be able, with all engines operating, to clear all obstacles by an adequate margin until it is in a position to comply with b. below.

b. Obstacle clearance after DPATO; the helicopter shall be able, in the event of the critical power-unit becoming inoperative at any time after reaching DPATO, to continue the take-off clearing all obstacles along the flight path by an adequate margin until it is able to comply with en-route clearances.

c. Engine failure before DPATO; before the DPATO, failure of the critical power-unit may cause the helicopter to force land; therefore a safe-forced-landing should be possible (this is analogous to the requirement for a reject in Performance Class 1 but where some damage to the helicopter can be tolerated.)

5. BENEFITS OF JAR-OPS 3 PERFORMANCE CLASS 2

Operations in Performance Class 2 permit advantage to be taken of an all-engines-operating (AEO) procedure for a short period during take-off and landing - whilst retaining engine failure accountability in the climb, descent and cruise. The benefits include:

- Ability to use (the reduced) distances scheduled for the AEO - thus permitting operations to take place at smaller heliports and allowing airspace requirements to be reduced.

- Ability to operate when the safe-forced-landing distance available is located outside the boundary of the heliport.

- Ability to operate when the take-off-distance required is located outside the boundary of the heliport.

- Ability to use existing Category A profiles and distances when the surface conditions are not adequate for a reject but are suitable for a safe-forced-landing (for example when the ground is waterlogged).

Additionally, following a Risk Assessment when the use of exposure is permitted by the Authority:

- Ability to operate when a safe-forced landing is not assured in the take-off phase.

ACJ to Subpart H (continued)

- Ability to penetrate the HV curve for short periods during take-off or landing.

6 IMPLEMENTATION OF PERFORMANCE CLASS 2 IN JAR-OPS 3

The following sections discuss the principles of the implementation of Performance Class 2.

6.1 Does ICAO spell it all out?

ICAO Annex 6 does not give guidance on how DPATO should be calculated nor does it require that distances be established for the take-off. However, it does require that, up to DPATO AEO, and from DPATO OEI, obstacle clearance is established (see Figure 3 and Figure 4 which are simplified versions of the diagrams contained in Annex 6 Part III, Attachment A).

Note: Annex 8 – Airworthiness of Aircraft (Part IV, Chapter 2.2.1.3.4) requires that an AEO distance be scheduled for all helicopters operating in Performance Classes 2 & 3. Annex 6 is dependent upon the scheduling of the AEO distances, required in Annex 8, to provide data for the location of DPATO.

When showing obstacle clearance, the divergent obstacle clearance height required for IFR is - as in Performance Class 1 - achieved by the application of the additional obstacle clearance of 0.01 DR (DR = the distance from the end of 'take-off-distance-available' - see the pictorial representation in Figure 4 and the definition in section 2. above).

As can also be seen from Figure 4, flight must be conducted in VFR until DPATO has been achieved (and deduced that if an engine failure occurs before DPATO, entry into IFR is not permitted (as the OEI climb gradient will not have been established)).

Figure 3 - Performance Class 2 Obstacle Clearance

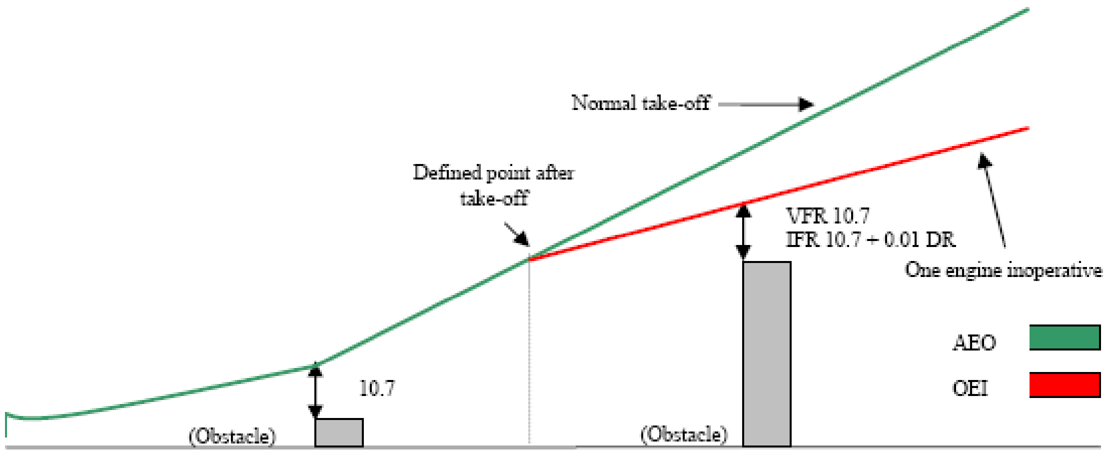
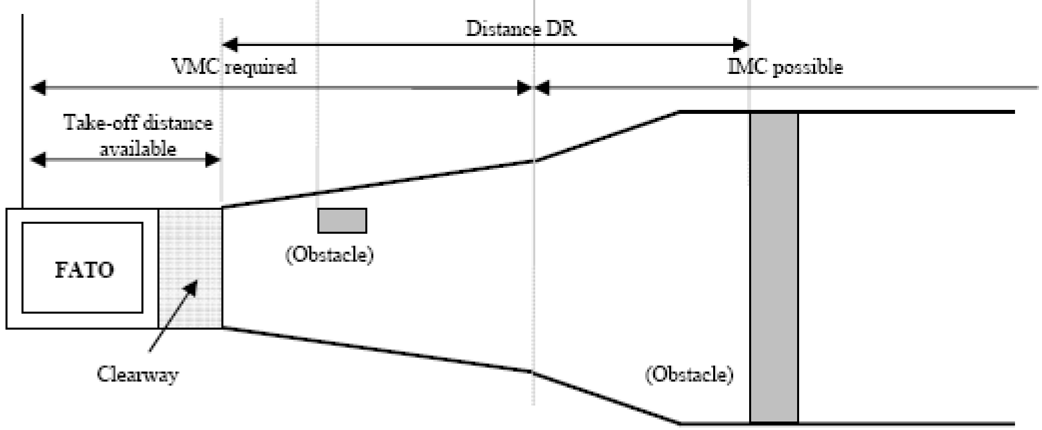


Figure 4 - Performance Class 2 Obstacle Clearance (plan view)



ACJ to Subpart H (continued)

6.2 Function of DPATO

From the preceding paragraphs it can be seen that DPATO is germane to PC 2. It can also be seen that, in view of the many aspects of DPATO, it has, potentially, to satisfy a number of requirements which are not necessarily synchronised (nor need to be).

It is clear that it is only possible to establish a single point for DPATO, satisfying the requirement of 4 b & 4 c above, when:

- accepting the TDP of a Category A procedure; or

- extending the safe-forced-landing requirement beyond required distances (if data is available to permit the calculation of the distance for a safe-forced-landing from the DPATO).

It could be argued that the essential requirement for DPATO is contained in section 4 b - OEI obstacle clearance. From careful examination of the flight path reproduced in Figure 3 above, it may be reasonably deduced that DPATO is the point at which adequate climb performance is established (examination of Category A procedures would indicate that this could be (in terms of mass, speed and height above the take-off surface) the conditions at the start of the first or second segments - or any point between.)

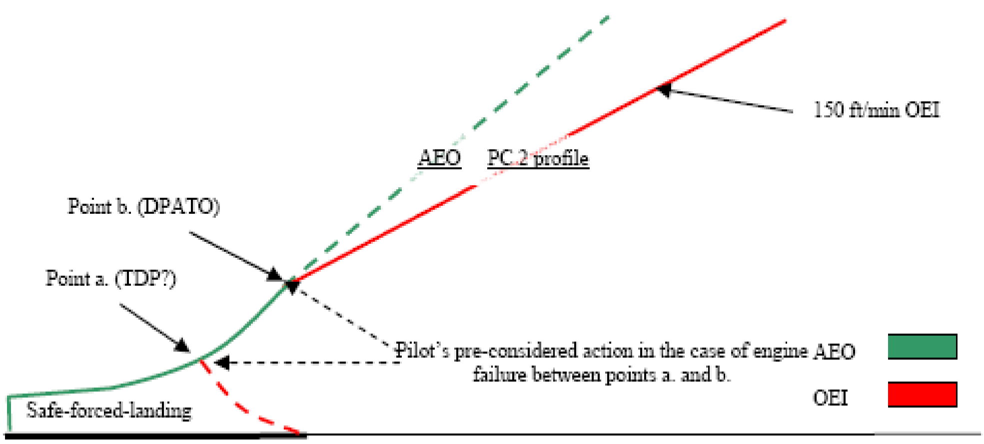
Note: The diagrams in Attachment A of ICAO Annex 6, do not appear to take account of drop down - permitted under Category A procedures; similarly with helideck departures, the potential for acceleration in drop down below deck level (once the deck edge has been cleared) is also not shown. These omissions could be regarded as a simplification of the diagram, as drop down is discussed and accepted in the accompanying ICAO text.

It may reasonably be argued that, during the take-off and before reaching an appropriate climb speed (Vtoss or Vy), Vstayup will already have been achieved (where Vstayup is the ability to continue the flight and accelerate without descent - shown in some Category A procedures as VT or target speed) and where, in the event of an engine failure, no landing would be required.

It is postulated that, to practically satisfy all the requirements of sections 4 a, b and c above, we do not need to define DPATO at one synchronised point; we can meet requirements separately - i.e. defining the distance for a safe-forced-landing, and then establishing the OEI obstacle clearance flight path.

As the point at which the helicopter's ability to continue the flight safely, with the critical power unit inoperative is the critical element, it is that for which DPATO is used in this text.

Figure 5 - The three elements in a PC 2 take-off



6.2.1 The three elements from the pilot's perspective

When seen from the pilot's perspective (see Figure 5), there are three elements of the PC 2 take-off - each with associated related actions which need to be considered in the case of an engine failure:

a. action in the event of an engine failure - up to the point where a forced-landing will be required.

ACJ to Subpart H (continued)

b. action in the event of an engine failure - from the point where OEI obstacle clearance is established (DPATO).

c. pre-considered action in the event of an engine failure - in the period between a. and b.

The action of the pilot in a. and b. is deterministic i.e. it remains the same for every occasion. For pre-consideration of the action at point c.; as is likely that the planned flight path will have to be abandoned (the point at which obstacle clearance using the OEI climb gradients not yet being reached) the pilot must (before take-off) have considered his options and the associated risks, and have in mind the course of action that will be pursued in the event of an engine failure during that short period. (As it is likely that any action will involve turning manoeuvres, the effect of turns on performance must be considered.)

Take-off mass for Performance Class 2

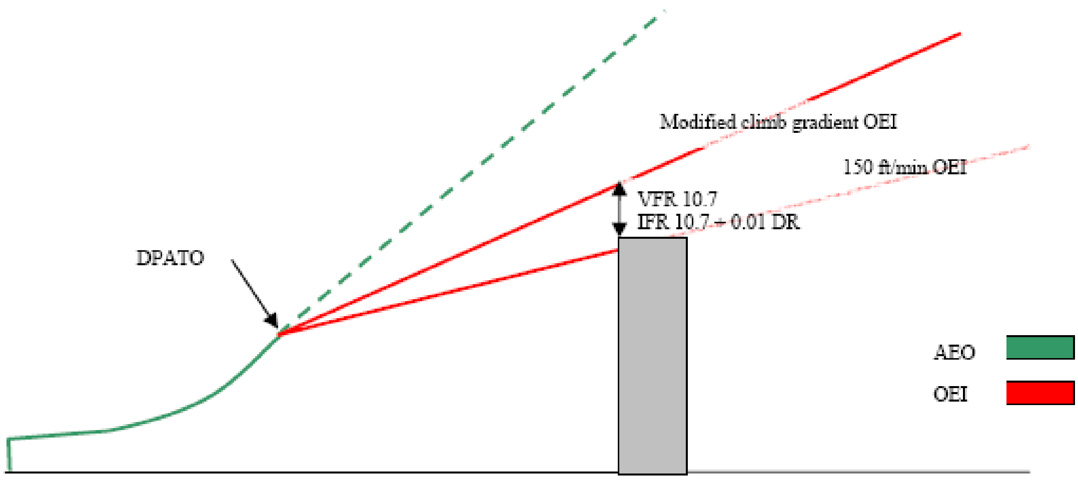
As previously stated, Performance Class 2 is an AEO take-off which, from DPATO, has to meet the requirement for OEI obstacle clearance in the climb and en-route phases. Take-off mass is therefore the mass that gives <u>at least</u> the minimum climb performance of 150 ft/min at Vy, at 1000 ft above the take-off point, <u>and</u> obstacle clearance.

As can be seen in Figure 6 below, the take-off mass may have to be modified when it does not provide the required OEI clearance from obstacles in the take-off-flight path (exactly as in Performance Class 1). This could occur when taking off from a heliport where the flight path has to clear an obstacle such a ridge line (or line of buildings) which can neither be:

- flown around using VFR and see and avoid; nor
- cleared using the minimum climb gradient given by the take-off mass (150 ft/min at 1,000 ft)

In this case, the take-off mass has to be modified (using data contained in the HFM) to give an appropriate climb gradient.

Figure 6 - Performance Class 2 (enhanced climb gradient)



6.4 Do distances have to be calculated?

Distances do <u>not</u> have to be calculated if, by using pilot judgement or standard practice, it can be established that:

- A safe-forced-landing is possible following an engine failure (notwithstanding that there might be obstacles in the take-off path); and
- Obstacles can be cleared (or avoided) - AEO in the take-off phase and OEI in the climb.

If early entry (in the sense of cloud base) into IMC is expected - an IFR departure should be planned. However, standard masses and departures can be used when described in the Operations Manual.

ACJ to Subpart H (continued)

6.5 The use of Category A data

In Category A procedures, TDP is the point at which either a rejected landing or a safe continuation of the flight, with OEI obstacle clearance, can be performed.

For PC 2 (when using Category A data), only the safe-forced-landing (reject) distance depends on the equivalent of the TDP; if an engine fails between TDP and DPATO the pilot has to decide what action is required - it is not necessary for a safe-forced-landing distance to be established from beyond the equivalent of TDP (see Figure 5 and discussion in section 6.2.1 above).

Category A procedures based on a fixed Vtoss are usually optimised either for the reduction of the rejected take-off distance, or the take-off distance. Category A procedures based on a variable Vtoss allow either a reduction in required distances (low Vtoss) or an improvement in OEI climb capability (high Vtoss). These optimisations may be beneficial in PC 2 to satisfy the dimensions of the take-off site.

In view of the different requirements for PC 2 (from PC 1), it is perfectly acceptable for the two calculations (one to establish the safe-forced-landing distance and the other to establish DPATO) to be based upon different Category A procedures. However, if this method is used, the mass resulting from the calculation cannot be more than the mass from the more limiting of the procedures.

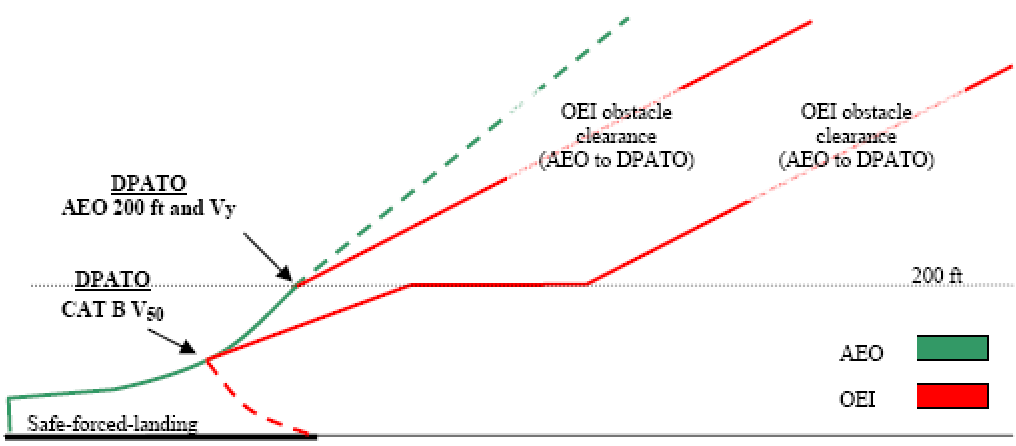
6.6 DPATO and obstacle clearance

If it is necessary for OEI obstacle clearance to be established in the climb, the starting point (DPATO) for the (obstacle clearance) gradient has to be established. Once DPATO is defined, the OEI obstacle clearance is relatively easy to calculate with data from the HFM.

6.6.1 DPATO based on AEO distance

In the simplest case; if provided, the scheduled AEO to 200 ft at Vy can be used (see Figure 7).

Figure 7 -Suggested AEO locations for DPATO



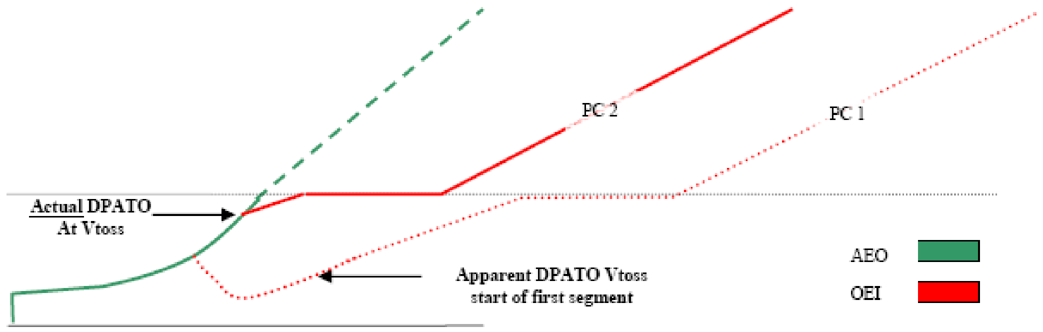
Otherwise, and if scheduled in the HFM, the AEO distance to 50ft (V_{50}) – determined in accordance with CS/JAR 29.63 - can be used (see Figure 7). Where this distance is used, it will be necessary to ensure that the V_{50} climb out speed is associated with a speed and mass for which OEI climb data is available so that, from V_{50}, the OEI flight path can be constructed.

6.6.2 DPATO based on Category A distances

It is not necessary for specific AEO distances to be used (although for obvious reasons it is preferable); if they are not available, a flight path (with OEI obstacle clearance) can be established using Category A distances (see Figure 8 and Figure 9) - which will then be conservative.

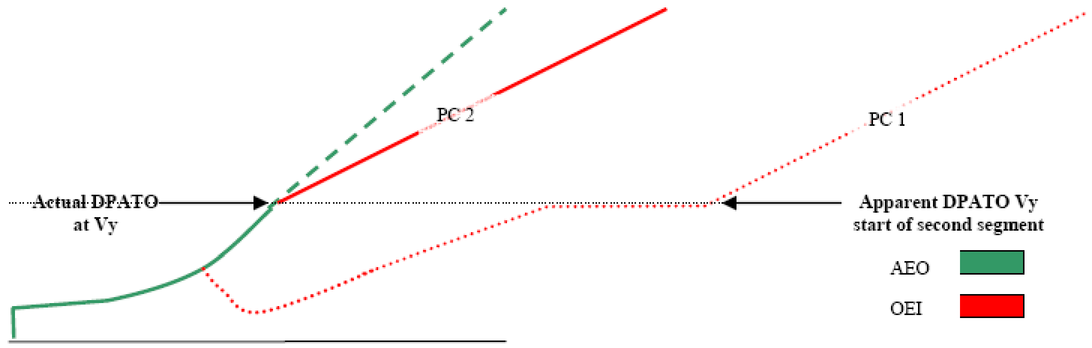
ACJ to Subpart H (continued)

Figure 8 - Using Cat A data; actual and apparent position of DPATO (Vtoss and start of first segment)



Note: the apparent DPATO is for planning purposes <u>only</u> in the case where AEO data is not available to construct the take-off flight path. The actual OEI flight path will provide better obstacle clearance than the apparent one (used to demonstrate the minimum requirement) - as seen from the firm and dashed lines in the above diagram.

Figure 9 - Using Cat A data; actual and apparent position of DPATO (Vy and start of second segment)



6.6.3 Use of most favourable Category A data

The use of AEO data is recommended for calculating DPATO. However, where an AEO distance is not provided in the flight manual, distance to Vy at 200 ft, from the most favourable of the Category A procedures, can be used to construct a flight path (provided it can be demonstrated that AEO distance to 200 ft at Vy is always closer to the take-off point than the CAT A OEI flight path).

<u>In order to satisfy the requirement of JAR-OPS 3.525, the last point from where the start of OEI obstacle clearance can be shown is at 200 ft.</u>

6.7 The calculation of DPATO - a summary

DPATO should be defined in terms of speed and height above the take-off surface and should be selected such that HFM data (or equivalent data) is available to establish the distance from the start of the take-off up to the DPATO (conservatively if necessary).

6.7.1 First method

DPATO is selected as the HFM Category B take-off distance (V_{50} speed or any other take-off distance scheduled in accordance with CS/JAR 29.63) provided that within the distance the helicopter can achieve:

- One of the Vtoss values (or the unique Vtoss value if is not variable) provided in the HFM, selected so as to assure a climb capability according to Cat A criteria; or
- Vy.

Compliance with JAR-OPS 3.525 would be shown from V_{50} (or the scheduled Category B take-off distance).

ACJ to Subpart H (continued)

6.7.2 Second method

DPATO is selected as equivalent to the TDP of a Category A clear area take-off procedure conducted in the same conditions.

Compliance with JAR-OPS 3.525 would be shown from the point at which Vtoss, a height of at least 35 ft above the take-off surface and a positive climb gradient are achieved (which is the Category A clear area take-off distance).

Safe-forced-landing areas should be available from the start of the take-off, to a distance equal to the Category A "clear area" rejected take-off distance.

6.7.3 Third method

As an alternative; DPATO could be selected such that Helicopter Flight Manual one engine inoperative (OEI) data is available to establish a flight path initiated with a climb at that speed. This speed should then be:

- One of the Vtoss values (or the unique Vtoss value if is not variable) provided in the Helicopter Flight Manual, selected so as to assure a climb capability according to Category A criteria; or
- Vy.

The height of the DPATO should be at least 35 ft and can be selected up to 200 ft. Compliance with JAR-OPS 3.525 would be shown from the selected height.

6.8 Safe-forced-landing distance

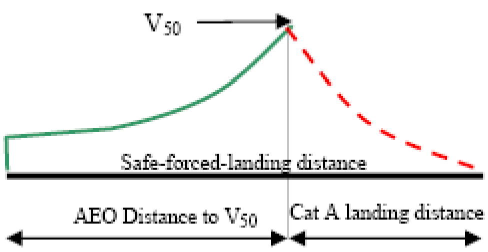
Except as provided in 6.7.2 above, the establishment of the safe-forced-landing distance could be problematical as is not likely that PC 2 specific data will be available in the HFM.

By definition, the Category A reject distance may be used when the surface is not suitable for a reject, but may be satisfactory for a safe-force-landing (for example where the surface is flooded or is covered with vegetation).

