





ANNEX 6

OPERATIONAL PROCEDURES

Ali Erfanian

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Erfanian

Annex 6

Annex 6

 to the Convention on International Civil Aviation

Operation of Aircraft

Part I — International Commercial Air Transport — Aeroplanes
Twelfth Edition, July 2022



Annex 6

AMENDMENT 46: 25/3/2021

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Annex 6 to the Convention on International Civil Aviation

Operation of Aircraft

Part II — International General Aviation — Aeroplanes
Tenth Edition, July 2018

Annex 6 to the Convention on International Civil Aviation

Operation of Aircraft

Part III — International Operations — Helicopters
Tenth Edition, July 2020





OPERATIONAL PROCEDURES

ATPL GROUND TRAINING SERIES



ATPL Book 12 Operational Procedures

- 1. ICAO Annex 6
- 2. EU-OPS General Requirements
- 3. Operator Supervision and Certification
- 4. Operational Procedures
- 5. All Weather Operations
- 6. Aeroplane Equipment and Instruments
- 7. Crew, Logs and Records
- 8. Long Range Flight and Polar Navigation
- 9. Minimum Navigation Performance Specification Airspace (MNPSA)
- 10. Special Operational Procedures and Hazards

ATPL Book 12 Operational Procedures

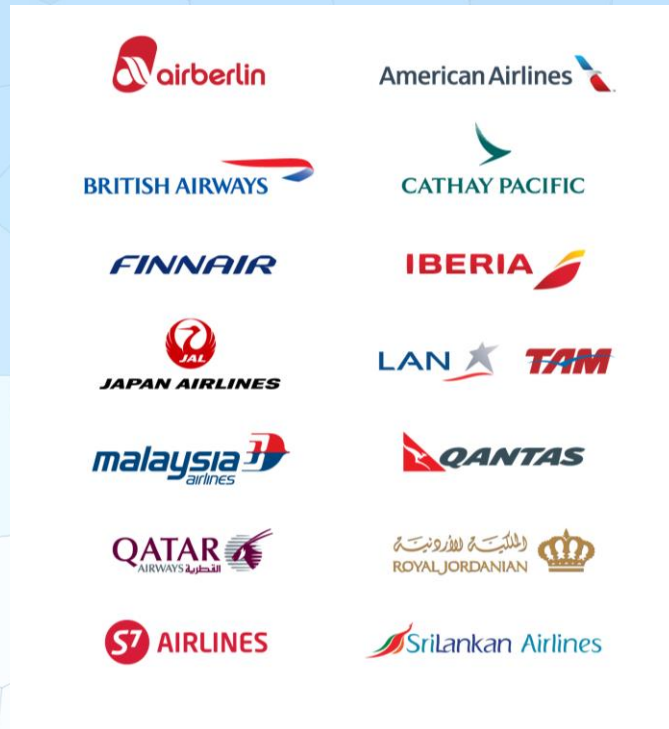
- 11. Fire and Smoke
- 12. Pressurization Failure
- 13. Windshear and Microburst
- 14. Wake Turbulence
- 15. Security
- 16. Emergency and Precautionary Landings
- 17. Fuel Jettison
- 18. Transport of Dangerous Goods by Air
- 19. Contaminated Runways



Annex 6

Definition

Operator. The person, organization or enterprise engaged in or offering to engage in an aircraft operation.



World's Best Airlines 2019

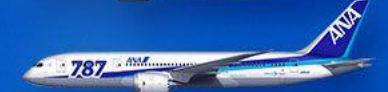
#1 Qatar Airways



#2 Singapore Airlines



#3 ANA All Nippon Airways



#4 Cathay Pacific



#5 Emirates



#6 EVA Air



#7 Hainan Airlines



#8 Qantas Airways



#9 Lufthansa



#10 Thai Airways



asap tickets

[read more at blog.asaptickets.com](http://blog.asaptickets.com)

Key Post Holders within the Operation

With regard to the issue and maintenance of the AOC the most important person in the operation is the '**Accountable Manager.**'

Other post holders appointed by the operator, required and acceptable to the Authority are:

- Flight Operations manager.
- Maintenance System manager.
- Crew Training manager.
- Ground Operations manager.

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Main Operating Base

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- The Authority will require full operational support facilities to be established and maintained at the main operating base, appropriate to the **area** and **type of operations** conducted.
- For example, the main operating base of British Airways is London Heathrow but due to the extensive nature of the operation, many company/operation activities are by necessity, duplicated at other aerodromes around the world.



Obstacle clearance altitude (OCA) or obstacle clearance height (OCH).

The lowest altitude or the lowest height above the **elevation of the relevant runway threshold** or the **aerodrome elevation** as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 1.— Obstacle clearance altitude is referenced to **mean sea level** and obstacle clearance height is referenced to the **threshold elevation** or in the case of **non-precision approach** procedures to the **aerodrome elevation** or the **threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation**. An obstacle clearance height for a **circling** approach procedure is referenced to the **aerodrome elevation**.

Note 2.— For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/ height” and abbreviated “OCA/H”.