Any Category A (or other accepted) data may be used to establish the distance – however, once established it remains valid only if the Category A mass (or the mass from the accepted data) is used and the Category A (or accepted) AEO profile to the TDP is flown. In view of these constraints, the likeliest Category A procedures are the clear area or the short field (restricted area/site) procedures.

From Figure 10, it can be seen that if the Category B V_{50} procedure is used to establish DPATO, the combination of the distance to 50 ft and the Category A 'clear area' landing distance, required by CS/JAR 29.81 (the horizontal distance required to land and come to a complete stop from a point 50 ft above the landing surface), will give a good indication of the maximum safe-forced-landing distance required (see also the discussion on Vstayup above).

Figure 10 - Category B (V_{50}) safe-forced-landing distance



6.9 Performance Class 2 landing

For other than PC 2 operations to elevated heliport/helidecks (see the discussion in section 7.4.1 below), the principles for the landing case are much simpler. As the performance requirement for PC 1 and PC 2 landings are virtually identical, the condition of the landing surface is the main issue.

If the engine fails at any time during the approach, the helicopter must be able either: to perform a go-around meeting the requirements of JAR-OPS 3.525; or perform a safe-forced-landing on the surface. In view of this, and if using PC 1 data, the LDP should not be lower that the corresponding TDP (particularly in the case of a variable TDP).

ACJ to Subpart H (continued)

The landing mass will be identical to the take-off mass for the same site (with consideration for any reduction due to obstacle clearance - as shown in Figure 6 above).

In the case of a balked landing (i.e. the landing site becomes blocked or unavailable during the approach); the full requirement for take-off obstacle clearance must be met.

7. OPERATIONS IN PERFORMANCE CLASS 2 WITH EXPOSURE

JAR-OPS 3 offers an opportunity to discount the requirement for an assured safe-forced-landing area in the take-off or landing phase - subject to an approval from the Authority. The following sections deals with this option:

7.1 Limit of Exposure

As stated above, Performance Class 2 has to ensure AEO obstacle clearance to DPATO and OEI obstacle clearance from that point. <u>This does not change with the application of exposure.</u>

It can therefore be stated that operations with exposure are concerned <u>only</u> with alleviation from the requirement for the provision of a safe-forced-landing.

The absolute limit of exposure is 200 ft - from which point OEI obstacle clearance must be shown.

7.2 The principle of Risk Assessment

ICAO Annex 6 Part III Chapter 3.1.2 (Fifth Edition July 2001) states that:

- 3.1.2 Performance Class 3 helicopters shall only be operated in conditions of weather and light, and over such routes and diversions therefrom, that permit a safe-forced-landing to be executed in the event of engine failure. The conditions of this paragraph apply also to performance Class 2 helicopters prior to the defined point after take-off and after the defined point before landing.

The ICAO Helicopter and Tilt-rotor Study Group, is engaged in an ongoing process to amend Chapter 3 to take account of current practices – following this process the proposed text is likely to be:

- 3.1.2 In conditions where the safe continuation of flight is not ensured in the event of a critical power unit failure, helicopter operations shall be conducted in a manner that gives appropriate consideration for achieving a safe-forced-landing.

Although a safe-forced-landing may no longer be the (absolute) Standard, it is considered that Risk Assessment is obligatory to satisfy the amended requirement for ‘appropriate consideration’.

Risk Assessment used in JAR-OPS 3 for fulfilment of this proposed Standard is consistent with principles described in ‘AS/NZS 4360:1999’.

Note: terms used in this text and defined in the AS/NZS Standard are shown in <u>S</u>entence <u>C</u>ase e.g. Risk Assessment or Risk Reduction.

7.3 The application of Risk Assessment to JAR-OPS 3 Performance Class 2

Under circumstances where no risk attributable to engine failure (beyond that inherent in the safe-forced-landing) is present, operations in Performance Class 2 may be conducted in accordance with the non-alleviated requirements contained above - and a safe-forced-landing will be possible.

Under circumstances where such risk would be present i.e.: operations to an elevated heliport (deck edge strike); or, when permitted, operations from a site where a safe-forced-landing cannot be accomplished because the surface is inadequate; or where there is penetration into the HV curve for a short period during take-off or landing (a limitation in CS/JAR 29 HFMs), operations have to be conducted under a specific approval.

Provided such operations are Risk Assessed and can be conducted to an established safety target - they may be approved.

7.3.1 The elements of the Risk Management The approval process consists of an operational Risk Assessment and the application of four principles: a safety target; a helicopter reliability assessment; continuing airworthiness; and mitigating procedures.

7.3.2 The safety target

ACJ to Subpart H (continued)

The main element of the JAA Risk Assessment when exposure was initially introduced into JAR-OPS 3 (NPA OPS-8), was the assumption that turbine engines in helicopters would have failure rates of about 1:100 000 per flying hour; which would permit (against the agreed safety target of 5 x 10^{-8} per event) an exposure of about 9 seconds for twins during the take-off or landing event. (When choosing this target it was assumed that the majority of current well maintained turbine powered helicopters would be capable of meeting the event target - it therefore represents the Residual Risk)

Note: Residual Risk is considered to be the risk that remains when all mitigating procedures - airworthiness and operational - are applied (see sections 7.3.4 and 7.3.5 below).

7.3.3 The reliability assessment The JAA reliability assessment was initiated to test the hypothesis (stated in 7.3.2 above) that the majority of turbine powered types would be able to meet the safety target. This hypothesis could only be confirmed by an examination of the manufacturers' power-loss data.

7.3.4 Mitigating procedures (airworthiness)

Mitigating procedures consist of a number of elements: the fulfilment of all manufacturers' safety modifications; a comprehensive reporting system (both failures and usage data); and the implementation of a Usage Monitoring System (UMS). Each of these elements is to ensure that engines, once shown to be sufficiently reliable to meet the safety target, will sustain such reliability (or improve upon it).

The monitoring system is felt to be particularly important as it had already been demonstrated that when such systems are in place it inculcates a more considered approach to operations. In addition the elimination of 'hot starts', prevented by the UMS, itself minimises the incidents of turbine burst failures.

7.3.5 Mitigating procedures (operations)

Operational and training procedures, to mitigate the risk - or minimise the consequences - are required of the operator. Such procedures are intended to minimise risk by ensuring that: the helicopter is operated within the exposed region for the minimum time; and simple but effective procedures are followed to minimise the consequence should an engine failure occur.

7.4 Operation with Exposure - the alleviation and the requirement

When operating with exposure, there is alleviation from the requirement to establish a safe-forced-landing area (which extends to landing as well as take-off); however, the requirement for obstacle clearance - AEO in the take-off and from DPATO OEI in the climb and en-route phases - remains (both for take-off and landing).

The take-off mass is obtained from the more limiting of the following:

- the climb performance of 150 ft/min at 1000 ft above the take-off point; or
- obstacle clearance (in accordance with 6.3 above); or
- AEO hover out of ground effect (HOGE) performance at the appropriate power setting. (AEO HOGE is required to ensure acceleration when (near) vertical dynamic take-off techniques are being used. Additionally for elevated heliports/helidecks, it ensures a power reserve to offset ground cushion dissipation; and ensures that, during the landing manoeuvre, a stabilised HOGE is available - should it be required.)

7.4.1 Operations to elevated heliport/helidecks

PC 2 operations to elevated heliports and helidecks are a specific case of operations with exposure. In these operations, the alleviation covers the possibility of:

- a deck-edge strike if the engine fails early in the take-off or late in the landing; and
- penetration into the HV Curve during take-off and landing; and
- forced landing with obstacles on the surface (hostile water conditions) below the elevated heliport (helideck). The take-of mass is as stated above and relevant techniques are as described in ACJ OPS 3.520(a)(3) and 3.535(a)(3) Note:

It is unlikely that the DPATO will have to be calculated with operations to helidecks (due to the absence of obstacles in the take-off path).

7.4.2 Additional requirements for operations to Helidecks in a Hostile Environment

ACJ to Subpart H (continued)

For a number of reasons (e.g. the deck size, and the helideck environment – including obstacles and wind vectors), it was not anticipated that operations in PC 1 would be technically feasible or economically justifiable by the projected JAA deadline of 2010 (OEI HOGE could have provided a method of compliance but this would have resulted in a severe and unwarranted restriction on payload/range).

However, due to the severe consequences of an engine failure to helicopters involved in take-off and landings to helidecks located in hostile sea areas (such as the North Sea or the North Atlantic), a policy of Risk Reduction is called for. As a result, enhanced Class 2 take-off and landing masses together with techniques that provide a high confidence of safety due to: deck-edge avoidance; and, drop-down that provides continued flight clear of the sea, are seen as practical measures.

For helicopters which have a Category A elevated helideck procedure, certification is satisfied by demonstrating a procedure and adjusted masses (adjusted for wind as well as temperature and pressure) which assure a 15ft deck edge clearance on take-off and landing. It is therefore recommended that manufacturers, when providing enhanced PC2 procedures, use the provision of this deck-edge clearance as their benchmark.

As the height of the helideck above the sea is a variable, drop down has to be calculated; once clear of the helideck, a helicopter operating in PC1 would be expected to meet the 35ft obstacle clearance. Under circumstances other than open sea areas and with less complex environmental conditions, this would not present difficulties. As the provision of drop down takes no account of operational circumstances, standard drop down graphs for enhanced PC2 - similar to those in existence for Category A procedures - are anticipated.

Under conditions of offshore operations, calculation of drop down is not a trivial matter - the following examples indicate some of the problems which might be encountered in hostile environments:

- Occasions when tide is not taken into account and the sea is running irregularly - the level of the obstacle (i.e. - the sea) is indefinable making a true calculation of drop down impossible.
- Occasions when it would not be possible - for operational reasons - for the approach and departure paths to be clear of obstacles - the ‘standard’ calculation of drop-down could not be applied.

Under these circumstances, practicality indicates that drop-down should be based upon the height of the deck AMSL and the 35ft clearance should be applied.

There are however, other and more complex issues which will also affect the deck-edge clearance and drop down calculations:

- When operating to moving decks on vessels, a recommended landing or take-off profile might not be possible because the helicopter might have to hover alongside in order that the rise and fall of the ship is mentally mapped; or, on take-off re-landing in the case of an engine failure might not be an option.

Under these circumstances, the Commander might adjust the profiles to address a hazard more serious or more likely than that presented by an engine failure.

It is because of these and other (unforeseen) circumstances that a prescriptive requirement is not used. However, the target remains a 15ft deck-edge clearance and a 35ft obstacle clearance and data should be provided such that, where practically possible, these clearances can be planned.

As accident/incident history indicates that the main hazard is collision with obstacles on the helideck due to human error, simple and reproducible take-off and landing procedures are recommended.

In view of the reasons stated above, the future requirement for PC 1 is replaced by the new requirement that the take-off mass takes into account: the procedure; deck-edge miss; and drop down appropriate to the height of the helideck. This will require calculation of take-off mass from information produced by manufacturers reflecting these elements. It is expected that such information will be produced by performance modelling/simulation using a model validated through limited flight testing.

7.4.3 Operations to Helidecks for Helicopters with a MAPSC of more than 19

The original requirement for operations of helicopters with a MAPSC of more than 19 was PC 1 (as set out in JAR-OPS 3.470(a)(2)).

However, when operating to helidecks, the problems enumerated in 7.4.2 above are equally applicable to these helicopters. In view of this, but taking into account that increased numbers are (potentially) being carried, such operations are permitted in PC 2 (JAR-OPS 3.470(a)(2)) but, in all helideck environments (both hostile and non-hostile), have to satisfy, the additional requirements, set out in 7.4.2 above.]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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[Amdt. 5, 01.07.07]

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[Amdt. 5, 01.07.07]

[ACJ-1 to Appendix 1 to JAR-OPS 3.517(a)
Helicopter operations without an assured safe forced landing capability

1. As part of the risk assessment prior to granting an approval under Appendix 1 to JAR-OPS 3.517(a), the operator should provide appropriate powerplant reliability statistics available for the helicopter type and the engine type.

2. Except in the case of new engines, such data should show sudden powerloss from the set of in-flight shutdown (IFSD) events not exceeding 1 per 100,000 engine hours in a 5 year moving window. However, a rate in excess of this value, but not exceeding 3 per 100,000 engine hours, may be accepted by the Authority after an assessment showing an improving trend.

3. New engines should be assessed on a case-by-case basis.

4. After the initial assessment, updated statistics should be periodically reassessed; any adverse sustained trend will require an immediate evaluation to be accomplished by the operator in consultation with the Authority and the manufacturers concerned. The evaluation may result in corrective action or operational restrictions being applied.

5. The purpose of this paragraph is to provide guidance on how the in-service power plant sudden power loss rate is determined.

5.1. Share of roles between the helicopter and engine Type Certificate Holders (TCH).

a) The provision of documents establishing the in-service sudden power loss rate for the helicopter/engine installation; the interface with the operational Authority of the State of Design should be the Engine TCH or the Helicopter TCH depending on the way they share the corresponding analysis work.

b) The Engine TCH should provide the Helicopter TCH with a document including: the list of in-service power loss events, the applicability factor for each event (if used), and the assumptions made on the efficiency of any corrective actions implemented (if used);

c) The Engine or Helicopter TCH should provide the operational Authority of the State of Design or, where this Authority does not take responsibility, the operational Authority of the State of the Operator, with a document that details the calculation results - taking into account: the events caused by the engine and the events caused by the engine installation; the applicability factor for each event (if used), the assumptions made on the efficiency of any corrective actions implemented on the engine and on the helicopter (if used); and the calculation of the powerplant power loss rate,

5.2 Documentation The following documentation should be updated every year.

5.2.1 The document with detailed methodology and calculation as distributed to the Authority of the State of Design.

ACJ-1 to Appendix 1 to JAR-OPS 3.517(a) (continued)

5.2.2 A summary document with results of computation as made available on request to any operational Authority.

5.2.3 A Service Letter establishing the eligibility for such operation and defining the corresponding required configuration as provided to the operators.

5.3. Definition of the “sudden in-service power loss”.

The sudden in-service power loss is an engine power loss:

- larger than 30 % of the take-off power; and
- occurring during operation; and
- without the occurrence of an early intelligible warning to inform and give sufficient time for the pilot to take any appropriate action.

5.4. Data base documentation.

Each power loss event should be documented, by the engine and/or helicopter TCH’s, as follows:

- incident report number;
- engine type;
- engine serial number;
- helicopter serial number;
- date;
- event type (demanded IFSD, un-demanded IFSD);
- presumed cause;
- applicability factor when used ;
- reference and assumed efficiency of the corrective actions that will have to be applied (if any);

5.5. Counting methodology.

Various methodologies for counting engine power loss rate have been accepted by Authorities. The following is an example of one of these methodologies:

5.5.1 The events resulting from:

- unknown causes (wreckage not found or totally destroyed, undocumented or unproven statements); or
- where the engine or the elements of the engine installation have not been investigated (for example when the engine has not been returned by the customer); or
- an unsuitable or non representative use (operation or maintenance) of the helicopter or the engine

<u>are not counted as engine in-service sudden power loss and the applicability factor is 0%.</u>

5.5.2 The events caused by:

- the engine or the engine installation; or
- the engine or helicopter maintenance, when the applied maintenance was compliant with the Maintenance Manuals

<u>are counted as engine in-service sudden power loss and the applicability factor is 100%.</u>

5.5.3 For the events where the engine or an element of the engine installation has been submitted to investigation which did not allow to define a presumed cause

<u>the applicability factor is 50 %.</u>

5.6. Efficiency of corrective actions.

ACJ-1 to Appendix 1 to JAR-OPS 3.517(a)

The corrective actions made by the engine and helicopter manufacturers on the definition or maintenance of the engine or its installation could be defined as mandatory for specific JAR- OPS 3 operations. In this case the associated reliability improvement could be considered as mitigating factor for the event.

A factor defining the efficiency of the corrective action could be applied to the applicability factor of the concerned event.

5.7. Method of calculation of the powerplant power loss rate.

The detailed method of calculation of the powerplant power loss rate should be documented by engine or helicopter TCH and accepted by the relevant Authority.**]**

[Amdt. 5, 01.07.07]

[ACJ-2 to Appendix 1 to JAR-OPS 3.517(a) Helicopter operations without an assured safe forced landing capability

To obtain an approval under Appendix 1 to JAR-OPS 3.517(a), an operator conducting operations without an assured safe forced landing capability should implement the following:

1. Attain and then maintain the helicopter/engine modification standard defined by the manufacturer that has been designated to enhance reliability during the take-off and landing phases.

2. Conduct the preventive maintenance actions recommended by the helicopter or engine manufacturer as follows:

2.1 Engine oil spectrometric and debris analysis - as appropriate;

2.2 Engine trend monitoring, based on available power assurance checks;

2.3 Engine vibration analysis (plus any other vibration monitoring systems where fitted).

2.4 Oil consumption monitoring.

3. The Usage Monitoring System should fulfil at least the following:

3.1 Recording of the following data:

- Date and time of recording, or a reliable means of establishing these parameters;
- Amount of flight hours recorded during the day plus total flight time;
- N1 (gas producer RPM) cycle count;
- N2 (power turbine RPM) cycle count (if the engine features a free turbine);
- Turbine temperature exceedance: value, duration;
- Power-shaft torque exceedance: value, duration (if a torque sensor is fitted);
- Engine shafts speed exceedance: value, duration;

3.2 Data storage of the above parameters, if applicable, covering the maximum flight time in a day, and not less than 5 flight hours, with an appropriate sampling interval for each parameter.

3.3 The system should include a comprehensive self-test function with a malfunction indicator and a detection of power-off or sensor input disconnection.

3.4 A means should be available for downloading and analysis of the recorded parameters. Frequency of downloading should be sufficient to ensure data is not lost through over-writing.

3.5 The analysis of parameters gathered by the usage monitoring system, the frequency of such analysis and subsequent maintenance actions should be described in the maintenance documentation.

3.6 The data should be stored in an acceptable form and accessible to the Authority, for at least 24 months.

4. Include take-off and landing procedures in the operations manual, where they do not already exist in the Helicopter Flight Manual.

ACJ-2 to Appendix 1 to JAR-OPS 3.517(a)

5. Establish training for flight crew which should include the discussion, demonstration, use and practice of the techniques necessary to minimise the risks;

6. Report to the manufacturer any loss of power control, engine shutdown (precautionary or otherwise) or power unit failure for any cause (excluding simulation of power unit failure during training). The content of each report should provide:

- Date and time;
- Operator (and Maintenance organisations where relevant);
- Type of helicopter and description of operations;
- Registration and serial number of airframe;
- Engine type and serial number;
- Power unit modification standard where relevant to failure;
- Engine position;
- Symptoms leading up to the event.
- Circumstances of power unit failure including phase of flight or ground operation;
- Consequences of the event;
- Weather/environmental conditions;
- Reason for power unit failure – if known;
- In case of an In Flight Shut Down (IFSD), nature of the IFSD (Demanded/Un-demanded);
- Procedure applied and any comment regarding engine restart potential;
- Engine hours and cycles (from new and last overhaul);
- Airframe flight hours;
- Rectification actions applied including, if any, component changes with part number and serial number of the removed equipments; and
- Any other relevant information**]**

[Amdt. 5, 01.07.07]

[ACJ OPS 3.520(a)(3) and 3.535(a)(3)]
Procedure for continued operations to helidecks
See JAR-OPS [3.520(a)(3) and 3.535(a)(3)]

1 Factors to be considered when taking off from or landing on a helideck

1.1 In order to take account of the considerable number of variables associated with the helideck environment, each take-off and landing may require a slightly different profile. Factors such as helicopter mass and centre of gravity, wind velocity, turbulence, deck size, deck elevation and orientation, obstructions, power margins, platform gas turbine exhaust plumes etc., will influence both the take-off and landing. In particular, for the landing, additional considerations such as the need for a clear go-around flight path, visibility and cloud base etc., will affect the Commander's decision on the choice of landing profile. Profiles may be modified, taking account of the relevant factors noted above and the characteristics of individual helicopter types.

2 Terminology

2.1 See JAR-OPS 3.480 as appropriate.

3 Performance

3.1 To perform the following take-off and landing profiles, adequate all engines operating (AEO) hover performance at the helideck is required. In order to provide a minimum level of performance, data (derived from the Flight Manual AEO out of ground effect (OGE), with wind accountability) should be used to provide the maximum take-off or landing mass. Where a helideck is affected by downdrafts or turbulence or hot gases, or where the take-off or landing profile is obstructed, or the approach or take-off cannot be made into wind, it may be necessary to decrease this take-off or landing mass by using a suitable calculation method recommended by the manufacturer. The helicopter mass should not exceed that required by JAR-OPS 3.520(a)(1) or JAR-OPS 3.535(a)(1).

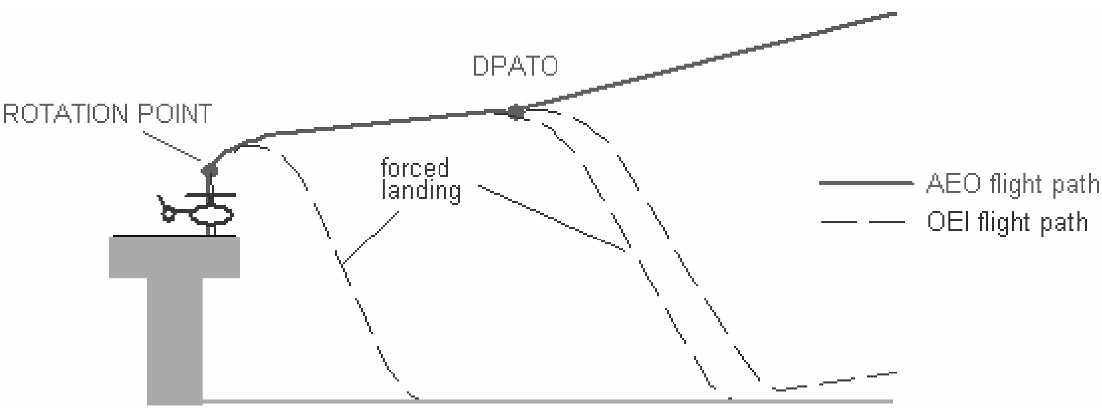
Note 1: For helicopter types no longer supported by the manufacturer, data may be established by the operator, provided they are acceptable to the Authority.

4 Take-off profile

4.1 The take-off should be performed in a dynamic manner ensuring that the helicopter continuously moves vertically from the hover to the Rotation Point (RP) and thence into forward flight. If the manoeuvre is too dynamic then there is an increased risk of losing spatial awareness (through loss of visual cues) in the event of a rejected take-off, particularly at night.

4.2 If the transition to forward flight is too slow, the helicopter is exposed to an increased risk of contacting the deck edge in the event of an engine failure at or just after the point of cyclic input (RP).

4.3 It has been found that the climb to RP is best made between 110% and 120% of the power required in the hover. This power offers a rate of climb which assists with deck-edge clearance following power unit failure at RP, whilst minimising ballooning following a failure before RP. Individual types will require selection of different values within this range.



ACJ OPS 3.520(a)(3) and 3.535(a)(3) (continued)

5 Selection of a lateral visual cue

5.1 In order to obtain the maximum performance in the event of an engine failure being recognised at or just after RP, the RP must be at its optimum value, consistent with maintaining the necessary visual cues. If an engine failure is recognised just before RP, the helicopter, if operating at a low mass, may ‘balloon’ a significant height before the reject action has any effect. It is, therefore, important that the Pilot Flying selects a lateral visual marker and maintains it until the RP is achieved, particularly on decks with few visual cues. In the event of a rejected take-off, the lateral marker will be a vital visual cue in assisting the pilot to carry out a successful landing.

6 Selection of the rotation point

6.1 The optimum RP should be selected to ensure that the take-off path will continue upwards and away from the deck with All Engines Operating (AEO), but minimising the possibility of hitting the deck edge due to the height loss in the event of an engine failure at or just after RP.

6.2 The optimum RP may vary from type to type. Lowering the RP will result in a reduced deck edge clearance in the event of an engine failure being recognised at or just after RP. Raising the RP will result in possible loss of visual cues, or a hard landing in the event of an engine failure just prior to RP.

7 Pilot reaction times

7.1 Pilot reaction time is an important factor affecting deck edge clearance in the event of an engine failure prior to or at RP. Simulation has shown that a delay of one second can result in a loss of up to 15 ft in deck edge clearance.

8 Variation of wind speed

8.1 Relative wind is an important parameter in the achieved take-off path following an engine failure; wherever practicable, take-off should be made into wind. Simulation has shown that a 10 knot wind can give an extra 5 ft deck edge clearance compared to a zero wind condition.

9 Position of the helicopter relative to the deck edge

9.1 It is important to position the helicopter as close to the deck edge (including safety nets) as possible whilst maintaining sufficient visual cues, particularly a lateral marker.

9.2 The ideal position is normally achieved when the rotor tips are positioned at the forward deck edge. This position minimises the risk of striking the deck edge following recognition of an engine failure at or just after RP. Any take-off heading which causes the helicopter to fly over obstructions below and beyond the deck edge should be avoided if possible. Therefore, the final take-off heading and position will be a compromise between the take-off path for least obstructions, relative wind, turbulence and lateral marker cue considerations.

10 Actions in the event of an engine failure at or just after RP

10.1 Once committed to the continued take-off, it is important, in the event of an engine failure, to rotate the aircraft to the optimum attitude in order to give the best chance of missing the deck edge. The optimum pitch rates and absolute pitch attitudes, should be detailed in the profile for the specific type.

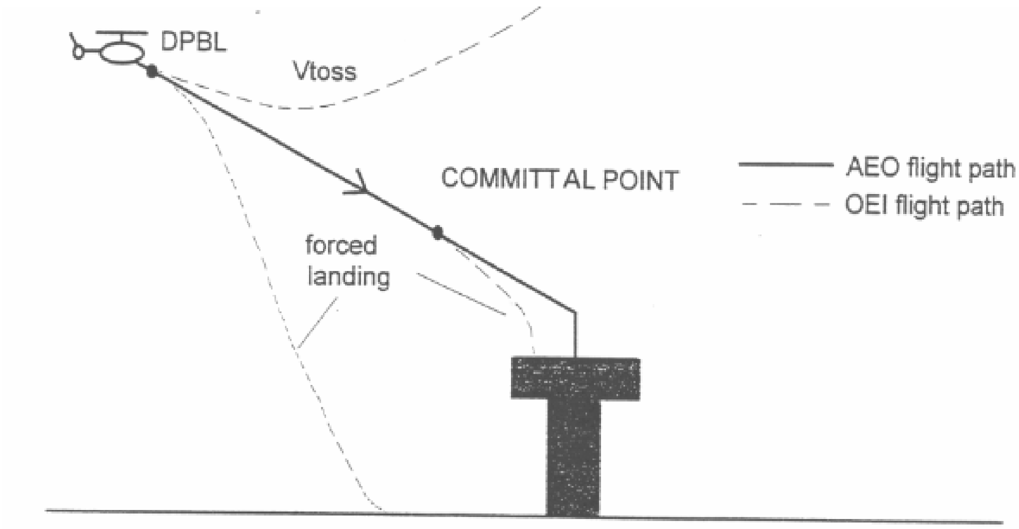
11 Take-off from helidecks which have significant movement

11.1 This technique should be used when the helideck movement and any other factors, eg insufficient visual cues, makes a successful rejected take-off unlikely. Weight should be reduced to permit an improved one engine inoperative capability, as necessary.

11.2 The optimum take-off moment is when the helideck is level and at its highest point, eg horizontal on top of the swell. Collective pitch should be applied positively and sufficiently to make an immediate transition to climbing forward flight. Because of the lack of a hover, the take-off profile should be planned and briefed prior to lift off from the deck.

12 Standard landing profile

12.1 The approach should be commenced into wind to a point outboard of the helideck. Rotor tip clearance from the helideck edge should be maintained until the aircraft approaches this position at the requisite height (type dependent) with approximately 10 kts of ground-speed and a minimal rate of descent. The aircraft is then flown on a flight path to pass over the deck edge and into a hover over the safe landing area.



13 Offset landing profile

13.1 If the normal landing profile is impracticable due to obstructions and the prevailing wind velocity, the offset procedure may be used. This should involve flying to a hover position, approximately 90° offset from the landing point, at the appropriate height and maintaining rotor tip clearance from the deck edge. The helicopter should then be flown slowly but positively sideways and down to position in a low hover over the landing point. Normally, CP will be the point at which helicopter begins to transition over the helideck edge.

14 Training

14.1 These techniques should be covered in the training required by JAR-OPS 3, Subpart N.

[Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

[ ]

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

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[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

IEM OPS 3.520 & 3.535
Take-off and landing
See JAR-OPS 3.520 and JAR-OPS 3.535

1 This IEM describes three types of operation to/from helidecks and elevated heliports by helicopters operating in Performance Class 2.

2 In two cases of take-off and landing, exposure time is used. During the exposure time (which is only approved for use when complying with JAR-OPS 3.517(a)) the probability of a power unit failure is regarded as extremely remote. If a power unit failure (engine failure) occurs during the exposure time a safe force landing may not be possible.

3 Take Off - Non-Hostile Environment (without an approval to operate with an exposure time) JAR-OPS 3.520(a)(2).

IEM OPS 3.520 & 3.535 (continued)

3.1 Figure 1 shows a typical take-off profile for Performance Class 2 operations from a helideck or an elevated heliport in a non-hostile environment.

3.2 If an engine failure occurs during the climb to the rotation point, compliance with 3.520(a)(2) will enable a safe landing or a safe forced landing on the deck.

3.3 If an engine failure occurs between the rotation point and the DPATO, compliance with 3.520(a)(2) will enable a safe forced landing on the surface, clearing the deck edge.

3.4 At or after the DPATO, the OEI flight path should clear all obstacles by the margins specified in JAR-OPS 3.525.

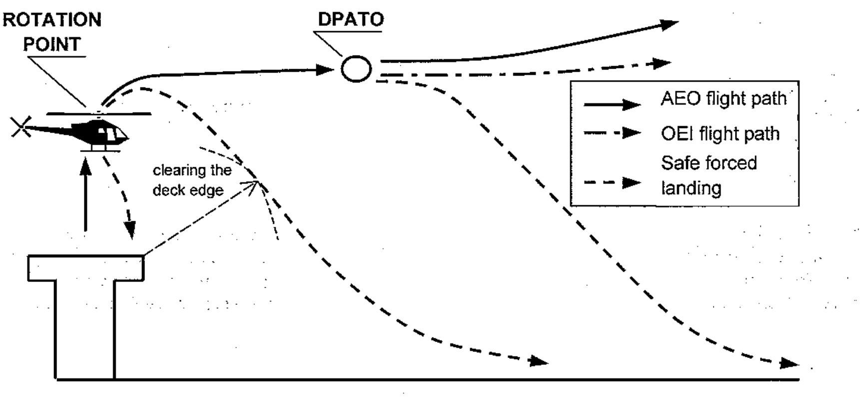

Figure 1

4 Take Off - Non-Hostile Environment (with exposure time) JAR-OPS 3.520(a)(3)

4.1 Figure 2 shows a typical take-off profile for Performance Class 2 operations from a helideck or an elevated heliport in a non-hostile environment (with exposure time).

4.2 If an engine failure occurs after the exposure time and before DPATO, compliance with 3.520(a)(3) will enable a safe force landing on the surface.

4.3 At or after the DPATO, the OEI flight path should clear all obstacles by the margins specified in JAR-OPS 3.525.

[Note: an engine failure outside of exposure time should result in a safe-forced-landing or safe continuation of the flight.]

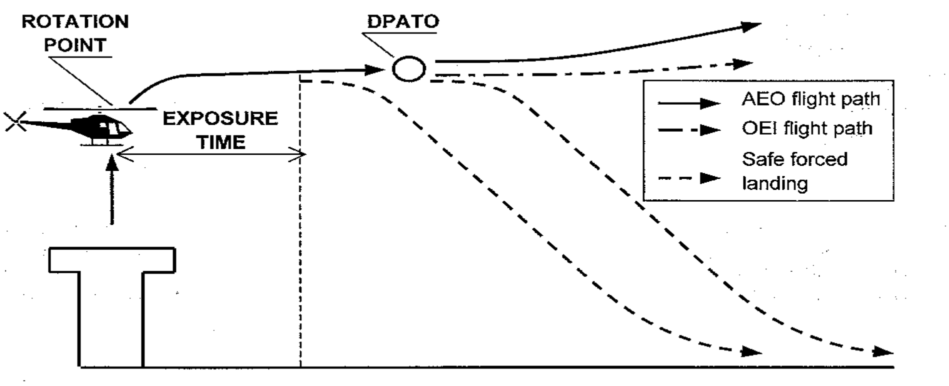

Figure 2

5 Take Off - Non-Congested Hostile Environment (with exposure time) JAR-OPS 3.520(a)(**[3]**)

5.1 Figure 3 shows a typical take off profile for Performance Class 2 operations from a helideck or an elevated heliport in a non-congested hostile environment (with exposure time).

5.2 If an engine failure occurs after the exposure time the helicopter is capable of continuing the flight.

IEM OPS 3.520 & 3.535 (continued)

5.3 At or after the DPATO, the OEI flight path should clear all obstacles by the margins specified in JAR-OPS 3.525.

[Note: an engine failure outside of exposure time should result in a safe-forced-landing or safe continuation of the flight.]

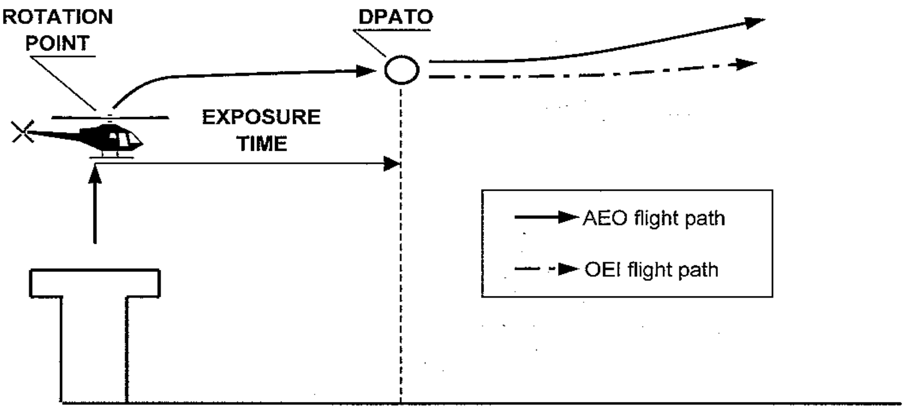

Figure 3

6. Landing - Non-Hostile Environment (without an approval to operate with an exposure time) JAR-OPS 3.535(a)(2)

6.1 Figure 4 shows a typical landing profile for Performance Class 2 operations to a helideck or an elevated heliport in a non-hostile environment.

6.2 The DPBL is defined as a “window” in terms of airspeed, rate of descent, and height above the landing surface. If an engine failure occurs before the DPBL, the pilot may elect to land or to execute a balked landing.

6.3 In the event of an engine failure being recognised after the DPBL and before the committal point, compliance with 3.535(a)(2) will enable a safe force landing on the surface.

6.4 In the event of an engine failure at or after the committed point, compliance with 3.535(a)(2) will enable a safe force landing on the deck.

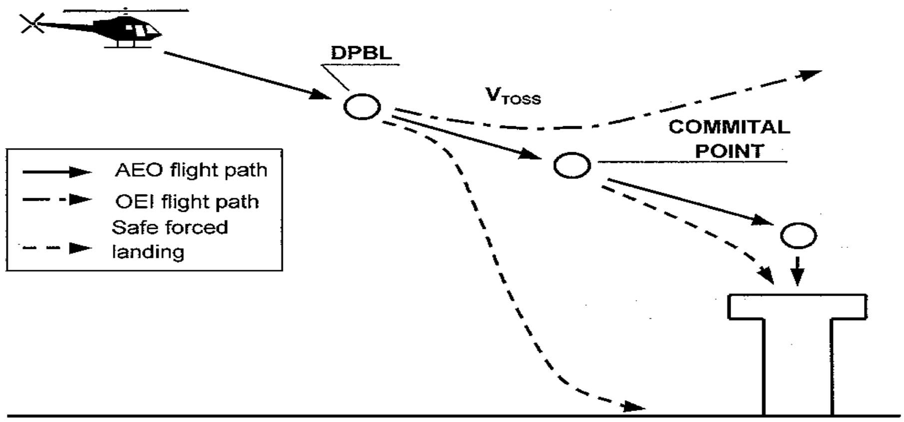

Figure 4

7 Landing - Non-Hostile Environment (with exposure time) JAR-OPS 3.535(a)(3)

7.1 Figure 5 shows a typical landing profile for Performance Class 2 operations to a helideck or an elevated heliport in a non-hostile environment (with exposure time).

7.2 The DPBL is defined as a “window” in terms of airspeed, rate of descent, and height above the landing surface. If an engine failure occurs before the DPBL, the pilot may elect to land or to execute a balked landing.

IEM OPS 3.520 & 3.535 (continued)

7.3 In the event of an engine failure being recognised before the exposure time compliance with 3.535(a)(3) will enable a safe force landing on the surface.

7.4 In the event of an engine failure after the exposure time, compliance with 3.535(a)(3) will enable a safe force landing on the deck.

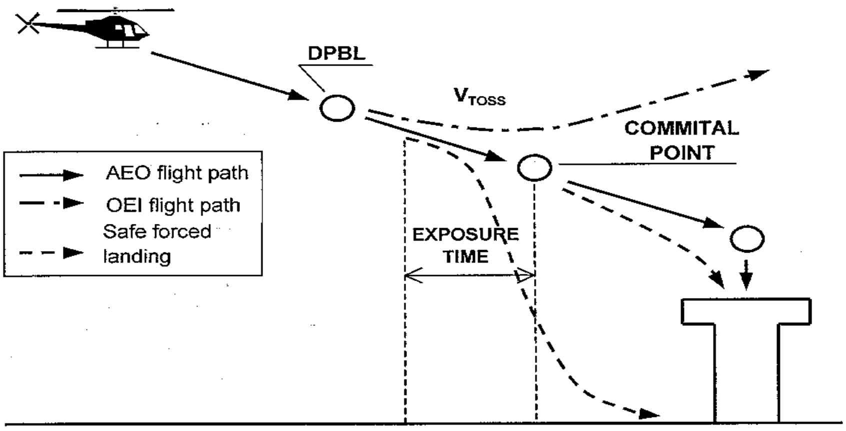

Figure 5

8. Landing - Non-Congested Hostile Environment (with exposure time) JAR-OPS 3.535(a)(**[3]**)

8.1 Figure 6 shows a typical landing profile for Performance Class 2 operations to a helideck or an elevated heliport in a non-congested hostile environment (with exposure time).

8.2 In the event of an engine failure at any point during the approach and landing phase up to the start of exposure time, compliance with JAR-OPS 3.535(a)(4) will enable the helicopter, after clearing all obstacles under the flight path, to continue the flight.

8.3 In the event of an engine failure after the exposure time, compliance with 3.535(a)(4) will enable a safe force landing on the deck.

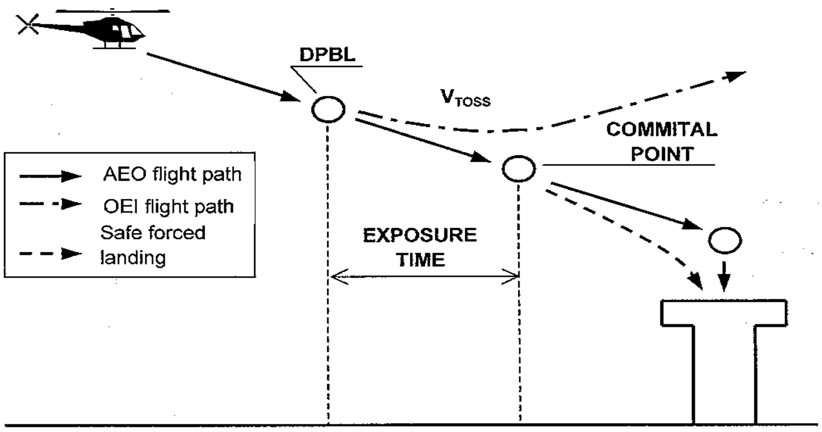

Figure 6

[Ch. 1, 01.02.99]

[ ]

[Amdt. 2, 01.01.02; Amdt. 5, 01.07.07]

[ACJ I – PERFORMANCE CLASS 3

ACJ OPS 3.540(b)
The take-off and landing phases (Performance Class 3)
See JAR-OPS 3.540(b)

1. To understand the use of ground level exposure in Performance Class 3, it is important first to be aware of the logic behind the use of 'take-off and landing phases'; once this is clear, it is easier to appreciate the aspects and limits of the use of ground level exposure. This ACJ shows the derivation of the term from the ICAO definition of the 'en-route phase' and then gives practical examples of the use, and limitations on the use, of ground level exposure in JAR-OPS 3.540(b).

2. The take-off phase in Performance Class 1 and Performance Class 2 may be considered to be bounded by 'the specified point in the take-off' from which the Take-off Flight Path begins.

2.1 In Performance Class 1 this specified point is defined as "the end of the Take-off Distance Required".

2.2 In Performance Class 2 this specified point is defined as "DPATO or, as an alternative, no later than 200 ft above the take-off surface".

2.3 There is no simple equivalent point for bounding of the landing in Performance Class 1 & 2.

3. Take-off Flight Path is not used in Performance Class 3 and, consequently, the term 'take-off and landing phases' is used to bound the limit of exposure. For the purpose of Performance Class 3, the take-off and landing phases are considered to be bounded by:

for the take-off no later than Vy or 200 ft above the take-off surface; and

for the landing 200 ft above the landing surface.

Note: in ICAO Annex 6 Part III, En-route phase is defined as being "That part of the flight from the end of the take-off and initial climb phase to the commencement of the approach and landing phase." The use of take-off and landing phase in this text is used to distinguish the take-off from the initial climb, and the landing from the approach: they are considered to be complimentary and not contradictory.

4. Ground level exposure – and exposure for elevated heliports/helidecks in a non-hostile environment – is permitted for operations under an approval in accordance with Appendix 1 to JAR-OPS 3.517(a). Exposure in this case is limited to the 'take-off and landing phases'.

What is the practical effect of this bounding of exposure? Consider a couple of examples:

A clearing: an operator may consider a take-off/landing in a clearing when there is sufficient power, with all engines operating, to clear all obstacles in the take-off path by an adequate margin (this, in ICAO, is meant to indicate 35 ft). Thus, the clearing may be bounded by bushes, fences, wires and, in the extreme, by power lines, high trees etc. Once the obstacle has been cleared – by using a steep or a vertical climb (which itself may infringe the HV diagram) - the helicopter reaches Vy or 200 ft, and from that point a safe forced landing must be possible. The effect is that whilst operation to a clearing is possible, operation to a clearing in the middle of a forest is not (except when operated in accordance with Appendix 1 to JAR-OPS 3.005(e)).

A heliport surrounded by rocks: the same applies when operating to a landing site that is surrounded by rocky ground. Once Vy or 200ft has been reached, a safe forced landing must be possible.

An elevated heliport/helideck: when operating to an elevated heliport/helideck in Performance Class 3, exposure is considered to be twofold: firstly, to a deck-edge strike if the engine fails after the decision to transition has been taken; and secondly, to operations in the HV diagram due to the height of the heliport/helideck. Once the take-off surface has been cleared and the helicopter has reached the knee of the HV diagram, the helicopter should be capable of making a safe forced landing.

5. Operation in accordance with JAR-OPS 3.540(b) does not permit excursions into a hostile environment per se and is specifically concerned with the absence of space to abort the take-off or landing when the take-off and landing space are limited; or when operating in the HV diagram.

6. Specifically, the use of this exception to the requirement for a safe forced landing (during take-off or landing) does not permit semi-continuous operations over a hostile environment such as a forest or hostile sea area. It can therefore be seen as a limited alleviation from JAR-OPS 3.540(a)(2) which states that: "operations are only conducted to/from those heliports and over such routes, areas and diversions contained in a non-hostile environment…"**]**

[Amdt. 5, 01.07.07]

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AMC/IEM J – MASS & BALANCE

[ACJ OPS 3.605
Mass values
See JAR-OPS 3.605

In accordance with ICAO Annex 5 and the International System of Units (SI), the actual and limiting masses of helicopters, the payload and its constituent elements, the fuel load etc, are expressed in JAR-OPS 3 in units of mass (kg). However, in most approved Flight Manuals and other operational documentation, these quantities are published as weights in accordance with the common language. In the SI system, a weight is a force rather than a mass. Since the use of the term 'weight' does not cause any problem in the day-to-day handling of helicopters, its continued use in operational applications and publications is acceptable.**]**

[Amdt. 3, 01.04.04]

IEM OPS 3.605(e)
Fuel density
See JAR-OPS 3.605(e)

1 If the actual fuel density is not known, the operator may use the standard fuel density values specified in the Operations Manual for determining the mass of the fuel load. Such standard values should be based on current fuel density measurements for the airports or areas concerned. Typical fuel density values are:

a. Gasoline (piston engine fuel) - 0·71

b. **[**JET A1 (**]**Jet fuel JP 1**[**)**]** - 0·79

c. **[**JET B (**]**Jet fuel JP 4**[**)**]** - 0·76

d. Oil - 0·88

[Amdt.5, 01.07.07]

IEM to Appendix 1 to JAR-OPS 3.605, sub-paragraph (a)(2)(iii)
Accuracy of weighing equipment
See Appendix 1 to JAR-OPS 3.605, sub-paragraph (a)(2)(iii)

1 The mass of the helicopter as used in establishing the dry operating mass and the centre of gravity must be established accurately. Since a certain model of weighing equipment is used for initial and periodic weighing of helicopters of widely different mass classes, one single accuracy criterion for weighing equipment cannot be given. However, the weighing accuracy is considered satisfactory if the following accuracy criteria are met by the individual scales/cells of the weighing equipment used:

a. For a scale/cell load below 2 000 kg - an accuracy of ± 1%;

b. For a scale/cell load from 2 000 kg to 20 000 kg - an accuracy of ± 20 kg; and

c. For a scale/cell load above 20 000 kg - an accuracy of ± 0·1 %.

IEM to Appendix 1 to JAR-OPS 3.605, sub-paragraph (d)
Centre of gravity limits
See Appendix 1 to JAR-OPS 3.605, sub-paragraph (d)

1 In the Certificate Limitations section of the Helicopter Flight Manual, forward and aft centre of gravity (CG) limits are specified. These limits ensure that the certification stability and control criteria are met throughout the whole flight. An operator should ensure that these limits are observed by defining operational procedures or a CG envelope which compensates for deviations and errors as listed below:

1.1 Deviations of actual CG at empty or operating mass from published values due, for example, to weighing errors, unaccounted modifications and/or equipment variations.

1.2 Deviations in fuel distribution in tanks from the applicable schedule.

1.3 Deviations in the distribution of baggage and cargo in the various compartments as compared with the assumed load distribution as well as inaccuracies in the actual mass of baggage and cargo.

IEM to Appendix 1 to JAR-OPS 3.605, sub-paragraph (d) (continued)

1.4 Deviations in actual passenger seating from the seating distribution assumed when preparing the mass and balance documentation. (See Note)

1.5 Deviations of the actual CG of cargo and passenger load within individual cargo compartments or cabin sections from the normally assumed mid position.

1.6 Deviations of the CG caused by application of the prescribed fuel usage procedure (unless already covered by the certified limits).

1.7 Deviations caused by in-flight movement of cabin crew, pantry equipment and passengers.

Note: Large CG errors may occur when 'free seating' (freedom of passengers to select any seat when entering the helicopter) is permitted. Although in most cases reasonably even longitudinal passenger seating can be expected, there is a risk of an extreme forward or aft seat selection causing very large and unacceptable CG errors (assuming that the balance calculation is done on the basis of an assumed even distribution). The largest errors may occur at a load factor of approximately 50% if all passengers are seated in either the forward or aft half of the cabin. Statistical analysis indicates that the risk of such extreme seating adversely affecting the CG is greatest on small helicopters.

AMC OPS 3.620(a
Passenger mass established by use of a verbal statement
See JAR-OPS 3.620(a)

1 When asking each passenger on helicopters with less than 6 passenger seats for his/her mass (weight), a specific constant should be added to account for clothing. This constant should be determined by the operator on the basis of studies relevant to his particular routes, etc. and should not be less than 4 kg.

2 Personnel boarding passengers on this basis should assess the passenger's stated mass and the mass of passengers' clothing to check that they are reasonable. Such personnel should have received instruction on assessing these mass values.

IEM OPS 3.620(h)
Statistical evaluation of passenger and baggage mass data
See JAR-OPS 3.620(h)

1 Sample size (see also Appendix 1 to JAR-OPS 3.620(h)).

1.1 For calculating the required sample size it is necessary to make an estimate of the standard deviation on the basis of standard deviations calculated for similar populations or for preliminary surveys. The precision of a sample estimate is calculated for 95% reliability or 'significance', i.e. there is a 95% probability that the true value falls within the specified confidence interval around the estimated value. This standard deviation value is also used for calculating the standard passenger mass.

1.2 As a consequence, for the parameters of mass distribution, i.e. mean and standard deviation, three cases have to be distinguished:

a. μ, σ = the true values of the average passenger mass and standard deviation, which are unknown and which are to be estimated by weighing passenger samples.

b. μ', σ' = the 'a priori' estimates of the average passenger mass and the standard deviation, i.e. values resulting from an earlier survey, which are needed to determine the current sample size.

c. , s = the estimates for the current true values of m and s, calculated from the sample.

The sample size can then be calculated using the following formula:

where:

$$n \geq \frac{(1 \cdot 96 * \sigma' * 100)^2}{(e'_r * \mu')^2}$$

n = number of passengers to be weighed (sample size)

e'_r = allowed relative confidence range (accuracy) for the estimate of μ by (see also equation in paragraph 3).

IEM OPS 3.620(h) (continued)

NOTE: The allowed relative confidence range specifies the accuracy to be achieved when estimating the true mean. For example, if it is proposed to estimate the true mean to within ± 1%, then e'_r will be 1 in the above formula.

1·96 = value from the Gaussian distribution for 95% significance level of the resulting confidence interval.

2 Calculation of average mass and standard deviation. If the sample of passengers weighed is drawn at random, then the arithmetic mean of the sample () is an unbiased estimate of the true average mass (μ) of the population.

2.1 Arithmetic mean of sample

$$\bar{x} = \frac{\sum_{j=1}^{n} x_j}{n}$$

where:

x_j = mass values of individual passengers (sampling units).

2.2 Standard deviation

$$s = \sqrt{\frac{\sum_{j=1}^{n} (x_j - \bar{x})^2}{n-1}}$$

where:

x_j – = deviation of the individual value from the sample mean.

3 Checking the accuracy of the sample mean. The accuracy (confidence range) which can be ascribed to the sample mean as an indicator of the true mean is a function of the standard deviation of the sample which has to be checked after the sample has been evaluated. This is done using the formula:

$$e_r = \frac{1 \cdot 96 * s * 100}{\sqrt{n} * \bar{x}} (\%)$$

whereby e_r should not exceed 1% for an all adult average mass and not exceed 2% for an average male and/or female mass. The result of this calculation gives the relative accuracy of the estimate of μ at the 95% significance level. This means that with 95% probability, the true average mass μ lies within the interval:

$$\bar{x} \pm \frac{1 \cdot 96 * s}{\sqrt{n}}$$

4 Example of determination of the required sample size and average passenger mass

4.1 Introduction. Standard passenger mass values for mass and balance purposes require passenger weighing programs be carried out. The following example shows the various steps required for establishing the sample size and evaluating the sample data. It is provided primarily for those who are not well-versed in statistical computations. All mass figures used throughout the example are entirely fictitious.

4.2 Determination of required sample size. For calculating the required sample size, estimates of the standard (average) passenger mass and the standard deviation are needed. The ‘a priori’ estimates from an earlier survey may be used for this purpose. If such estimates are not available, a small representative sample of about 100 passengers has to be weighed so that the required values can be calculated. The latter has been assumed for the example.

IEM OPS 3.620(h) (continued)

Step 1: estimated average passenger mass

n	x_j (kg)
1	79·9
2	68·1
3	77·9
4	74·5
5	54·1
6	62·2
7	89·3
8	108·7
.	.
85	63·2
86	75·4
$\sum_{j=1}^{86}$	6 071·6

$$\mu' = \bar{x} = \frac{\sum x_j}{n} = \frac{6071 \cdot 6}{86}$$

$$= 70{\cdot}6 \text{ kg}$$

Step 2: estimated standard deviation

n	x_j	$(x_j - x)$	$(xj - x)^2$
1	79·9	+9·3	86·49
2	68·1	–2·5	6·25
3	77·9	+7·3	53·29
4	74·5	+3·9	15·21
5	54·1	–16·5	272·25
6	62·2	–8·4	70·56
7	89·3	+18·7	349·69
8	108·7	+38·1	1451·61
.	.	.	.
85	63·2	–7·4	54·76
86	75·4	–4·8	23·04
$\sum_{j=1}^{86}$	6 071·6		34 683·40

$$\sigma' = \sqrt{\frac{\sum (x_j - \bar{x})^2}{n-1}}$$

$$\sigma' = \sqrt{\frac{34\,683 \cdot 40}{86-1}}$$

$$\sigma' = 20{\cdot}20 \text{ kg}$$

Step 3: required sample size.

The required number of passengers to be weighed should be such that the confidence range, e'_r, does not exceed 1% as specified in paragraph 3.

$$n \geq \frac{(1 \cdot 96 * \sigma' * 100)^2}{(e'_r * \mu')^2}$$

$$n \geq \frac{(1 \cdot 96 * 20 \cdot 20 * 100)^2}{(1 * 70 \cdot 6)^2}$$

$$n \geq 3\,145$$

The result shows that at least 3 145 passengers have to be weighed to achieve the required accuracy. If e'_r is chosen as 2% the result would be $n \geq 786$.

Step 4: after having established the required sample size a plan for weighing the passengers is to be worked out, as specified in Appendix 1 to JAR-OPS 3.620(h).

4.3 Determination of the passenger average mass

Step 1: Having collected the required number of passenger mass values, the average passenger mass can be calculated. For the purpose of this example it has been assumed that 3 180 passengers were weighed. The sum of the individual masses amounts to 231 186·2 kg.

IEM OPS 3.620(h) (continued)

$$n = 3\,180$$

$$\sum_{j=1}^{3180} X_j = 231186 \cdot 2 \quad \text{kg}$$

$$\bar{x} = \frac{\sum x_j}{n} = \frac{231186 \cdot 2}{3180} \quad \text{kg}$$

$$\bar{x} = 72 \cdot 7 \quad \text{kg}$$

Step 2: calculation of the standard deviation.

For calculating the standard deviation the method shown in paragraph 4.2 step 2 should be applied.

$$\sum (x_j - \bar{x})^2 = 745\,145 \cdot 20$$

$$s = \sqrt{\frac{\sum (x_j - \bar{x})^2}{n - 1}}$$

$$s = \sqrt{\frac{745\,145 \cdot 20}{3180 - 1}}$$

$$s = 15{\cdot}31 \text{ kg}$$

Step 3: calculation of the accuracy of the sample mean.

$$e_r = \frac{1{\cdot}96 * s * 100}{\sqrt{n} * \bar{x}} \%$$

$$e_r = \frac{1{\cdot}96 * 15 \cdot 31 * 100}{\sqrt{3180} * 72 \cdot 7} \%$$

$$e_r = 0{\cdot}73\%$$

Step 4: calculation of the confidence range of the sample mean.

$$\bar{x} \pm \frac{1{\cdot}96 * s}{\sqrt{n}}$$

$$\bar{x} \pm \frac{1{\cdot}96 * 15 \cdot 31}{\sqrt{3180}} \quad \text{kg}$$

72·7 ± 0·5 kg

The result of this calculation shows that there is a 95% probability of the actual mean for all passengers lying within the range 72·2 kg to 73·2 kg.

AMC to Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (c)(4)
Guidance on passenger weighing surveys
See Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (c)(4)

1 Operators seeking approval to use standard passenger masses differing from those prescribed in JAR-OPS 3.620, Tables 1 and 2, on similar routes or networks may pool their weighing surveys provided that:

a. The Authority has given prior approval for a joint survey;

AMC to Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (c)(4) (continued)

b. The survey procedures and the subsequent statistical analysis meet the criteria of Appendix 1 to JAR-OPS 3.620(h); and

c. In addition to the joint weighing survey results, results from individual operators participating in the joint survey should be separately indicated in order to validate the joint survey results.

IEM to Appendix 1 to JAR-OPS 3.620(h)
Guidance on passenger weighing surveys
See Appendix 1 to JAR-OPS 3.620(h)

1 This IEM summarises several elements of passenger weighing surveys and provides explanatory and interpretative information.

2 Information to the Authority. An operator should advise the Authority about the intent of the passenger weighing survey, explain the survey plan in general terms and obtain prior approval to proceed (JAR-OPS 3.620(h) refers).

3 Detailed survey plan

3.1 An operator should establish and submit for approval to the Authority a detailed weighing survey plan that is fully representative of the operation, i.e. the network or route under consideration and the survey should involve the weighing of an adequate number of passengers (JAR-OPS 3.620(h)).

3.2 A representative survey plan means a weighing plan specified in terms of weighing locations, dates and flight numbers giving a reasonable reflection of the operator's timetable and/or area of operation (See Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (a)(1)).

3.3 The minimum number of passengers to be weighed is the highest of the following (See Appendix 1 to JAR-OPS 3.620(h) sub-paragraph (a)):

a. The number that follows from the general requirement that the sample should be representative of the total operation to which the results will be applied; this will often prove to be the overriding requirement; or

b. The number that follows from the statistical requirement specifying the accuracy of the resulting mean values which should be at least 2% for male and female standard masses and 1% for all adult standard masses, where applicable. The required sample size can be estimated on the basis of a pilot sample (at least 100 passengers) or from a previous surveys. If analysis of the results of the survey indicates that the requirements on the accuracy of the mean values for male or female standard masses or all adult standard masses, as applicable, are not met, an additional number of representative passengers should be weighed in order to satisfy the statistical requirements.

3.4 To avoid unrealistically small samples a minimum sample size of 2 000 passengers (males + females) is also required, except for small helicopters where in view of the burden of the large number of flights to be weighed to cover 2 000 passengers, a lesser number is considered acceptable.

4 Execution of weighing programme

4.1 At the beginning of the weighing programme it is important to note, and to account for, the data requirements of the weighing survey report (See paragraph 7 below).

4.2 As far as is practicable, the weighing programme should be conducted in accordance with the specified survey plan.

4.3 Passengers and all their personal belongings should be weighed as close as possible to the boarding point and the mass, as well as the associated passenger category (male/female/child), should be recorded.

5 Analysis of results of weighing survey

5.1 The data of the weighing survey should be analysed as explained in IEM OPS 3.620(h). To obtain an insight to variations per flight, per route etc. this analysis should be carried out in several stages, i.e. by flight, by route, by area, inbound/outbound, etc. Significant deviations from the weighing survey plan should be explained as well as their possible effect(s) on the results.

IEM to Appendix 1 to JAR-OPS 3.620(h) (continued)

6 Results of the weighing survey

6.1 The results of the weighing survey should be summarised. Conclusions and any proposed deviations from published standard mass values should be justified. The results of a passenger weighing survey are average masses for passengers, including hand baggage, which may lead to proposals to adjust the standard mass values given in JAR-OPS 3.620 Tables 1, 2 and 3. As stated in Appendix 1 to JAR-OPS 3.620(h), sub-paragraph (c), these averages, rounded to the nearest whole number may, in principle, be applied as standard mass values for males and females on helicopters with 20 and more passenger seats. Because of variations in actual passenger masses, the total passenger load also varies and statistical analysis indicates that the risk of a significant overload becomes unacceptable for helicopters with less that 20 seats. This is the reason for passenger mass increments on small helicopters.

6.2 The average masses of males and females differ by some 15 kg or more and because of uncertainties in the male/female ratio the variation of the total passenger load is greater if all adult standard masses are used than when using separate male and female standard masses. Statistical analysis indicates that the use of all adult standard mass values should be limited to helicopters with 30 passenger seats or more.

6.3 As indicated in Appendix 1 to JAR-OPS 3.620(h), standard mass values for all adults must be based on the averages for males and females found in the sample, taking into account a reference male/female ratio of 80/20 for all flights. An operator may, based on the data from his weighing programme, or by proving a different male/female ratio, apply for approval of a different ratio on specific routes or flights.

7 Weighing survey report

7.1 The weighing survey report, reflecting the content of paragraphs 1–6 above, should be prepared in a standard format as follows:

WEIGHING SURVEY REPORT

1 Introduction

– Objective and brief description of the weighing survey

2 Weighing survey plan

– Discussion of the selected flight number, heliports, dates, etc.

– Determination of the minimum number of passengers to be weighed.

– Survey plan.

3 Analysis and discussion of weighing survey results

– Significant deviations from survey plan (if any).

– Variations in means and standard deviations in the network.

– Discussion of the (summary of) results.

4 Summary of results and conclusions

– Main results and conclusions.

– Proposed deviations from published standard mass values.

Attachment 1

Applicable summer and/or winter timetables or flight programmes.

Attachment 2

Weighing results per flight (showing individual passenger masses and sex); means and standard deviations per flight, per route, per area and for the total network.

IEM OPS 3.620(i) & (j)
Adjustment of standard masses
See JAR-OPS 3.620(i) & (j)

1. When standard mass values are used, JAR-OPS 3.620(i) and 3.620(j) require the operator to identify and adjust the passenger and checked baggage masses in cases where significant numbers of passengers or quantities of baggage are suspected of exceeding the standard values. This requirement implies that the Operations Manual should contain appropriate directives to ensure that:

a. Check-in, operations and cabin staff and loading personnel report or take appropriate action when a flight is identified as carrying a significant number of passengers whose masses, including hand baggage, are expected to exceed the standard passenger mass, and/or groups of passengers carrying exceptionally heavy baggage (e.g. military personnel or sports teams); and

b. On small helicopters, where the risks of overload and/or CG errors are the greatest, commanders pay special attention to the load and its distribution and make proper adjustments.

IEM to Appendix 1 to JAR-OPS 3.625
Mass and balance documentation
See Appendix 1 to JAR-OPS 3.625

The CG position need not be mentioned on the mass and balance documentation if, for example, the load distribution is in accordance with a pre-calculated balance table or if it can be shown that for the planned operations a correct balance can be ensured, whatever the real load is.

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AMC/IEM K – INSTRUMENTS AND EQUIPMENT

IEM OPS 3.630
Instruments and Equipment - Approval and Installation
See JAR-OPS 3.630

1 For Instruments and Equipment required by JAR-OPS 3 Subpart K, "Approved" means that compliance with the applicable JTSO design requirements and performance specifications, or equivalent, in force at the time of the equipment approval application, has been demonstrated. Where a JTSO does not exist, the applicable airworthiness standards apply unless otherwise prescribed in JAR-OPS 3 or JAR-26.

2 "Installed" means that the installation of Instruments and Equipment has been demonstrated to comply with the applicable airworthiness requirements of JAR-27/JAR-29, or the relevant code used for Type Certification, and any applicable requirement prescribed in JAR-OPS 3.

3 Instruments and Equipment approved in accordance with design requirements and performance specifications other than JTSOs, before the applicability dates prescribed in JAR-OPS 3.001(b), are acceptable for use or installation on helicopters operated for the purpose of commercial air transportation provided that any additional JAR-OPS requirement is complied with.

4 When a new version of a JTSO (or of a specification other than a JTSO) is issued, Instruments and Equipment approved in accordance with earlier requirements may be used or installed on helicopters operated for the purpose of commercial air transportation provided that such Instruments and Equipment are operational, unless removal from service or withdrawal is required by means of an amendment to JAR-OPS 3 or JAR-26.

[Ch. 1, 01.02.99]

IEM OPS 3.647
Equipment for operations requiring a radio communication and/or radio navigation system
See JAR-OPS 3.647

A headset, as required by JAR-OPS 3.647, consists of a communication device which includes two earphones to receive and a microphone to transmit audio signals to the helicopter's communication system. To comply with the minimum performance requirements, the earphones and microphone should match with the communication system's characteristics and the flight deck environment. The headset should be adequately adjustable to fit the pilot's head. Headset boom microphones should be of the noise cancelling type.

[Ch. 1, 01.02.99]

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[ACJ OPS 3.650/3.652
Flight and Navigational Instruments and Associated Equipment
See JAR-OPS 3.650/3.652

	FLIGHTS UNDER VFR		FLIGHTS UNDER IFR OR AT NIGHT	
INSTRUMENT	SINGLE PILOT	TWO PILOTS REQUIRED	SINGLE PILOT	TWO PILOTS REQUIRED
(a)	(b)	(c)	(d)	(e)
1 Magnetic Direction Indicator	1	1	1	1
2 Accurate Time Piece	1	1	1	1
3 OAT Indicator	1	1	1	1
4 Sensitive Pressure Altimeter	1	2	2 (Note 1)	2
5 Air Speed Indicator	1	2	1	2
6 Heated Pitot System	1 (Note 2)	2 (Note 2)	1	2
7 Pitot Heat Failure Annuciator	-	-	1 (Note 3)	2 (Note 3)
8 Vertical Speed Indicator	1	2	1	2
9 Slip Indicator	1	2	1	2
10 Attitude Indicator	1 (Note 4 or Note 5)	2 (Note 4 or Note 5)	1 (Note 8)	2 (Note 8)
11 Gyroscopic Direction Indicator	1 (Note 4 or Note 5)	2 (Note 4 or Note 5)	1 (Note 8)	2 (Note 8)
12 Magnetic Gyroscopic Direction Indicator	-	-	1 (Note 7)	2 (Note 7)
13 Standby Attitude Indicator	-	-	1 (Note 6)1	1 (Note 6)
14 Alternate Source of Static Pressure	-	-	1	1
15 Chart Holder	-	-	1 (Note 7)	1 (Note 7)

NOTE 1: For single pilot night vfr operation one sensitive pressure altimeter may be substituted by a radio altimeter (JAR-OPS 3.652(c)).

NOTE 2: Required for helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg or having a maximum approved passenger seating configuration (MAPSC) of more than 9 (JAR-OPS 3.650(l)).

NOTE 3: The pitot heater failure annunciation applies to any helicopter issued with an individual Certificate of Airworthiness after 1 August 1999. It also applies before that date when: the helicopter has a MCTOM greater than 3 175 kg and a maximum approved passenger seating configuration (MAPSC) greater than 9 (JAR-OPS 3.652(d)).

NOTE 4: Required for helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg (JAR OPS 3.650(i)).

NOTE 5: Required for any helicopters when operating over water; when out of sight of land or when the visibility is less than 1500 m (JAR-OPS 3.650(i)).

NOTE 6: For helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg, CS-29 1303(g) may require either a gyroscopic rate-of-turn indicator combined with a slip-skid indicator (turn and bank indicator) or a standby attitude indicator satisfying the requirements of JAR-OPS 3.652(h). (However, the original type certification standard should be referred to determine the exact requirement.)

NOTE 7: For IFR operation only

NOTE 8: For VFR night operations only.**]**

[Amdt. 5, 01.07.07]

AMC OPS 3.650/3.652
Flight and Navigational Instruments and Associated Equipment
See JAR-OPS 3.650/3.652

1 Individual requirements of these paragraphs may be met by combinations of instruments or by integrated flight systems or by a combination of parameters on electronic displays provided that the information so available to each required pilot is not less than that provided by the instruments and associated equipment as specified in this Subpart.

2 The equipment requirements of these paragraphs may be met by alternative means of compliance when equivalent safety of the installation has been shown during type certification approval of the helicopter for the intended kind of operation.

AMC OPS 3.650(g) & 3.652(k)
Flight and Navigational Instruments and Associated Equipment
See JAR-OPS 3.650(g) & 3.652(k)

A means to indicate outside air temperature may be an air temperature indicator which provides indications that are convertible to outside air temperature.

AMC OPS 3.652(d) & (m)(2)
Flight and Navigational Instruments and Associated Equipment
See JAR-OPS 3.652(d) & (m)(2)

A combined pitot heater warning indicator is acceptable provided that a means exists to identify the failed heater in systems with two or more sensors.

AMC OPS 3.655
Procedures for single pilot operation under IFR without an autopilot.
See JAR-OPS 3.655

1 Operators approved to conduct single pilot IFR operations in a helicopter without altitude hold and heading mode, should establish procedures to provide equivalent safety levels. These procedures should include the following:

a. Appropriate training and checking additional to that contained in Appendix 1 to JAR-OPS 3.940(c).

b. Appropriate increments to the heliport operating minima contained in Appendix 1 to JAR-OPS 3.430.

2 Any sector of the flight which is to be conducted in IMC should not be planned to exceed 45 minutes.

[Amdt. 2, 01.01.02]

AMC OPS 3.690(b)(6)
Crew member interphone system
See JAR-OPS 3.690(b)(6)

1 The means of determining whether or not an interphone call is a normal or an emergency call may be one or a combination of the following:

i. Lights of different colours;

ii. Codes defined by the operator (e.g. Different number of rings for normal and emergency calls);

iii. Any other indicating signal acceptable to the Authority.

[ACJ] OPS 3.700
Cockpit Voice Recorders - 1
See JAR-OPS 3.700

[Account should be taken of t**]**he operational performance requirements **[**of**]** EUROCAE Document ED56A (Minimum Operational Performance Requirements For Cockpit Voice Recorder Systems) dated December 1993.**]**

[Amdt. 3, 01.04.04]

[ACJ OPS 3.700(e)
Combination Recorder
See JAR-OPS 3.700, 3.705, 3.715, 3.720

1. Compliance with Cockpit Voice Recorder and Flight Data Recorder requirements may be achieved by the carriage of a combination recorder.

2. A combination recorder is a flight recorder that records:

a. all voice communications and aural environment required by the relevant cockpit voice recorder paragraph; and

b. all parameters required by the relevant flight data recorder paragraph, with the same specifications required by those paragraphs.**]**

[Amdt. 3, 01.04.04]

ACJ OPS 3.705
Cockpit Voice Recorders - 2
See JAR-OPS 3.705

Account should be taken of the operational performance requirements of EUROCAE Documents ED56 or ED56A (Minimum Operational Performance Requirements For Cockpit Voice Recorder Systems) dated February 1988 and December 1993 respectively.

[ACJ] OPS 3.715/3.720
Flight Data Recorders - 1 and 2
See JAR-OPS 3.715/3.720

[1. Account should be taken of t**]**he operational performance requirements **[**of**]** EUROCAE Document ED55 (Minimum Operational Performance Specification For Flight Data Recorder Systems) dated May 1990. **[**Table A refers to EUROCAE document ED-55 Table A1-4, Table B refers to ED-55 Table A1-2 and Table C refers to ED-55 Table A1-5 parameters 6 to 15.**]**

[2.**]** The parameters **[**to be recorded should meet, as far as practicable, the performance specifications (designated ragnes, sampling intervals, accuracy limits and minimum resolution in read-out)**]** defined in **[**the relevant tables of**]** EUROCAE Minimum Operational Performance Specification for Flight Data Recorder Systems, Document ED 55 dated May 1990. **[**The remarks columns of those tables are acceptable means of compliance to the parameter specifications.**]**

[3.**]** For helicopters with novel or unique design or operational characteristics, additional parameters **[**will need to be recorded as agreed by the certification authority during type or supplemental type certification.**]**

[4. If recording capacity is available, as many of the additional parameters specified in Table A1.5 of Document ED-55 dated May 1990 as possible should be recorded.

5. For the purpose of JAR-OPS 3.715(c)(2)(i) and 3.720(c)(2)(i) a sensor is considered “readily available” when it is already available or can be easily incorporated.**]**

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

AMC OPS 3.715(c)(3)
Flight Data Recorders - 1 (Parameters to be recorded)
See JAR-OPS 3.715(c)

1 The parameters to meet JAR-OPS 3.715(c)(3) are defined in EUROCAE Minimum Operational Performance Specification for Flight Data Recorder Systems, Document ED 55 dated May 1990. The relevant sections are contained in the following Tables:

a. For helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg up to and including 7 000 kg, Table A1.4, parameters 1 to 15 of Document ED 55 are applicable;

b. For helicopters with a maximum certificated take-off mass (MCTOM) over 7 000 kg Table A1.2, parameters 1 to 30, of Document ED 55 are applicable;

c. For helicopters with electronic display systems the additional parameters to be recorded are included in Table A1.5, parameters 6 to 15, of Document ED 55;

d. For helicopters with novel or unique design or operational characteristics, additional parameters will need to be recorded as agreed by the certification authority. These may include those listed in Table A1.5 of Document ED 55.

NOTE: The term 'where practicable' used in the remarks column of Table A 1.5 means that account should be taken of the following:

i. If the sensor is already available or can be easily incorporated;

ii. Sufficient capacity is available in the flight recorder system;

iii. For navigational data (nav frequency selection, DME distance, latitude, longitude, groundspeed and drift) the signals are available in digital form;

iv. The extent of modification required;

v. The down-time period, and

vi. Equipment software development.

[Amdt. 2, 01.01.02]

IEM OPS 3.715(h)/3.720(h)
Flight Data Recorders – 1 and 2 (Inoperative Recorders)
See JAR-OPS 3.715(h)/3.720(h)

1 In respect of the despatch criteria of JAR-OPS 3.715(h)/3.720(h), the flight data recorder is considered to be inoperative when any of the following conditions exist:

a. Loss of the flight recording function is evident to the flight crew during the pre-flight check e.g. by means of system status monitors provided in accordance with EUROCAE document ED 55 dated May 1990 paragraph 2.6.1; or

b. The need for maintenance has been identified by the system monitors with the setting of an indicator and the cause of that setting has not been determined; or

c. Analyses of recorded data or maintenance actions have shown that more than 5% of the total number of individual parameters (variable and discrete), required to be recorded for the particular aircraft, are not being recorded properly.

NOTE: Where improper recording affects 5% of the parameters or less, timely corrective action should be taken by the operator in accordance with approved maintenance procedures e.g. as required by EUROCAE document ED 55 dated May 1990 paragraphs 2.16.2 and A4.1.1.

AMC OPS 3.720(c)(3)
Flight Data Recorders - 2 (Parameters to be recorded)
See JAR-OPS 3.720(c)(3)

1. Compliance with JAR OPS 3.720(c)(3) may be shown by recording, so far as is practicable, the relevant parameters as defined in EUROCAE Minimum Operational Performance Specification for Flight

AMC OPS 3.720(c)(3) (continued)

Data Recorder Systems, Document ED 55 dated May 1990. The relevant sections are contained in the following tables:

a. For helicopters with a maximum certificated take-off mass (MCTOM) over 3 175 kg up to and including 7 000 kg, Table A1.4, parameters 1 to 15 of Document ED 55 are applicable;

b. For helicopters with a maximum certificated take-off mass (MCTOM) over 7 000 kg Table A1.2, parameters 1 to 30, of Document ED 55 are applicable;

c. For helicopters with electronic display systems the additional parameters to be recorded are included in Table A1.5, parameters 6 to 15, of Document ED 55;

d. For helicopters with novel or unique design or operational characteristics, additional parameters will need to be recorded as agreed by the certification authority. These may include those listed in Table A1.5 of Document ED 55.

NOTE: The term 'where practicable' used in the remarks column of Table A 1.5 and the term 'so far as is practicable' used in paragraph 1 above means that account should be taken of the following:

i. If the sensor is already available or can be easily incorporated;

ii. Sufficient capacity is available in the flight recorder system;

iii. For navigational data (nav frequency selection, DME distance, latitude, longitude, groundspeed and drift) the signals are available in digital form;

iv. The extent of modification required;

v. The down-time period, and

vi. Equipment software development.

[Amdt. 2, 01.01.02]

AMC OPS 3.745
First-Aid Kits
See JAR-OPS 3.745

The following should be included in the First-Aid Kits:

Bandages (unspecified)

Burns dressings (unspecified)

Wound dressings, large and small

Safety pins and scissors

Small adhesive dressings

Antiseptic wound cleaner

Adhesive wound closures

Adhesive tape

Disposable resuscitation aid

Simple analgesic e.g. paracetamol

Antiemetic e.g. cinnarizine

Nasal decongestant

First-Aid handbook

Splints, suitable for upper and lower limbs

Gastrointestinal Antacid +

Anti-diarrhoeal medication e.g. Loperamide +

Ground/Air visual signal code for use by survivors.

AMC OPS 3.745 (continued)

Disposable Gloves

A list of contents in at least 2 languages (English and one other). This should include information on the effects and side effects of drugs carried.

Note: An eye irrigator whilst not required to be carried in the first-aid kit should, where possible, be available for use on the ground.

\+ For helicopters with more than 9 passenger seats installed.

AMC OPS 3.790
Hand Fire Extinguishers
See JAR-OPS 3.790

1 The number and location of hand fire extinguishers should be such as to provide adequate availability for use, account being taken of the number and size of the passenger compartments, the need to minimize the hazard of toxic gas concentrations and the location of toilets, galleys etc. These considerations may result in the number being greater than the minimum prescribed.

2 There should be at least one fire extinguisher suitable for both flammable fluid and electrical equipment fires installed on the flight deck. Additional extinguishers may be required for the protection of other compartments accessible to the crew in flight. Dry chemical fire extinguishers should not be used on the flight deck, or in any compartment not separated by a partition from the flight deck, because of the adverse effect on vision during discharge and, if non-conductive, interference with electrical contacts by the chemical residues.

3 Where only one hand fire extinguisher is required in the passenger compartments it should be located near the cabin crew member's station, where provided.

4 Where two or more hand fire extinguishers are required in the passenger compartments and their location is not otherwise dictated by consideration of paragraph 1 above, an extinguisher should be located near each end of the cabin with the remainder distributed throughout the cabin as evenly as is practicable.

5 Unless an extinguisher is clearly visible, its location should be indicated by a placard or sign. Appropriate symbols may be used to supplement such a placard or sign.

AMC OPS 3.810
Megaphones
See JAR-OPS 3.810

Where one megaphone is required, it should be readily accessible from a cabin crew member's assigned seat. Where two or more megaphones are required, they should be suitably distributed in the passenger cabin(s) and readily accessible to crew members assigned to direct emergency evacuations. This does not necessarily require megaphones to be positioned such that they can be reached by a crew member when strapped in a cabin crew member's seat.

IEM OPS 3.820
Automatic Emergency Locator Transmitter
See JAR-OPS 3.820

1 Types of automatic Emergency Locator Transmitters are defined as follows:

a. Automatic Fixed (ELT (AF)). This type of ELT is intended to be permanently attached to the helicopter before and after a crash and is designed to aid SAR teams in locating a crash site;

b. Automatic Portable (ELT (AP)). This type of ELT is intended to be rigidly attached to the helicopter before a crash, but readily removable from the helicopter after a crash. It functions as an ELT during the crash sequence. If the ELT does not employ an integral antenna, the aircraft-mounted antenna may be disconnected and an auxiliary antenna (stored on the ELT case) attached to the ELT. The ELT can be tethered to a survivor or a life-raft. This type of ELT is intended to aid SAR teams in locating the crash site or survivor(s);

IEM OPS 3.820 (continued)

c. Automatic Deployable (ELT (AD)). This type of ELT is intended to be rigidly attached to the helicopter before the crash and automatically ejected and deployed after the crash sensor has determined that a crash has occurred. This type of ELT should float in water and is intended to aid SAR teams in locating the crash site.

2 To minimize the possibility of damage in the event of crash impact, the Automatic Emergency Locator Transmitter should be rigidly fixed to the helicopter structure as far aft as practicable with its antenna and connections so arranged as to maximize the probability of the signal being radiated after a crash.

IEM OPS 3.825
Life Jackets
See JAR-OPS 3.825

For the purpose of JAR-OPS 3.825, seat cushions are not considered to be flotation devices.

[ACJ] OPS 3.827
Crew Survival Suits – [Estimating] Survival Time
See JAR-OPS 3.827

1 Introduction

1.1 A person accidentally immersed in cold seas (typically offshore Northern Europe) will have a better chance of survival if he is wearing an effective survival suit in addition to a life-jacket. By wearing the survival suit, he can slow down the rate which his body temperature falls and protect himself form the greater risk of drowning brought about by incapacitation due to hypothermia.

1.2 The complete survival suit system – suit, life-jacket and clothes worn under the suit – should be able to keep the wearer alive long enough for the rescue services to find and recover him. In practice the limit is about 3 hours. If a group of persons in the water cannot be rescued within this time they are likely to have become so scattered and separated that location will be extremely difficult, especially in the rough water typical of Northern European sea areas. If it is expected that in water protection is required for periods greater than 3 hours, improvements should be sought in the search and rescue procedures rather than in the immersion suit protection.

[ ]

[2**]** Survival times

[2**]**.1 The aim must be to ensure that a man in the water can survive long enough to be rescued, i.e. his survival time must be greater than the likely rescue time. The factors affecting both times are shown in Figure 1. The figure emphasises that survival time is influenced by many factors, physical and human. Some of the factors are relevant to survival in cold water, some are relevant in water at any temperature.

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ACJ OPS 3.827 (continued)

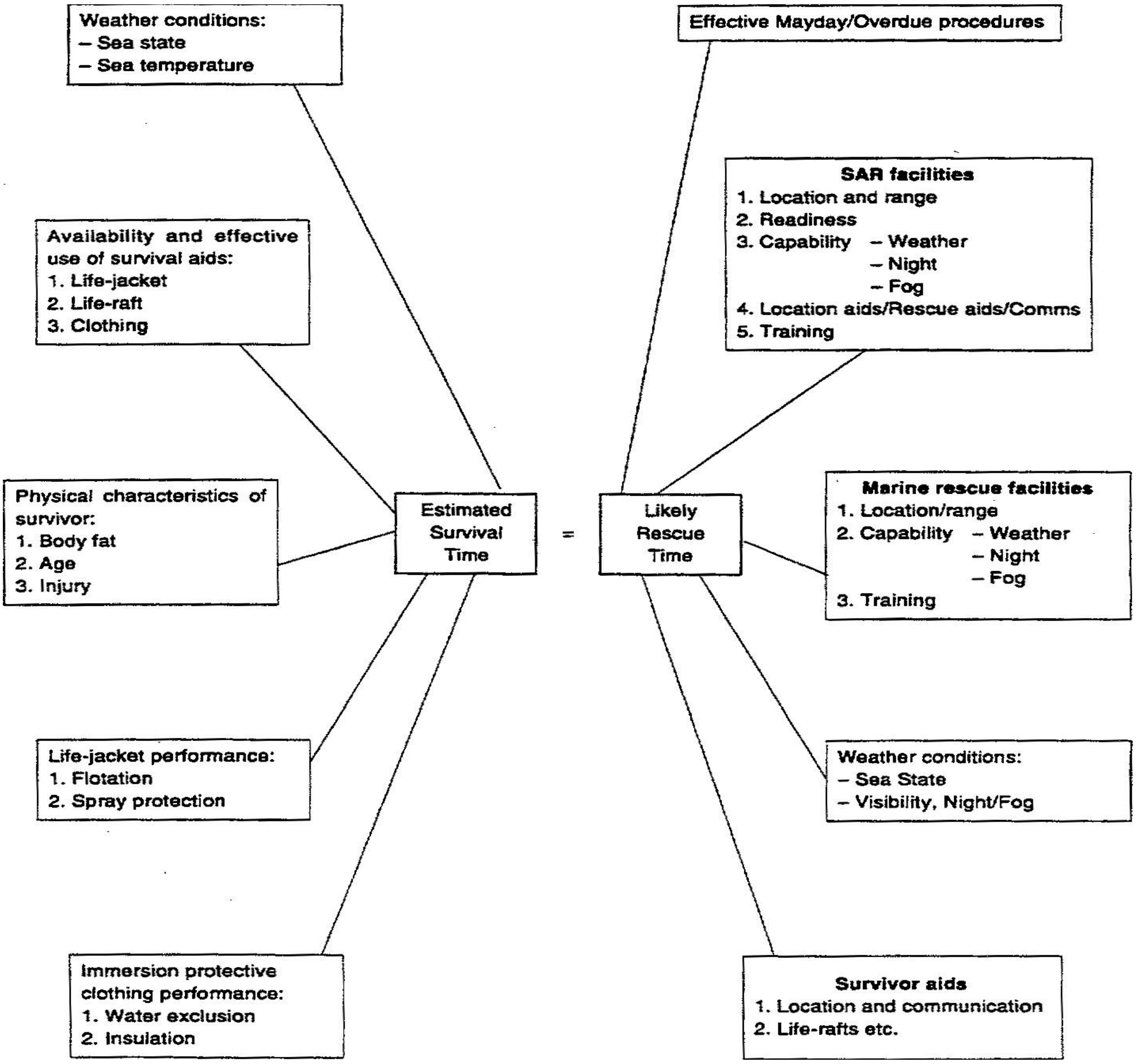

Fig. 1 The Survival Equation

[ ]

[2.2 Broad estimates of likely survival times for the thin offshore individual are given in Fig. 2. As survival time is significantly affected by the prevailing weather conditions at the time of immersion, the Beaufort wind scale has been used as an indicator of these surface conditions.

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ACJ OPS 3.827 (continued)

Clothing assembly	**Beaufort wind force**	**Times within which the most vulnerable individuals are likely to drown**	
		(water temp 5°c)	**(water temp 13°c)**
Working clothes (no immersion suit)	0 – 2 3 – 4 5 and above	Within ¾ hour Within ½ hour Significantly less than ½ hour	Within 1 ¼ hours Within ½ hour Significantly less than ½ hour
Immersion suit worn over working clothes (with leakage inside suit)	0 -2 3 – 4 5 and above	May well exceed 3 hours Within 2 ¾ hours Significantly less than 2 ¾ hours. May well exceed 1 hour	May well exceed 3 hours May well exceed 3 hours May well exceed 3 hours

Fig. 2 Timescale within which the most vulnerable individuals are likely to succumb to the prevailing conditions].

[2.3 Consideration must also be given to escaping from the helicopter itself should it submerge or invert in the water. In this case escape time is limited to the length of time the occupants can hold their breath. The breath hold time can be greatly reduced by the effect of cold shock. Cold shock is caused by the sudden drop in skin temperature on immersion, and is characterised by a gasp reflex and uncontrolled breathing. The urge to breathe rapidly becomes overwhelming and, if still submerged, the individual will inhale water resulting in drowning. Delaying the onset of cold shock by wearing an immersion suit will extend the available escape time from a submerged helicopter.**]**

[2**]**.4 The effects of water leakage and hydrostatic compression on the insulation quality of clothing are well recognised. In a nominally dry system the insulation is provided by still air trapped within the clothing fibres and between the layers of suit and clothes. It has been observed that many systems lose some of their insulative capacity either because the clothes under the 'waterproof' survival suit get wet to some extent or because of hydrostatic compression of the whole assembly. As a result of water leakage and compression, survival times will be shortened. **[**The wearing of warm clothing under the suit is recommended.**]**

[2**]**.5 Whatever type of survival suit and other clothing is provided, it should not be forgotten that significant heat loss can occur from the head. **[ ]**

[Amdt. 5, 01.07.07]

AMC OPS 3.830(a)(2)
Life-rafts and ELT for extended overwater flights
See JAR-OPS 3.830(a)(2)

1 Each life-raft required by JAR-OPS 3.830 **[**should**]** conform to the following specification:

a. They **[**should**]** be of an approved design and stowed so as to facilitate their ready use in an emergency;

b. They **[**should**]** be radar conspicuous to standard airborne radar equipment;

c. When carrying more than one life-raft on board, at least 50% **[**should**]** be jettisonable by the crew while seated at their normal station, where necessary by remote control;

d. Those life-rafts which are not jettisonable by remote control or by the crew **[**should**]** be of such weight as to permit handling by one person. 40 kg **[**should**]** be considered a maximum weight.

2 Each life-raft required by JAR-OPS 3.830 **[**should**]** contain at least the following:

AMC OPS 3.830(a)(2) (continued)

a. One approved survivor locator light;

b. One approved visual signaling device;

c. One canopy (for use as a sail, sunshade or rain catcher;

d. One radar reflector;

e. One 20 m retaining line designed to hold the life-raft near the helicopter but to release it if the helicopter becomes totally submerged;

f. One sea anchor;

g. One survival kit, appropriately equipped for the route to be flown, which **[**should**]** contain at least the following:

i. One life-raft repair kit;

ii. One bailing bucket;

iii. One signaling mirror;

iv. One police whistle;

v. One buoyant raft knife;

vi. One supplementary means of inflation;

vii. Seasickness tablets;

viii. One first-aid kit;

ix. One portable means of illumination;

x. One half litre of pure water and one sea water desalting kit;

xi. One comprehensive illustrated survival booklet in an appropriate language.

3 Batteries used in the ELTs should be replaced (or recharged, if the battery is rechargeable) when the equipment has been in use for more than 1 cumulative hour, and also when 50% of their useful life (or for rechargeable, 50% of their useful life of charge), as established by the equipment manufacturer has expired. The new expiration date for the replacement (or recharged) battery **[**should**]** be legibly marked on the outside of the equipment. The battery useful life (or useful life of charge) requirements of this paragraph do not apply to batteries (such as water-activated batteries) that are essentially unaffected during probable storage intervals.

[Ch. 1, 01.02.99; Amdt. 5, 01.07.07]

AMC OPS 3.830(a)(3)
Survival Emergency Locator Transmitter (ELT(S))
See JAR-OPS 3.830(a)(3)

1 A survival ELT (ELT(S)) is intended to be removed from the helicopter and activated by survivors of a crash. An ELT(S) should be stowed so as to facilitate its ready removal and use in an emergency. An ELT(S) may be activated manually or automatically (e.g. by water activation). It should be designed to be tethered to a life raft or a survivor.

[Ch. 1, 01.02.99]

IEM OPS 3.835
Survival Equipment
See JAR-OPS 3.835

1 The expression 'Areas in which search and rescue would be especially difficult' should be interpreted in the context of this JAR as meaning:

a. Areas so designated by the State responsible for managing search and rescue; or

IEM OPS 3.835 (continued)

b. Areas that are largely uninhabited and where:

i. The State responsible for managing search and rescue has not published any information to confirm that search and rescue would not be especially difficult; and

ii. The State referred to in (a) above does not, as a matter of policy, designate areas as being especially difficult for search and rescue.

AMC OPS 3.835(c)
Survival Equipment
See JAR-OPS 3.835(c)

1 The following additional survival equipment should be carried when required:

a. 500 ml of water for each 4, or fraction of 4, persons on board;

b. One knife;

c. First Aid Equipment;

d. One set of Air/Ground codes;

In addition, when polar conditions are expected, the following should be carried:

e. A means for melting snow;

f. 1 snow shovel and 1 ice saw;

g. Sleeping bags for use by $^{1}/_{3}$ of all persons on board and space blankets for the remainder or space blankets for all passengers on board;

h. 1 Arctic/Polar suit for each crew member carried.

2 If any item of equipment contained in the above list is already carried on board the helicopter in accordance with another requirement, there is no need for this to be duplicated.

IEM OPS 3.837(a)(2)
Additional requirements for helicopters operating to helidecks located in a hostile sea area
See JAR-OPS 3.837

1 Operators should be aware that projections on the exterior surface of the helicopter, which are located in a zone delineated by boundaries which are 1.22 m (4 ft) above and 0.61 m (2 ft) below the established static water line could cause damage to a deployed liferaft. Examples of projections which need to be considered are aerials, overboard vents, unprotected split pin tails, guttering and any projection sharper than a three dimensional right angled corner.

2 While the boundaries specified in para 1 above are intended as a guide, the total area which should be considered should also take into account the likely behavior of the life raft after deployment in all sea states up to the maximum in which the helicopter is capable of remaining upright.

3 Operators and maintenance organisations are reminded that wherever a modification or alteration is made to a helicopter within the boundaries specified, the need to prevent the modification or alteration causing damage to a deployed life raft should be taken into account in the design.

4 Particular care should also be taken during routine maintenance to ensure that additional hazards are not introduced by, for example, leaving inspection panels with sharp corners proud of the surrounding fuselage surface, or allowing door sills to deteriorate to a point where sharp edges become a hazard.

5 The same considerations apply in respect of emergency flotation equipment.

[Ch. 1, 01.02.99]

IEM OPS 3.843(c)
Flights overwater - Performance Class 2 take-off and landing
See JAR-OPS 3.843(c)

When helicopters are operated in Performance Class 2 and are taking-off or landing over water, they are exposed to a critical power unit failure. They should therefore be designed for landing on water, certificated in accordance with ditching provisions, or have the appropriate floats fitted (for a non-hostile environment).

[Amdt. 2, 01.01.02]

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AMC/IEM L – COMMUNICATION AND NAVIGATION EQUIPMENT

IEM OPS 3.845
Communication and Navigation Equipment - Approval and Installation
See JAR-OPS 3.845

1 For Communication and Navigation Equipment required by JAR-OPS 3 Subpart L, “Approved” means that compliance with the applicable JTSO design requirements and performance specifications, or equivalent, in force at the time of the equipment approval application, has been demonstrated. Where a JTSO does not exist, the applicable airworthiness standards or equivalent apply unless otherwise prescribed in JAR-OPS 3 or JAR-26.

2 “Installed” means that the installation of Communication and Navigation Equipment has been demonstrated to comply with the applicable airworthiness requirements of JAR-27/JAR-29, or the relevant code used for Type Certification, and any applicable requirement prescribed in JAR-OPS 3.

3 Communication and Navigation Equipment approved in accordance with design requirements and performance specifications other than JTSOs, before the applicability dates prescribed in JAR-OPS 3.001(b), are acceptable for use or installation on helicopters operated for the purpose of commercial air transportation provided that any additional JAR-OPS requirement is complied with.

4 When a new version of a JTSO (or of a specification other than a JTSO) is issued, Communication and Navigation Equipment approved in accordance with earlier requirements may be used or installed on helicopters operated for the purpose of commercial air transportation provided that such Communication and Navigation Equipment are operational, unless removal from service or withdrawal is required by means of an amendment to JAR-OPS 3 or JAR-26. The same provisions apply in the case where an existing JTSO (or a specification) is superseded by a new JTSO (or a new specification).

[ACJ OPS 3.865(e)
FM Immunity Equipment Standards
See JAR-OPS 3.865(e)

1 FM immunity performance Standards for ILS Localiser, VOR receivers and VHF communication receivers have been incorporated in ICAO Annex 10, Volume I - Radio Navigation Aids Fifth Edition dated July 1996, Chapter 3, Paragraphs 3.1.4, 3.3.8 and Volume III, Part II - Voice Communications Systems, Paragraph 2.3.3.

2 Acceptable equipment standards, consistent with ICAO Annex 10, are contained in EUROCAE Minimum Operational Performance Specifications, documents ED-22B for VOR receivers, ED-23B for VHF communication receivers and ED-46B for LOC receivers and the corresponding RTCA documents DO-186, DO-195 and DO-196.**]**

[Amdt. 3, 01.04.04]

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[WITHDRAWN - AMC/IEM M – HELICOPTER MAINTENANCE]

[ ]

This Subpart has been entirely withdrawn due to the implementation of Commission Regulation (EC) No 2042/2003 Part-M.

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AMC/IEM N – FLIGHT CREW

AMC OPS 3.940(a)(4)
Crewing of inexperienced flight crew members
See JAR-OPS 3.940(a)(4)

1 An operator should consider that when two flight crew members are required, a flight crew member, following completion of a Type Rating or command course, and the associated line flying under supervision, is inexperienced until either:

a. He has achieved 50 flight hours on the type and/or in the role within a period of 60 days; or

b. He has achieved 100 flight hours on the type and/or in the role (no time limit).

2 A lesser number of flight hours, on the type and/or in the role, may be acceptable to the Authority when:

a. A new operator is commencing operations; or

b. An operator introduces a new helicopter type; or

c. Flight crew members have previously completed a type conversion course with the same operator (re-conversion); and

d. Subject to any other conditions which the Authority may impose.

[Ch. 1, 01.02.99]

IEM OPS 3.940(b)(1)
Composition of Flight Crew
See JAR-OPS 3.940(b)(1)

1 In some States the Airspace Authorities have determined that all flight at night should be conducted under IFR. These States then make provisions for helicopter flights at night to be conducted under conditions similar to night VFR in other States.

2 For States (where national legislation requires flight in accordance with IFR at night) who take advantage of this alleviation, the operator should comply with guidance published by the Authority to ensure that the pilot is appropriately qualified.

[Amdt. 2, 01.01.02]

[ACJ No 1 to JAR-OPS 3.943
Crew Resource Management (CRM)
See JAR-OPS 3.943/3.945(a)(9)/3.955(b)(6)/3.965(e)/3.965(a)(3)(iv)
See ACJ No. 2 to JAR-OPS 3.943

1 General

1.1 Crew Resource Management (CRM) is the effective utilisation of all available resources (e.g. crew members, helicopter systems, supporting facilities and persons) to achieve safe and efficient operation.

1.2 The objective of CRM is to enhance the communication and management skills of the flight crew member concerned. The emphasis is placed on the non-technical aspects of flight crew performance.

2 Initial CRM Training

2.1 Initial CRM training programme is designed to provide knowledge of, and familiarity with, human factors relevant to flight operations.

2.2 A CRM trainer should:

a. have followed a theoretical HPL course covering the whole syllabus of the HPL examination; or

b. have successfully passed the Human Performance and Limitations (HPL) examination (see the requirements applicable to the issue of Flight Crew Licences); and

c. have and maintain adequate knowledge of the operation and helicopter type; and **]**

ACJ No 1 to JAR-OPS 3.943 (continued)

[d. be supervised by suitably qualified CRM training personnel when conducting their first initial CRM training session; and

e. have knowledge of group management, group dynamics and personal awareness.

2.3 An operator should ensure that initial CRM training addresses the nature of the operations of the company concerned, as well as the associated procedures and the culture of the company. This will include areas of operations which produce particular difficulties or involve adverse climatic conditions and any unusual hazards.

2.4 If the operator does not have sufficient means to establish initial CRM training, use may be made of a course provided by another operator, or a third party or training organisation acceptable to the Authority. In this event the operator should ensure that the content of the course meets his operational requirements. When crew members from several companies follow the same course, CRM core elements should be specific to the nature of operations of the companies and the trainees concerned.

2.5 A flight crew member's CRM skills should not be assessed during initial CRM training.

3 Conversion Course CRM training

3.1 If the flight crew member undergoes a conversion course with a change of helicopter type and/or a change of operator, elements of the Initial CRM course should be covered as required.

3.2 A flight crew member should not be assessed when completing elements of CRM training which are part of an operator's conversion course.

4 Command course CRM training

4.1 An operator should ensure that elements of the Initial CRM course are integrated into the command course and covered as required.

4.2 A flight crew member should not be assessed when completing elements of CRM training which are part of the command course, although feedback should be given.

5 Recurrent CRM training

5.1 A flight crew member should not be assessed when completing elements of CRM training which are part of recurrent training. **]**

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ACJ No 1 to JAR-OPS 3.943 (continued)

[6. Implementation of CRM

6.1 The following table indicates which elements of CRM should be included in each type of training

Table 1

<table>
<tr><th>Core Elements

(a)</th><th>Initial CRM training

(b)</th><th>Operator’s conversion course when changing type
(c)</th><th>Operators conversion course when changing operator
(d)</th><th>Command course

(e)</th><th>Recurrent training

(f)</th></tr>
<tr><td>Human error and reliability, error chain, error prevention and detection</td><td rowspan="7">In depth</td><td>In depth</td><td>Overview</td><td>Overview</td><td rowspan="7">Overview</td></tr>
<tr><td>Company safety culture, SOPs, organisational factors</td><td rowspan="2">Not required</td><td>In depth</td><td rowspan="6">In depth</td></tr>
<tr><td>Stress, stress management, fatigue and vigilance</td><td rowspan="3">Not required</td></tr>
<tr><td>Information acquisition and processing, situational awareness, workload management</td><td rowspan="4">Overview</td></tr>
<tr><td>Decision making</td></tr>
<tr><td>Communication and coordination inside and outside the cockpit</td><td rowspan="2">Overview</td></tr>
<tr><td>Leadership and team behaviour synergy</td></tr>
<tr><td>Automation, philosophy of the use of automation (if relevant to the type)</td><td></td><td rowspan="2">In depth</td><td>In depth</td><td rowspan="2">As required</td><td rowspan="2">As required</td></tr>
<tr><td>Specific type related differences</td><td>As required</td><td>Not required</td></tr>
<tr><td>Case based studies</td><td>In depth</td><td>In depth</td><td>In depth</td><td>In depth</td><td>As appropriate</td></tr>
</table>

7 Co-ordination between flight crew and crew members other than flight crew training

7.1 Operators should, as far as is practicable, provide combined training for flight crew and crew members other than flight crew including briefing and debriefing.

7.2 There should be an effective liaison between flight crew and other crew members training departments. Provision should be made for flight and other crew instructors to observe and comment on each others training.**]**

[Amdt. 3, 01.04.04]

[ACJ No. 2 to JAR-OPS 3.943
Crew Resource Management (CRM)
See JAR-OPS 3.943/3.945(a)(9)/3.955(b)/3.965(e)/3.965(a)(3)(iv)
See ACJ No. 1 to JAR-OPS 3.943

1 CRM training should reflect the culture of the operator and be conducted by means of both classroom training and practical exercises including group discussions and accident and serious incident reviews to analyse communication problems and instances or examples of a lack of information or crew management.

2 Whenever it is practicable to do so, consideration should be given to conducting relevant parts of CRM training in synthetic training devices which reproduce, in an acceptable way, a realistic operational **]**

ACJ No 2 to JAR-OPS 3.943 (continued)

[environment and permit interaction. This includes, but is not limited to, simulators with appropriate LOFT scenarios.

3 It is recommended that, whenever possible, initial CRM training be conducted in a group session outside the company premises so that the opportunity is provided for flight crew members to interact and communicate away from the pressures of their usual working environment.

4 Assessment of CRM Skills

4.1 Assessment is the process of observing, recording, interpreting and evaluating, where appropriate, pilot performance and knowledge against a required standard in the context of overall performance. It includes the concept of self-critique, and feedback which can be given continuously during training or in summary following a check.

4.2 CRM skills assessment should be included in an overall assessment of the flight crew members performance and be in accordance with approved standards. Suitable methods of assessment should be established, together with the selection criteria and training requirements of the assessors and their relevant qualifications, knowledge and skills.

4.3 Individual assessments are not appropriate until the crew member has completed the initial CRM course and completed the first OPC. For first CRM skills assessment, the following methodology is considered satisfactory:

a. An operator should establish the CRM training programme including an agreed terminology. This should be evaluated with regard to methods, length of training, depth of subjects and effectiveness.

b. A training and standardisation programme for training personnel should then be established.

c. For a transition period, the evaluation system should be crew rather than individually based.

5. Levels of Training (For any CRM training, the following two levels are recognised):.

a. Overview. When Overview training is required it will normally be instructional in style. Such training should refresh knowledge gained in earlier training.

b. In Depth. When In Depth Training is required it will normally be interactive in style and should include, as appropriate, case studies, group discussions, role play and consolidation of knowledge and skills. Core elements should be tailored to the specific needs of the training phase being undertaken.**]**

[Amdt. 3, 01.04.04]

[ACJ OPS 3.945(a)(9)
Crew Resource Management - Use of Automation
See JAR-OPS 3.945(a)(9)

1 The conversion course should include training in the use and knowledge of automation and in the recognition of systems and human limitations associated with the use of automation. An operator should therefore ensure that a flight crew member receives training on:

a. The application of the operations policy concerning the use of automation as stated in the Operations Manual; and

b. System and human limitations associated with the use of automation.

2 The objective of this training should be to provide appropriate knowledge, skills and behavioural patterns for managing and operating automated systems. Special attention should be given to how automation increases the need for crews to have a common understanding of the way in which the system performs, and any features of automation which make this understanding difficult.**]**

[Amdt. 3, 01.04.04]

AMC OPS 3.945
Conversion Course Syllabus
See JAR-OPS 3.945

1 General

1.1 The conversion course should be conducted in the following order:

a. Ground training covering all helicopter systems and emergency procedures (with or without flight simulator or other training device).

b. Emergency and safety equipment training and checking (completed before flying training on the helicopter commences).

c. Flying training (flight simulator and/or helicopter).

d. Line flying under supervision.

2 Ground training

2.1 Ground training should comprise a properly organised programme of ground instruction by training staff with adequate facilities, including any necessary audio, mechanical and visual aids. However, if the helicopter concerned is relatively simple, private study may be adequate if the operator provides suitable manuals and/or study notes.

2.2 The course of ground instruction should incorporate formal tests on such matters, where applicable, as helicopter systems, performance and flight planning, etc.

3 Flying training

3.1 Flying training should be structured and sufficiently comprehensive to familiarise the flight crew member thoroughly with all aspects of limitations and normal operation of the helicopter, including the use of all cockpit equipment, and with all abnormal/emergency procedures and should be carried out by suitably qualified Type Rating Instructors and/or Type Rating Examiners.

3.2 In planning flying training on helicopters with a flight crew of 2 or more, particular emphasis should be placed on the practice of Line Orientated Flying Training (LOFT) with emphasis on Crew Resource Management (CRM) and the use of correct crew coordinated procedures, including coping with incapacitations.

3.3 Generally the same training and practice in the flying of the helicopter should be given to co-pilots as well as commanders. The 'flight handling' sections of the syllabus for commanders and co-pilots alike should include all the requirements of the appropriate proficiency check required by JAR-OPS 3.965.

3.4 Training should include all elements of an instrument rating test where it is likely that the flight crew member will be required to operate under IFR.

3.5 Unless the training programme has been carried out in an appropriate flight simulator, and in a manner approved for zero flight time conversions, the training required should include an element of proficiency training on a helicopter, including at least 3 take-offs and landings.

3.6 Unless already covered by paragraph 3.3 above before they are assigned to line duty all flight crew should have successfully completed a proficiency check with a Type Rating Examiner.

4 Emergency and safety equipment training and checking. Emergency and safety equipment training should take place whenever practicable in conjunction with **[ ]** crew **[**members**]** doing similar training with emphasis on co-ordinated procedures and two-way communications.

4.1 For new **[**flight**]** crew members, or as applicable on conversion, the following should be addressed:

a. Instruction should be given on aeromedical topics which should include at least:

i. First aid subjects in general, and as appropriate to the helicopter type and crew complement;

ii. Guidance on the avoidance of food poisoning;

iii. The possible dangers associated with the contamination of the skin or eyes by aviation fuel and other fluids and the immediate treatment;

iv. The recognition and treatment of hypoxia and hyperventilation; and,

AMC OPS 3.945 (continued)

v. Survival training and guidance on hygiene appropriate to the routes operated.

b. Training should also include:

i. The importance of effective coordination between flight crew and **[ ]** crew **[**members**]**;

ii. The use of smoke protection equipment and protective clothing where carried. In the case of the first type of helicopter so equipped, training should be associated with experience of movement in a cosmetic smoke filled environment; and

iii. Actual firefighting using equipment representative of that carried in the helicopter;

iv. The operational procedures of security, rescue and emergency services.

c. Operators should provide survival training appropriate to their areas of operation, (e.g. polar, desert, jungle or sea), including the use of any survival equipment carried.

d. A comprehensive drill to cover all ditching procedures should be practised where flotation equipment is carried. This should include practice of the actual donning and inflation of a life-jacket, together with a demonstration or film of the inflation of life-rafts and/or slide-rafts and associated equipment. This practice should, in initial training, be conducted using the equipment in water, although previous certificated training with another operator or the use of similar equipment will be accepted in lieu of further wet drill training.

e. Instruction on the location of emergency and safety equipment, correct use of all appropriate drills, and procedures that could be required of flight crew in different emergency situations. Evacuation of the helicopter (or a realistic training device) by use of a slide where fitted should be included when the Operations Manual procedure requires the early evacuation of flight crew to assist on the ground.

f. On completion of emergency and safety equipment training the flight crew member should undergo the check specified in JAR-OPS 3.965(c).

5 Line flying under supervision

5.1 Following completion of flying training and checking as part of the conversion course, all flight crew members should operate a minimum number of sectors and/or flying hours under the supervision of a nominated flight crew member. The minimum figures should be specified in the Operations Manual and should be selected after due note has been taken of the complexity of the helicopter and the experience of the flight crew member.

5.2 On completion of the sectors and/or flying hours under supervision, a line check should be completed.

6 Passenger handling. Other than general training on dealing with people, emphasis should be placed on the following:

a. Advice on the recognition and management of passengers who appear or become intoxicated with alcohol, under the influence of drugs or aggressive;

b. Methods used to motivate passengers and the crowd control necessary to expedite a helicopter evacuation;

c. Awareness of the types of dangerous goods which may, and may not, be carried in a passenger cabin, including the completion of a dangerous goods training programme; and

d. The importance of correct seat allocation with reference to helicopter mass and balance. Particular emphasis should also be given on the seating of disabled passengers and the necessity of seating able-bodied passengers adjacent to unsupervised exits.

7 Discipline and responsibilities. Amongst other subjects, emphasis should be placed on discipline and an individual's responsibilities in relation to:

a. His ongoing competence and fitness to operate as a **[**flight**]** crew member with special regard to flight time limitation requirements; and

b. Security procedures.

8. Passenger briefing/safety demonstrations. Training should be given in the preparation of passengers for normal and emergency situations.

[Amdt. 5, 01.07.07]

IEM OPS 3.945
Line Flying under Supervision
See JAR-OPS 3.945

1 Line flying under supervision provides the opportunity for a flight crew member to carry into practice the procedures and techniques he has been made familiar with during ground and flying training on a conversion course. This is accomplished under the supervision of a flight crew member specifically nominated and trained for the task. At the end of line flying under supervision the respective student crew member is able to perform a safe and efficient flight conducted within the tasks of his crew member station.

2 A variety of reasonable combinations may exist with respect to:

a. A flight crew member's previous experience;

b. The complexity of the helicopter concerned; and

c. The type of route/role/area operations,

[IEM OPS 3.945(a)(8)
Completion of an Operator's Conversion Course
See JAR-OPS 3.945(a)(8)

1 A conversion course is deemed to have started when the flying or STD has begun. The theoretical element of a conversion course may be undertaken ahead of the practical element.

2 Under certain circumstances a conversion course may have started and reached a stage where, for unforeseen reasons, it is not possible to complete it without a delay. In these circumstances the operator may apply to the Authority to allow the pilot to revert to the original type.

3 Before the resumption of the conversion course the operator should establish with the Authority how much of the conversion course needs to be re-covered before continuing with the remainder of the course.**]**

[Amdt. 2, 01.01.02]

AMC OPS 3.965
Recurrent Training and Checking
See JAR-OPS 3.965

1 General. The line check is performed in the helicopter. All other training and checking should be performed in the helicopter **[**of the same type or a STD, qualified and approved for the purpose**]** or, in the case of emergency and safety equipment training, in a suitable alternative training device. The type of equipment used for training and checking should be representative of the instrumentation, equipment and layout of the helicopter type operated by the flight crew member.

2 Line Checks

2.1 The operator has a statutory obligation to check that his pilots are competent to perform their duties. The line check is considered a particularly important factor in the development, maintenance and refinement of high operating standards, and can provide the operator with a valuable indication of the usefulness of his training policy and methods. The requirement is for a test of ability to perform satisfactorily a complete line operation from start to finish, including pre-flight and post-flight procedures and use of the equipment provided and for an involvement of an overall assessment of the ability to perform the duties required as specified in the Operations Manual. The route chosen should be such as to give adequate representation of the scope of a pilot's normal operations. The line check is not intended to determine competence on any particular route.

2.2 **[ ]** The commander in particular should also demonstrate his ability to 'manage' the operation and take appropriate command decisions.

a. Since pilots may carry out either the handling or the non-handling duties, all pilots should be checked in both roles.

[ ]

ACJ to JAR-OPS 3.965 (continued)

3 Proficiency Training and Checking. When a flight simulator is used, the opportunity should be taken, where possible, to use Line Oriented Flying Training (LOFT).

[ ]]

[Amdt. 3, 01.04.04]

[ACJ OPS 3.965(d)
Emergency and Safety Equipment Training
See JAR-OPS 3.965(d)

1 The successful resolution of helicopter emergencies requires interaction between crew members and emphasis should be placed on the importance of effective co-ordination and two-way communication between all crew members in various emergency situations.

2 Emergency and Safety Equipment training should include joint practice in helicopter evacuations so that all who are involved are aware of the duties other crew members should perform. When such practice is not possible, combined flight crew and other crew member training should include joint discussion of emergency scenarios.

3 Emergency and safety equipment training should, as far as is practicable, take place in conjunction with other crew members undergoing similar training with emphasis on co-ordinated procedures and two-way communication between the flight deck and the cabin.**]**

[Amdt. 3, 01.04.04]

IEM to Appendix 1 to JAR-OPS 3.965
Recurrent training and checking
See Appendix 1 to JAR-OPS 3.965

1 Use and approval of Synthetic Training Devices (STD) training. Training and checking provides an opportunity for the practice of abnormal/emergency procedures which rarely arise in normal operations and is a part of a structured programme of recurrent training. This should be carried out in a Synthetic Training Device whenever possible.

2 Where there is a Flight Manual limitation on the use of certain emergency power ratings, procedures to permit realistic engine-failure training and demonstration of competence, without actual use of the emergency power ratings, must be developed in conjunction with the aircraft manufacturer and included in the aircraft flight manual. These procedures must also be approved by the Authority.

3 Where the emergency drills require action by the non-handling pilot, the check should additionally cover knowledge of these drills.

4 Because of the unacceptable risk when simulating emergencies such as rotor failure, icing problems, certain types of engine(s) (e.g. during continued take-off or go-around, total hydraulic failure etc.), or because of environmental considerations associated with some emergencies (e.g. fuel dumping) these emergencies should preferably be covered in a Synthetic Training Device. If no Synthetic Training Device is available these emergencies may be covered in the helicopter using a safe airborne simulation, bearing in mind the effect of any subsequent failure, and discussion on the ground.

5 The operator proficiency check may include the annual instrument rating test. In this case a combined check report may be used details of which shall be contained in the Operations Manual.

AMC to Appendix 1 to JAR-OPS 3.965 sub-paragraph (a)(3)(iii)(D)
Water survival training
See Appendix 1 to JAR-OPS 3.965 sub-paragraph (a)(3)(iii)(D)

1 Where life-rafts are fitted for extended overwater operations (such as Sea Pilot transfer; offshore operation; regular, or scheduled, coast to coast overwater operations; or other operations designated as such by the Authority), a comprehensive wet drill to cover all ditching procedures should be practised by aircraft crews. This wet drill is to include, as appropriate, practice of the actual donning and inflation of a life-

AMC to Appendix 1 to JAR-OPS 3.965 sub-paragraph (a)(3)(iii)(D) (continued)

jacket, together with a demonstration or film of the inflation of life-rafts. Crews should board the same (or similar) life-rafts from the water whilst wearing a life-jacket. Training should include the use of all survival equipment carried on board life-rafts and any additional survival equipment carried separately on board the aircraft.

2 Consideration should be given to the provision of further specialist training such as underwater escape training.

Note: Wet practice drill is always to be given in initial training unless the crew member concerned has received similar training provided by another operator and such an arrangement is acceptable to the Authority.

[Ch. 1, 01.02.99; Amdt. 2, 01.01.02]

AMC OPS 3.975
Route/Role/Area Competence Qualification
See JAR-OPS 3.975

1 Route/role/area competence training should include knowledge of:

a. Terrain and minimum safe altitudes;

b. Seasonal meteorological conditions;

c. Meteorological, communication and air traffic facilities, services and procedures;

d. Search and rescue procedures;

e. Navigational facilities associated with the route along which the flight is to take place; and

f. Obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures and applicable operating minima.

2 Depending on the complexity of the route and/or aerodrome, the following methods of familiarisation should be used:

a. For the less complex route/role/area and/or heliport, familiarisation by self-briefing with route documentation, or by means of programmed instruction, and

b. For the more complex routes and/or heliports, in addition to sub-paragraph 2a above, in-flight familiarisation as a commander, co-pilot or observer under supervision, or familiarisation in an approved flight simulator using a data base appropriate to the route concerned.

3 Route competence may be revalidated by operating on the route within the previous period of validity instead of the procedure given in paragraph 2 above.

[Ch. 1, 01.02.99]

AMC OPS 3.980
Operation on more than one type or variant
See JAR-OPS 3.980

1 Operators of more than one helicopter variant or type should provide in the Operations Manual:

a. Flight crew members minimum experience level;

b. The process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and

c. Any additional recency requirements that may be required.

2 If a flight crew member operates more than one type or variant the following provisions should be satisfied:

a. The recency requirements specified in JAR OPS 3.970 should be met and confirmed prior to commercial air transport operations on any type, and the minimum number of flights on each type within a three month period specified in the Operations Manual;

AMC OPS 3.980(continued)

b. JAR-OPS 3.965 requirements with regard to recurrent training;

c. JAR-OPS 3.965 requirements with regard to proficiency checks may be satisfied by a 6 monthly check on any one type or variant operated. However, a proficiency check on each type or variant operated should be completed every 12 months;

d. For helicopters with a maximum certificated take-off mass (MCTOM) exceeding 5 700 kg, or with a maximum approved passenger seating configuration (MAPSC) of more than 19:

i. The flight crew member should not fly more than two helicopter types;

ii. A minimum of 3 months and 150 hours experience on the type or variant should be achieved before the flight crew member should commence the conversion course onto the new type or variant;

iii. 28 days and/or 50 hours flying should then be achieved exclusively on the new type or variant; and

iv. A flight crew member should not be rostered to fly more than one type or significantly different variant of a type during a single duty period.

e. In the case of all other helicopters, a flight crew member should not operate more than three helicopter types or significantly different variant.

f. For a combination of helicopter and aeroplane:

i. A flight crew member may fly one helicopter type or variant and one aeroplane type irrespective of their maximum certificated take-off mass (MCTOM) or the maximum approved passenger seating configuration (MAPSC) that may be carried.

ii. If the helicopter type is covered by paragraph 2.d. then paragraphs 2.d.ii., 2.d.iii. and 2.d.iv should also apply in this case.

[Amdt. 2, 01.01.02]

IEM OPS 3.985
Training records
See JAR-OPS 3.985

A summary of training should be maintained by the operator to show a trainee's completion of each stage of training and checking.

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ACJ O – CREW MEMBERS OTHER THAN FLIGHT AND CABIN CREW

ACJ OPS 3.995(a)(2)
Minimum requirements
See JAR - OPS 3.995(a)(2)

1 The initial medical examination or assessment and any re-assessment of crew members should be conducted by, or under the supervision of, a medical practitioner acceptable to the Authority.

2 An operator should maintain a medical record for each crew member.

3 The following medical requirements are applicable for each crew member:

a. Good health;

b. Free from any physical or mental illness which might lead to incapacitation or inability to perform crew duties;

c. Normal cardiorespiratory function;

d. Normal central nervous system;

e. Adequate visual acuity 6/9 with or without glasses;

f. Adequate hearing; and

g. Normal function of ear, nose and throat.

[Amdt. 2, 01.01.02]

ACJ OPS 3.1005
Initial training
See JAR-OPS 3.1005

1 An operator should ensure that all elements of initial training are conducted by suitably qualified persons.

2 *Fire and Smoke Training*. An operator should ensure that fire and smoke training includes:

2.1 Emphasis on the responsibility of crew to deal promptly with emergencies involving fire and smoke and, in particular, emphasis on the importance of identifying the actual source of the fire;

2.2 The classification of fires and the appropriate type of extinguishing agents and procedures for particular fire situations, the techniques of application of extinguishing agents, the consequences of misapplication, and of use in a confined space; and

2.3 The general procedures of ground-based emergency services at heliports.

3 *Water Survival Training*. An operator should ensure that, when extended overwater operations are to be conducted, water survival training includes the actual donning and use of personal flotation equipment in water by each crew member. Before first operating on a helicopter fitted with life-rafts or other similar equipment, training must be given on the use of this equipment, as well as actual practice in water.

4 *Survival Training*. An operator should ensure that survival training is appropriate to the areas of operation, (e.g. polar, desert, jungle, sea or mountain).

5 *Medical aspects and First Aid*. An operator should ensure that medical and first aid training includes:

5.1 Instruction on first aid and the use of first-aid kits; and

5.2 The physiological effects of flying and with particular emphasis on hypoxia (when applicable).

6 *Passenger handling*. An operator should ensure that training for passenger handling includes the following:

6.1 Regulations covering the safe stowage of cabin baggage and the risk of it becoming a hazard to occupants of the cabin or otherwise obstructing or damaging emergency equipment or helicopter exits;

6.2 Duties to be undertaken in the event of encountering turbulence including securing the cabin;

ACJ OPS 3.1005 (continued)

6.3 Precautions to be taken when live animals are carried in the cabin;

6.4 Dangerous Goods training as prescribed in Subpart R; and

6.5 Security procedures, including the provisions of Subpart S.

7 *Communication*. An operator should ensure that, during training, emphasis is placed on the importance of effective communication between crew members and flight crew including technique, common language and terminology.

8 *Discipline and responsibilities*. An operator should ensure that each crew member receives training on:

8.1 The importance of crew members performing their duties in accordance with the Operations Manual;

8.2 Continuing competence and fitness to operate as a crew member with special regard to flight and duty time limitations and rest requirements;

8.3 An awareness of the aviation regulations relating to crew members and the role of the Authority;

8.4 General knowledge of relevant aviation terminology, theory of flight, passenger distribution, meteorology and areas of operation;

8.5 Pre-flight briefing of the crew members and the provision of necessary safety information with regard to their specific duties;

8.6 The importance of ensuring that relevant documents and manuals are kept up-to-date with amendments provided by the operator;

8.7 The importance of identifying when crew members have the authority and responsibility to initiate an evacuation and other emergency procedures; and

8.8 The importance of safety duties and responsibilities and the need to respond promptly and effectively to emergency situations.

9 **[ ]** An operator should ensure that appropriate JAR-OPS 3 requirements are included in the training of crew members.

[Amdt. 2, 01.01.02, Amdt. 3, 01.04.04]

ACJ OPS 3.1010
Conversion and Differences training
See JAR-OPS 3.1010

1 *General.* An operator should ensure that:

1.1 Conversion and differences training is conducted by suitably qualified persons; and

1.2 During conversion and differences training, training is given on the location, removal and use of all safety and survival (and additional) equipment carried on the helicopter, as well as all normal and emergency procedures related to the helicopter type, variant and configuration to be operated.

2 *Fire and smoke training*. An operator should ensure that either:

2.1 Each crew member is given realistic and practical training in the use of all fire fighting equipment including protective clothing representative of that carried in the helicopter. This training should include:

a. Each crew member extinguishing a fire characteristic of a helicopter interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used; and

b. The donning and use of protective breathing equipment (when fitted) by each crew member in an enclosed, simulated smoke-filled environment; or

2.2 Each crew member fulfils the recurrent training requirements of ACJ OPS 3.1015 subparagraph 3.3.

ACJ OPS 3.1010 (continued)

3 *Operation of doors and exits*. An operator should ensure that:

3.1 Each crew member operates and actually opens all normal and emergency exits for passenger evacuation in a helicopter or representative training device; and

3.2 The operation of all other exits is demonstrated.

4 Evacuation procedures and other emergency situations. An operator should ensure that:

4.1 Emergency evacuation training includes the recognition of planned or unplanned evacuations on land or water. This training must include recognition of when exits are unusable or when evacuation equipment is unserviceable; and

4.2 Each crew member is trained to deal with the following:

a. An in-flight fire, with particular emphasis on identifying the actual source of the fire; and

b. Other in-flight emergencies.

5 *Pilot incapacitation*. An operator should ensure that, where the flight crew is more than one, the crew member is trained to assist if a pilot becomes incapacitated. This training should include a demonstration of:

5.1 The pilot's seat mechanism;

5.2 Fastening and unfastening the pilot's seat harness;

5.3 Use of the pilot's oxygen equipment, when applicable; and

5.4 Use of pilots' checklists.

6 *Safety equipment*. An operator should ensure that each crew member is given realistic training on, and demonstration of, the location and use of safety equipment including the following:

6.1 Life-rafts, including the equipment attached to, and/or carried in, the raft, where applicable;

6.2 Lifejackets, infant lifejackets and flotation cots, where applicable;

6.3 Fire extinguishers;

6.4 Fire axe or crow-bar;

6.5 Emergency lights including torches;

6.6 Communications equipment, including megaphones;

6.7 Survival packs, including their contents;

6.8 Pyrotechnics (actual or representative devices);

6.9 First-aid kits, their contents and emergency medical equipment; and

6.10 Other safety equipment or systems where applicable.

7 *Passenger Briefing/Safety Demonstrations.* An operator should ensure that training is given in the preparation of passengers for normal and emergency situations in accordance with JAR - OPS 3.285.

8 An operator should ensure that all appropriate JAR - OPS 3 requirements are included in the training of crew members.

[Amdt. 2, 01.01.02]

ACJ OPS 3.1015
Recurrent training
See JAR-OPS 3.1015

1 An operator should ensure that recurrent training is conducted by suitably qualified persons.

2 An operator should ensure that every year the programme of practical training includes the following:

2.1 Emergency procedures including pilot incapacitation, when applicable;

ACJ OPS 3.1015 (continued)

2.2 Evacuation procedures;

2.3 Touch-drills by each crew member for opening normal and emergency exits for passenger evacuation;

2.4 The location and handling of emergency equipment, and the donning by each crew member of lifejackets, and protective breathing equipment (PBE), when applicable;

2.5 First aid and the contents of the first-aid kit(s);

2.6 Stowage of articles in the cabin;

2.7 Dangerous goods procedures as prescribed in Subpart R;

2.8 Security procedures;

2.9 Incident and accident review; and

2.10 Crew Resource Management.

3 An operator should ensure that, every 3 years, recurrent training also includes:

3.1 The operation and actual opening of all normal and emergency exits for passenger evacuation in a helicopter or representative training device;

3.2 Demonstration of the operation of all other exits;

3.3 Each crew member being given realistic and practical training in the use of all fire-fighting equipment, including protective clothing, representative of that carried in the helicopter. This training should include:

a. Each crew member extinguishing a fire characteristic of a helicopter interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used; and

b. The donning and use of protective breathing equipment (when fitted) by each crew member in an enclosed, simulated smoke-filled environment.

3.4 Use of pyrotechnics (Actual or representative devices); and

3.5 Demonstration of the use of the life-raft, where fitted.

4 An operator should ensure that all appropriate JAR - OPS 3 requirements are included in the training of crew members.

[Amdt. 2, 01.01.02]

ACJ OPS 3.1020
Refresher training
See JAR-OPS 3.1020

1 An operator should ensure that refresher training is conducted by suitably qualified persons and, for each crew member, includes at least the following:

1.1 Emergency procedures including pilot incapacitation, when applicable;

1.2 Evacuation procedures;

1.3 The operation and actual opening of all normal and emergency exits for passenger evacuation in a helicopter or representative training device;

1.4 Demonstration of the operation of all other exits; and

1.5 The location and handling of emergency equipment, and the donning of lifejackets, and protective breathing equipment, when applicable.

[Amdt. 2, 01.01.02]

ACJ OPS 3.1025
Checking
See JAR - OPS 3.1025

1 Elements of training which require individual practical participation should be combined with practical checks.

2 The checks required by JAR - OPS 3.1025 should be accomplished by the method appropriate to the type of training including:

a. Practical demonstration; and/or

b. Computer based assessment; and/or

c. In-flight checks; and/or

d. Oral or written tests.

[Amdt. 2, 01.01.02]

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AMC/IEM P – MANUALS, LOGS & RECORDS

IEM OPS 3.1040(b)
Elements of the Operations Manual subject to approval
See JAR-OPS 3.1040(b)

1 A number of the provisions of JAR-OPS require the prior approval of the Authority. As a consequence, the related sections of the Operations Manual should be subject to special attention. In practice, there are two possible options:

a. The Authority approves a specific item (e.g. with a written response to an application) which is then included in the Operations Manual. In such cases, the Authority merely checks that the Operations Manual accurately reflects the content of the approval. In other words, such text has to be acceptable to the Authority; or

b. An operator's application for an approval includes the related, proposed, Operations Manual text in which case, the Authority's written approval encompasses approval of the text.

2 In either case, it is not intended that a single item should be subject to two separate approvals.

3 The following list indicates only those elements of the Operations Manual which require specific approval by the Authority. (A full list of every approval required by JAR-OPS in its entirety may be found in Appendix 6 of the Operations Joint Implementation Procedures (JAA Administration & Guidance Material Section 4, Part 2.)

Ops Manual Section (App. 1 to JAR-OPS 3.1045)	Subject	JAR-OPS Reference
A 2.4	Operational Control	3.195
A 5.2(f)	Procedures for flight crew to operate on more than one type or variant	3.980
A 5.3(c)	Procedures for cabin crew to operate on four helicopter types	3.1030(a)
A 8.1.1	Method of determination of minimum flight attitudes	3.250(b)
A 8.1.8	(i) Standard mass values other than those specified in Subpart J	3.620(i)
Mass and balance:	(ii) Alternative documentation and related procedures	3.625(c)
	(iii) Omission of data from documentation	App. 1 to JAR-OPS 3.625,§(a)(1)(ii)
	(iv) Special standard masses for the traffic load	App. 1 to JAR-OPS 3.605, § (b)
A 8.1.11	Tech Log	3.915(b)
A 8.3.2(c)	RNAV (RNP)	3.243
A 8.4	All Weather Operations	3.440(a)(3), (b) & App.1 to JAR-OPS 3.455, Note 2
A 8.6	Use of MEL	3.030(a)
A 9	Dangerous Goods	3.1155
B 1.1(b)	Max. approved passenger seating configuration	3.480(a)(15)
B 6(b)	Use of on-board mass and balance systems	App. 1 to JAR-OPS 3.625, § (c)
B 9	MEL	3.030(a)
D 2.1	Cat II Training syllabus flight crew	3.450(a)(2)
	Recurrent training programme flight crew	3.965(a)(2)
D 2.2	Recurrent training programme cabin crew	3.1015(b)
D 2.3(a)	Dangerous Goods	3.1220(a)

IEM OPS 3.1040(c)
Operations Manual - Language
See JAR-OPS 3.1040(c)

1 JAR-OPS 3.1040(c) requires the Operations Manual to be prepared in the English language. However, it is recognised that there may be circumstances where approval for the use of another language, for part or all of the Operations Manual, is justifiable. The criteria on which such an approval may be based should include at least the following:

a. The language(s) commonly used by the operator;

b. The language of related documentation used, such as the HFM;

c. Size of the operation;

d. Scope of the operation i.e. domestic or international route structure;

e. Type of operation e.g. VFR/IFR; and

f. The period of time requested for the use of another language.

AMC OPS 3.1045
Operations Manual Contents
See JAR-OPS 3.1045

1 Appendix 1 to JAR-OPS 3.1045 prescribes in detail the operational policies, instructions, procedures and other information to be contained in the Operations Manual in order that operations personnel can satisfactorily perform their duties. When compiling an Operations Manual, an operator may take advantage of the contents of other relevant documents. Material produced by the operator for Part B of the Operations Manual may be supplemented with or substituted by applicable parts of the Helicopter Flight Manual required by JAR-OPS 3.1050 or, where such a document exists, by a Helicopter Operating Manual produced by the manufacturer of the helicopter. For Part C of the Operations Manual, material produced by the operator may be supplemented with or substituted by applicable Route Guide material produced by a specialised professional company .

2 If an operator chooses to use material from another source in his Operations Manual he should either copy the applicable material and include it directly in the relevant part of the Operations Manual, or the Operations Manual should contain a statement to the effect that a specific manual(s) (or parts thereof) may be used instead of the specified part(s) of the Operations Manual.

3 If an operator chooses to make use of material from an alternative source (e.g. Jeppesen) as explained above, this does not absolve the operator from the responsibility of verifying the applicability and suitability of this material. (See JAR-OPS 3.1040(k).)

IEM OPS 3.1045(c)
Operations Manual Structure
See JAR-OPS 3.1045(c) & Appendix 1 to JAR-OPS 3.1045

1 JAR-OPS 3.1045(a) prescribes the main structure of the Operations Manual as follows:

Part A - General/Basic;

Part B - Helicopter Operating Matters - Type Related;

Part C - Route and Aerodrome Instructions and Information;

Part D - Training.

2 JAR-OPS 3.1045 (c) requires the operator to ensure that the detailed structure of the Operations Manual is acceptable to the Authority.

3 Appendix 1 to JAR-OPS 3.1045 contains a comprehensively detailed and structured list of all items to be covered in the Operations Manual. Since it is believed that a high degree of standardisation of Operations Manuals within the JAA will lead to improved overall flight safety, it is strongly recommended that the structure described in this IEM should be used by operators as far as possible. A List of Contents based upon Appendix 1 to JAR-OPS 3.1045 is given below.

4 Manuals which do not comply with the recommended structure may require a longer time to be accepted/approved by the Authority.

5 To facilitate comparability and usability of Operations Manuals by new personnel, formerly employed by another operator, operators are recommended not to deviate from the numbering system used in Appendix 1 to JAR-OPS 3.1045. If there are sections which, because of the nature of the operation, do not apply, it is recommended that operators maintain the numbering system described below and insert 'Not applicable' or 'Intentionally blank' where appropriate.

Operations Manual Structure

(List of Contents)

Part A GENERAL/BASIC

0 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL

0.1. Introduction
0.2 System of amendment and revision

1 ORGANISATION AND RESPONSIBILITIES

1.1 Organisational structure
1.2 Names of nominated postholders
1.3 Responsibilities and duties of operations management personnel
1.4 Authority, duties and responsibilities of the commander
1.5. Duties and responsibilities of crew members other than the commander

2 OPERATIONAL CONTROL AND SUPERVISION

2.1 Supervision of the operation by the operator
2.2 System of promulgation of additional operational instructions and information
2.3 Accident prevention and flight safety programme
2.4 Operational control
2.5 Powers of the Authority

3 QUALITY SYSTEM

4 CREW COMPOSITION

4.1 Crew Composition
4.2 Intentionally blank
4.3 Flight crew incapacitation
4.4 Operation on more than one type

5 QUALIFICATION REQUIREMENTS

5.1 Description of licence, qualification/competency, training, checking etc.
5.2 Flight crew
5.3 Cabin crew
5.4 Training, checking and supervisory personnel
5.5 Other operations personnel

6 CREW HEALTH PRECAUTIONS

6.1 Crew health precautions

7 FLIGHT TIME LIMITATIONS

7.1 Flight and Duty Time limitations and Rest requirements
7.2 Exceedances of flight and duty time limitations and/or reduction of rest periods

8 OPERATING PROCEDURES

8.1 Flight Preparation Instructions
8.1.1 Minimum Flight Altitudes
8.1.2 Criteria for determining the usability of aerodromes
8.1.3 Methods for the determination of Heliport Operating Minima
8.1.4 En-route Operating Minima for VFR flights or VFR portions of a flight
8.1.5 Presentation and Application of Heliport and En-route Operating Minima
8.1.6 Interpretation of meteorological information
8.1.7 Determination of the quantities of fuel, oil and water methanol carried
8.1.8 Mass and Centre of Gravity
8.1.9 ATS Flight Plan
8.1.10 Operational Flight Plan
8.1.11 Operator's Helicopter Technical Log
8.1.12 List of documents, forms and additional information to be carried
8.2 Ground Handling Instructions

8.2.1 Fuelling procedures
8.2.2 Helicopter, passengers and cargo handling procedures related to safety
8.2.3 Procedures for the refusal of embarkation
8.2.4 De-icing and Anti-icing on the Ground

8.3 Flight Procedures

8.3.1 VFR/IFR policy
8.3.2 Navigation Procedures
8.3.3 Altimeter setting procedures
8.3.4 Audio voice alerting device
8.3.5 *Intentionally blank*
8.3.6 *Intentionally blank*
8.3.7 Policy and procedures for in-flight fuel management
8.3.8 Adverse and potentially hazardous atmospheric conditions
8.3.9 Wake Turbulence and Rotor Downwash
8.3.10 Crew members at their stations
8.3.11 Use of safety belts for crew and passengers
8.3.12 Admission to Cockpit
8.3.13 Use of vacant crew seats
8.3.14 Incapacitation of crew members
8.3.15 Cabin Safety Requirements
8.3.16 Passenger briefing procedures
8.3.17 *Intentionally blank*

8.4 All Weather Operations

8.5 *Intentionally blank*

8.6 Use of the Minimum Equipment and Configuration Deviation List(s)

8.7 Non revenue flights

8.8 Oxygen Requirements

9 DANGEROUS GOODS AND WEAPONS

10 SECURITY

11 HANDLING OF ACCIDENTS AND OCCURRENCES

12 RULES OF THE AIR

Part B HELICOPTER OPERATING MATTERS TYPE RELATED

0 GENERAL INFORMATION AND UNITS OF MEASUREMENT

1 LIMITATIONS

2 EMERGENCY PROCEDURES

3 NORMAL PROCEDURES

4 PERFORMANCE

4.1 Performance data
4.2 Additional performance data

5 MASS AND BALANCE

6 LOADING

7 FLIGHT PLANNING

8 CONFIGURATION DEVIATION LIST

9 MINIMUM EQUIPMENT LIST

10 SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN

11 EMERGENCY EVACUATION PROCEDURES

11.1 Instructions for preparation for emergency evacuation
11.2 Emergency evacuation procedures

12 HELICOPTER SYSTEMS

Part C ROUTE AND AERODROME INSTRUCTIONS AND INFORMATION

Part D TRAINING

1 TRAINING SYLLABI AND CHECKING PROGRAMMES - GENERAL

2 TRAINING SYLLABI AND CHECKING PROGRAMMES

2.1 Flight Crew
2.2 Cabin Crew
2.3 Operations Personnel including Crew Members
2.4 Operations Personnel other than Crew Members

3 PROCEDURES

3.1 Procedures for training and checking

3.2 Procedures to be applied in the event that personnel do not achieve or maintain required standards

3.3 Procedures to ensure that abnormal or emergency situations are not simulated during commercial air transportation flights

4 DOCUMENTATION AND STORAGE

IEM to Appendix 1 to JAR-OPS 3.1045
Operations Manual Contents

With reference to Operations Manual Section B, paragraph 9 (Minimum Equipment List) and 12 (Helicopter Systems) operators should give consideration to using the ATA number system when allocating chapters and numbers for helicopter systems.

IEM OPS 3.1055(a)(12)
Signature or equivalent
See JAR-OPS 3.1055(a)(12)

1 JAR-OPS 3.1055 requires a signature or its equivalent. This IEM gives an example of how this can be arranged where normal signature by hand is impracticable and it is desirable to arrange the equivalent verification by electronic means.

2 The following conditions should be applied in order to make an electronic signature the equivalent of a conventional hand-written signature:

i. Electronic 'signing' should be achieved by entering a Personal Identification Number (PIN) code with appropriate security etc.;

ii. Entering the PIN code should generate a print-out of the individual's name and professional capacity on the relevant document(s) in such a way that it is evident, to anyone having a need for that information, who has signed the document;

iii. The computer system should log information to indicate when and where each PIN code has been entered;

iv. The use of the PIN code is, from a legal and responsibility point of view, considered to be fully equivalent to signature by hand;

v. The requirements for record keeping remain unchanged; and.

vi. All personnel concerned should be made aware of the conditions associated with electronic signature and should confirm this in writing.

IEM OPS 3.1055(b)
Journey log
See JAR-OPS 3.1055(b)

The 'other documentation' referred to in this paragraph might include such items as the operational flight plan, the helicopter technical log, cockpit flight report, crew lists etc.

AMC/IEM Q – FLIGHT AND DUTY TIME LIMITATIONS AND REST REQUIREMENTS

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AMC/IEM R – TRANSPORT OF DANGEROUS GOODS BY AIR

IEM OPS 3.1150(a)(3) & (a)(4)
Terminology - Dangerous Goods Accident and Dangerous Goods Incident
See JAR-OPS 3.1150(a)(3) & (a)(4)

As a dangerous goods accident (see JAR-OPS 3.1150(a)(3)) and dangerous goods incident (see JAR-OPS 3.1150(a)(4)) may also constitute an aircraft accident or incident the criteria for reporting both types of occurrence should be satisfied.

[Ch. 1, 01.02.99]

IEM OPS 3.1155
Approval to transport dangerous goods
See JAR-OPS 3.1155

1 Permanent approval for the transport of dangerous goods will be reflected on the Air Operator Certificate. In other circumstances an approval may be issued separately.

2 Before the issue of an approval for the transport of dangerous goods, the operator should satisfy the Authority that adequate training has been given, that all relevant documents (e.g. for ground handling, helicopter handling, training) contain information and instructions on dangerous goods, and that there are procedures in place to ensure the safe handling of dangerous goods at all stages of air transport.

3 The exemption or approval indicated in JAR-OPS 3.1165(b)(1) or (2) is in addition to that indicated by JAR-OPS 3.1155.

IEM OPS 3.1160(a)
Scope
See JAR-OPS 3.1160(a)

1 Although the Technical Instructions use the term 'aircraft' throughout the document, the wording may suggest that the provisions are relevant only to fixed wing scheduled operations. The Technical Instructions contain all the information which is relevant to the transport of dangerous goods by air, irrespective of what type of aircraft is used and in what circumstances.

2 Unless the wording in the Technical Instructions makes it otherwise apparent, all the provisions of the Technical Instructions apply on every occasion when dangerous goods are carried by helicopter. Dangerous goods may be carried other than in accordance with the Technical Instructions only when:

a They have been exempted under JAR-OPS 3.1165(b)(1); or

b. An approval has been issued under JAR-OPS 3.1175 or 3.1210; or

c. The Authority has specified different markings under JAR-OPS 3.1180(b).

IEM OPS 3.1160(b)(1)
Dangerous goods on a helicopter in accordance with the relevant regulations or for operating reasons
See JAR-OPS 3.1160(b)(1)

1 Dangerous goods required to be on board a helicopter in accordance with the relevant JARs or for operating reasons are those which are for:

a. The airworthiness of the helicopter;

b. The safe operation of the helicopter; or

c. The health of passengers or crew.

2 Such dangerous goods include but are not limited to:

a. Batteries;

IEM OPS 3.1160(b)(1) (continued)

b. Fire extinguishers;

c. First-aid kits;

d. Insecticides/Air fresheners;

e. Life saving appliances; and

f. Portable oxygen supplies.

IEM OPS 3.1160(b)(3)
Veterinary aid or a humane killer for an animal
See JAR-OPS 3.1160(b)(3)

The dangerous goods referred to in JAR-OPS 3.1160(b)(3) may also be carried on a flight made by the same helicopter or preceding the flight on which the animal is carried and/or on a flight made by the same helicopter after that animal has been carried when it is impracticable to load or unload the goods at the time of the flight on which the animal is carried.

[Ch. 1, 01.02.99]

IEM OPS 3.1160(b)(4)
Medical Aid for a Patient
See JAR-OPS 3.1160(b)(4)

1 Gas cylinders, drugs, medicines, other medical material (such as sterilising wipes) and wet cell or lithium batteries are the dangerous goods which are normally provided for use in flight as medical aid for a patient. However, what is carried may depend on the needs of the patient. These dangerous goods are not those which are a part of the normal equipment of the helicopter.

2 The dangerous goods referred to in paragraph 1 above may also be carried on a flight made by the same helicopter to collect a patient or after that patient has been delivered when it is impracticable to load or unload the goods at the time of the flight on which the patient is carried.

IEM OPS 3.1160(b)(5)
Scope - Dangerous goods carried by passengers or crew
See JAR-OPS 3.1160(b)(5)

1 The Technical Instructions exclude some dangerous goods from the requirements normally applicable to them when they are carried by passengers or crew members, subject to certain conditions.

2 For the convenience of operators who may not be familiar with the Technical Instructions, these requirements are repeated below.

3 The dangerous goods which each passenger or crew member can carry are:

a. Alcoholic beverages **[**containing more than 24% but**]** not exceeding 70% alcohol by volume, when **[**in retail packagings not exceeding**]** 5 litres **[**and with a total not exceeding 5 litres per person.**]**

b. Non-radioactive medicinal or toilet articles (including aerosols, hair sprays, perfumes, medicines containing alcohol); and, in checked baggage only, aerosols which are non-flammable, non-toxic and without subsidiary risk, when for sporting or home use. The net quantity of each single article should not exceed 0.5 litre or 0.5 kg and the total net quantity of all articles should not exceed 2 litres or 2 kg;

c. Safety matches or a lighter for the person's own use and when carried on him. 'Strike anywhere' matches, lighters containing unabsorbed liquid fuel (other than liquefied gas), lighter fuel and lighter refills are not permitted;

d. A hydrocarbon gas-powered hair curler, providing the safety cover is securely fitted over the heating element. Gas refills are not permitted;

e. Small carbon dioxide gas cylinders worn for the operation of mechanical limbs and spare cylinders of similar size if required to ensure an adequate supply for the duration of the journey;

IEM OPS 3.1160(b)(5) (continued)

f. Radioisotopic cardiac pacemakers or other devices (including those powered by lithium batteries) implanted in a person, or radio-pharmaceuticals contained within the body of a person as a result of medical treatment;

g. A small medical or clinical thermometer containing mercury, for the person's own use, when in its protective case;

h. Dry ice, when used to preserve perishable items, providing the quantity of dry ice does not exceed 2 kg and the package permits the release of the gas. Carriage may be in carry-on (cabin) or checked baggage, but when in checked baggage the operator's agreement is required;

i. When carriage is allowed by the operator, small gaseous oxygen or air cylinders for medical use;

j. When carriage is allowed by the operator, **[**not more than two**]** small carbon dioxide cylinder fitted into a self-inflating life-jacket and **[**not more than two**]** spare cylinder;

k. When carriage is allowed by the operator, wheelchairs or other battery-powered mobility aids with non-spillable batteries, providing the equipment is carried as checked baggage. The battery should be securely attached to the equipment, be disconnected and the terminals insulated to prevent accidental short circuits;

l. When carriage is allowed by the operator, wheelchairs or other battery-powered mobility aids with spillable batteries, providing the equipment is carried as checked baggage. When the equipment can be loaded, stowed, secured and unloaded always in an upright position, the battery should be securely attached to the equipment, be disconnected and the terminals insulated to prevent accidental short circuits. When the equipment cannot be kept upright, the battery should be removed and carried in a strong, rigid packaging, which should be leak-tight and impervious to battery fluid. The battery in the packaging should be protected against accidental short circuits, be held upright and be surrounded by absorbent material in sufficient quantity to absorb the total liquid contents. The package containing the battery should have on it 'Battery wet, with wheelchair' or 'Battery wet, with mobility aid', bear a 'Corrosives' label and be marked to indicate its correct orientation. The package should be protected from upset by securement in the cargo compartment of the helicopter. The commander should be informed of the location of a wheelchair or mobility aid with an installed battery or of a packed battery;

m. When carriage is allowed by the operator, cartridges for sporting weapons, providing they are in Division 1.4S (See Note), they are for that person's own use, they are securely boxed and in quantities not exceeding 5 kg gross mass and they are in checked baggage. Cartridges with explosive or incendiary projectiles are not permitted;

Note: Division 1.4S is a classification assigned to an explosive. It refers to cartridges which are packed or designed so that any dangerous effects from the accidental functioning of one or more cartridges in a package are confined within the package unless it has been degraded by fire, when the dangerous effects are limited to the extent that they do not hinder fire fighting or other emergency response efforts in the immediate vicinity of the package. Cartridges for sporting use are likely to be within Division 1.4S.

n. When carriage is allowed by the operator, a mercurial barometer **[**or mercurial thermometer**]** in carry-on (cabin) baggage when in the possession of a representative of a government weather bureau or similar official agency. The barometer **[**or thermometer**]** should be packed in a strong packaging having inside a sealed inner liner or bag of strong leak-proof and puncture resistant material impervious to mercury closed in such a way as to prevent the escape of mercury from the package irrespective of its position. The commander should be informed when such a barometer **[**or thermometer**]** is to be carried;

o. When carriage is allowed by the operator, heat producing articles (i.e. battery operated equipment, such as under-water torches and soldering equipment, which if accidentally activated will generate extreme heat which can cause a fire), providing the articles are in carry-on (cabin) baggage. The heat producing component or energy source should be removed to prevent accidental functioning;

[ ]

[Amdt. 2, 01.01.02]

IEM OPS 3.1165(b)(1)
States concerned with exemptions
See JAR-OPS 3.1165(b)(1)

1 The Technical Instructions provide that in certain circumstances dangerous goods, which are normally forbidden on a helicopter, may be carried. These circumstances include cases of extreme urgency or when other forms of transport are inappropriate or when full compliance with the prescribed requirements is contrary to the public interest. In these circumstances all the States concerned may grant exemptions from the provisions of the Technical Instructions provided that every effort is made to achieve an overall level of safety which is equivalent to that provided by the Technical Instructions.

2 The States concerned are those of origin, transit, overflight and destination of the consignment and that of the operator. **[ ]**

3 Where the Technical Instructions indicate that dangerous goods which are normally forbidden may be carried with an approval, the exemption procedure does not apply.

4 The exemption required by JAR-OPS 3.1165(b)(1) is in addition to the approval required by JAR-OPS 3.1155.

[Amdt. 2, 01.01.02]

AMC OPS 3.1175
Packing
See JAR-OPS 3.1175

1 The Technical Instructions detail the packagings which may be used to pack dangerous goods and the quantities allowed in the packagings. In general the packagings are those which are described as 'specification packagings' in that the Technical Instructions set down both specifications and testing for them; they bear UN specification packaging markings on them.

2 However, there may be some circumstances when it is impractical or impossible to use UN specification packagings, such as when dangerous goods are being carried from an off-shore oil or gas rig. In these circumstances, whenever possible, the provisions for limited quantities of dangerous goods as detailed in the Technical Instructions should be used.

3 If it is not possible to use either UN specification packagings or the limited quantity provisions of the Technical Instructions, the Competent Authority may issue an exemption from the requirements of the Technical Instructions to allow the use of other packagings, providing an equivalent level of safety is achieved.

4 An equivalent level of safety can be achieved if the packagings used comply with Part 3; 1.1 of the Technical Instructions, **[**(except where this makes reference to the need for the packagings to comply with requirements in Part 7 of those Instructions)**]** and they are capable of withstanding a 1·8 m drop test onto a rigid, non-resilient, flat and horizontal surface. This level of safety may also be achieved if the dangerous goods conform to the requirements of the International Maritime Dangerous Goods Code, the Regulations for the International Carriage of Dangerous Goods by Rail (RID Regulations), the European Agreement on the International Carriage of Dangerous Goods by Road (ADR Regulations) or the European provisions for the International Carriage of Dangerous Goods by Inland Waterway (ADN Regulations).

5 The quantities should not exceed those specified in the relevant packing instruction for the type of packaging used (e.g. fibreboard box, metal drum).

[Amdt. 2, 01.01.02]

AMC OPS 3.1180(b)
Marking
See JAR-OPS 3.1180(b)

If it is impractical or unreasonable to require that all the markings specified by the Technical Instructions appear on packages of dangerous goods, the Competent Authority may issue an exemption from the

AMC OPS 3.1180(b) (continued)

requirements of those Instructions to allow markings to be omitted when their appearance would not contribute to the level of safety. In such circumstances it should be ensured that the flight crew members are given sufficient information before a flight so they can identify the dangerous goods.

AMC OPS 3.1210(a)
Loading Restrictions
See JAR-OPS 3.1210(a)

1 On the occasions when it is not possible or reasonable to apply the full loading restrictions of the Technical Instructions to helicopters, the Competent Authority may grant an exemption from the normal requirements to allow dangerous goods to be carried on the same helicopter as passengers.

2 An exemption should only be issued when there is an essential reason for doing so. The dangerous goods may be carried in the cabin, in accessible cargo areas behind the cabin or under the cabin floor or in panniers affixed to the outside of the helicopter. The requirements in Part 5; Chapter **[**2**]** of the Technical Instructions, concerning the segregation of incompatible dangerous goods, shall be met at all times. Where radioactive materials are to be carried, the separation distances set down in Part 5; Chapter **[**2**]** shall be met, except that the distance shall be measured from the nearest point occupied by a passenger to the surface of the package, overpack or freight container containing the radioactive material.

[Amdt. 2, 01.01.02]

AMC OPS 3.1215(b)
Provision of information
See JAR-OPS 3.1215(b)

1 *Information to Passengers*

1.1 Information to passengers should be promulgated in such a manner that passengers are warned as to the types of dangerous goods that must not be carried on board a helicopter.

1.2 As a minimum, this information should consist of:

a. Warning notices or placards sufficient in number and prominently displayed, at each of the places at an airport where tickets are issued and passengers checked in, in helicopter boarding areas and at any other place where passengers are checked in; and

b. A warning with the passenger ticket. This may be printed on the ticket or on a ticket wallet or on a leaflet.

1.3 The information to passengers may include reference to those dangerous goods which may be carried.

2 *Information to Other Persons*

2.1 Information to persons offering cargo for transport by air should be promulgated in such a manner that those persons are warned as to the need to properly identify and declare dangerous goods.

2.2 As a minimum this information should consist of warning notices or placards sufficient in number and prominently displayed at any location where cargo is accepted.

3 *General*

3.1 Information should be easily understood and identify that there are various classes of dangerous goods.

3.2 Pictographs may be used as an alternative to providing written information or to supplement such information.

AMC OPS 3.1215(e)
Information in the Event of a helicopter Incident or Accident
See JAR-OPS 3.1215(e)

The information to be provided should include the proper shipping name, UN**[**/ID**]** number **[ ]**, class, subsidiary risk(s) for which labels are required, the compatibility group for Class 1 and the quantity and location on board the helicopter.

[Amdt. 2, 01.01.02]

AMC OPS 3.1220
Training
See JAR-OPS 3.1220

1 Application for Approval of Training Programmes. **[ ]** Applications for approval of training programmes **[ ]** should indicate how the training will be carried out. **[**Training intended to**]** give general **[**information and guidance**]** may be **[ ]** by **[**any**]** means **[**including**]** handouts, leaflets, circulars, slide presentations, videos, etc, **[**and**]** may take place on-the-job or off-the-job. **[**Training intended to give in-depth and detailed appreciation of the whole subject or particular aspects of it should be by**]** formal training courses, **[**which should include a written examination the successful passing of which will result in the issue of the proof of qualification. Applications for formal training courses**]** should include the course objectives, the training programme syllabus/curricula and examples of the written examination to be undertaken. **[ ]**

2 Instructors. Instructors should have knowledge not only of training techniques but also of the transport of dangerous goods by air, in order that the subject be covered fully and questions adequately answered.

3 Areas of training. The areas of training given in Tables 1 and 2 of JAR-OPS 3.1220 are applicable whether the training is for general **[**information and guidance or to give an in-depth and detailed appreciation.**]** The **[**extent**]** to which **[**any area of**]** training should be covered is dependent upon whether it is **[**for general information or to give in-depth appreciation.**]** Additional areas not identified in Tables 1 and 2 may be needed**[**, or some areas omitted,**]** depending on the **[**responsibilities**]** of the individual. **[ ]**

4 Levels of Training

4.1 There are two levels of training:

a. Where it is intended to give **[**an**]** in-depth **[ ]** and a detailed appreciation of the **[**whole subject or of the**]** area(s) being covered, such that the person being trained gains in knowledge **[**so as to be able to apply**]** the detailed requirements of the Technical Instructions. **[**This training should include establishing, by means of a written examination covering all the areas of the training programme, that a required minimum level of knowledge has been acquired**]**; or

b. Where it is intended to give general information **[**and**]** guidance about the area(s) being covered, such that the person being trained receives an overall awareness of the subject. **[**This training should include establishing by means of a written or oral examination covering all areas of the training programme, that a required minimum level of knowledge has been acquired.**]**

4.2 In the absence of other guidance, the staff referred to in JAR-OPS 3.1220(c)(1) should receive training to the **[**extent**]** identified in sub-paragraph 4.1.a, above; all other staff referred to in JAR-OPS 3.1220(b) and (c) should receive training to the **[**extent**]** identified in sub-paragraph 4.1.b above. However, where flight crew or other crew members, such as loadmasters, are responsible for checking the dangerous goods to be loaded **[ ]**, their training should also be to the **[**extent**]** identified in paragraph 4.1.a, above.

5 Training in Emergency Procedures. The training in emergency procedures should include as a minimum:

a. For those personnel covered by JAR-OPS 3.1220(b) and (c), except for crew members whose emergency procedures training is covered in sub-paragraphs 5b or 5c (as applicable) below:

i. Dealing with damaged or leaking packages; and

AMC OPS 3.1220 (continued)

ii. Other actions in the event of ground emergencies arising from dangerous goods.

b. For flight crew members:

i. Actions in the event of emergencies in flight occurring in the passenger cabin or in the cargo compartments; and

ii. The notification to Air Traffic Services should an in-flight emergency occur. (See JAR-OPS 3.420(e).)

c. For crew members other than flight crew members:

i. Dealing with incidents arising from dangerous goods carried by passengers; or

ii. Dealing with damaged or leaking packages in flight.

6 Recurrent training. Recurrent training should cover the areas in Table 1 or Table 2 relevant to initial Dangerous Goods training unless the responsibility of the individual has changed.

[7. Test to verify understanding. It is necessary to have some means of establishing that a person has gained in understanding as a result of training; this is achieved by requiring the person to undertake a test. The complexity of the test, the manner of conducting it and the questions asked should be commensurate with the duties of the person being trained; and the test should demonstrate that the training has been adequate. If the test is completed satisfactorily a certificate should be issued confirming this.**]**

[Amdt. 2, 01.01.02]

IEM OPS 3.1220
Training
See JAR-OPS 3.1220

1 Areas of Training. The areas of training identified in Tables 1 and 2 of JAR-OPS 3.1220 are applicable whether the training is:

a. For general information and guidance; or

b. To give an in-depth and detailed appreciation of the subject.

1.1 The **[**extent**]** to which the training should be covered and whether areas not identified in Table 1 or Table 2 need to be added **[**or the identified areas varied**]**, is dependent on the responsibilities of the person being trained. In particular, if a crew member is a loadmaster the appropriate areas of training required may be those in column 4 of Table 2 and not those in column 5. **[**Also, if an operator carries only cargo, those areas relating to passengers and their baggage may be omitted from the training.**]**

2 How to Achieve Training

2.1 Training providing general information and guidance is intended to give a general **[**appreciation**]** of the requirements for the transport by air of dangerous goods. It may be achieved by means of handouts, leaflets, circulars, slide presentations, videos, etc, or a mixture of several of these means. The training does not need to be given by a formal training course **[**and may take place 'on-the-job' or 'off-the-job'.**]**

2.2 Training providing in-depth guidance and a detailed appreciation of the whole subject or particular areas of it is intended to give a level of knowledge necessary for the application of the requirements for the transport by air of dangerous goods. It should be given by a formal training course which takes place at a time when the person is not undertaking **[ ]** normal duties. The course may be by means of tuition or as a self-study programme or a mixture of both of these. It should cover all the areas of dangerous goods relevant to the person receiving the training, although areas not likely to be relevant may be omitted (for instance, training in the transport of radioactive materials may be excluded where they will not be carried by the operator).

[Amdt. 2, 01.01.02]

AMC OPS 3.1225
Dangerous Goods Incident and Accident Reports
See JAR-OPS 3.1225

1 Any type of dangerous goods incident or accident should be reported, irrespective of whether the dangerous goods are contained in cargo, mail, passengers' baggage or crew baggage. **[**The finding of undeclared or misdeclared dangerous goods in cargo, mail or baggage should also be reported.**]**

2 Initial reports may be made by any means, but in all cases a written report should be made as soon as possible.

3 The report should be as precise as possible and contain all data known at the time the report is made, for example:

a. Date of the incident or accident, **[**or the finding of undeclared or misdeclared dangerous goods;**]**

b. Location, **[ ]** the flight number and flight date, if applicable;

c. Description of the goods and the reference number of the air waybill, pouch, baggage tag, ticket, etc.;

d. Proper shipping name (including the technical name, if appropriate) and UN**[**/ID**]** number, where known;

e. Class or division and any subsidiary risk;

f. Type of packaging, if applicable, and the packaging specification marking on it;

g. Quantity involved;

h. Name and address of the shipper, passenger, etc.;

i. Any other relevant details;

j. Suspected cause of the incident or accident;

k. Action taken;

l. Any other reporting action taken; and

m. Name, title, address and contact number of the person making the report.

4 Copies of the relevant documents and any photographs taken should be attached to the report.

[Amdt. 2, 01.01.02]