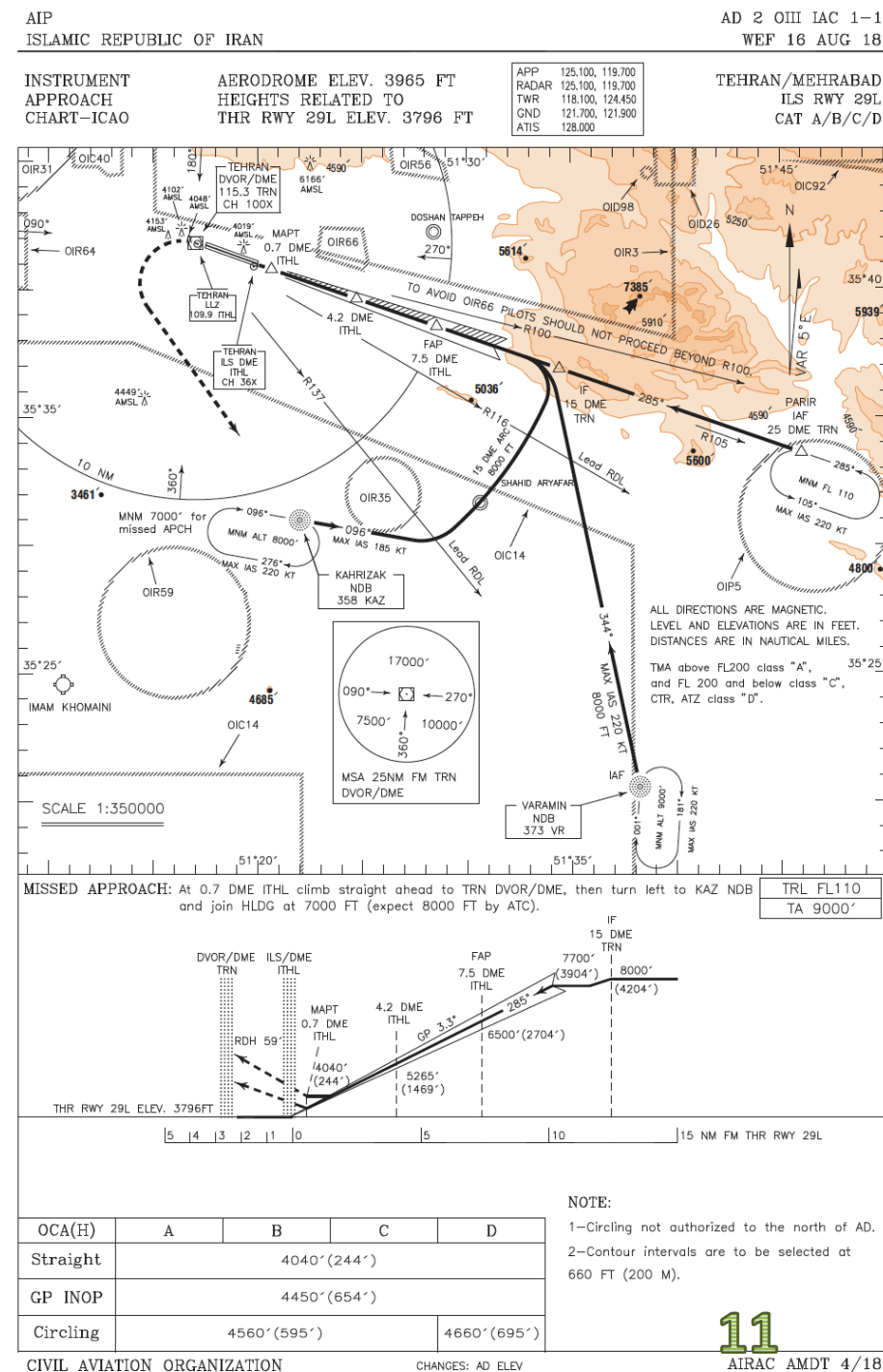
OCH **aerodrome elevation**: non-precision, circling

OCH **threshold elevation**: non-precision with THR elevation more than 7 ft below the aerodrome elevation

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Classification of Aeroplanes

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The criteria taken into consideration for the classification of aeroplanes by categories is the indicated airspeed at threshold (V_{AT}), which is equal to the stalling speed in the landing configuration (V_{SO}) multiplied by 1.3.

Aeroplane Category	V_{AT}
A	Less than 91 kt
B	From 91 to 120 kt
C	From 121 to 140 kt
D	From 141 to 165 kt
E	From 166 to 210 kt

Definition

Aerodrome operating minima. The limits of usability of an aerodrome for:

- a) **take-off**, expressed in terms of **runway visual range** and/or **visibility** and, if necessary, **cloud** conditions;
- b) **landing in 2D instrument approach operations**, expressed in terms of **visibility** and/or **runway visual range**, minimum descent altitude/height (**MDA/H**) and, if necessary, **cloud** conditions; and
- c) **landing in 3D instrument approach operations**, expressed in terms of **visibility** and/or **runway visual range** and decision altitude/height (**DA/H**) as appropriate to the type and/or category of the operation.

AD 1.1-3

1 JUL 12

5.2. Take-off minima

For all aircraft operating in Islamic Republic of Iran airports, the takeoff minima must be expressed as take-off Visibility values not lower than those given in the table shown below:

Facilities	RVR / Visibility
No lighting system (Daylight only)	500 M
RWY edge lighting and marking	400 M
RWY centerline lighting and marking	300 M

Aerodrome Operating Minima

Where an **operator** establishes an aerodrome operating minima, the minima **shall not be lower** than any that may be established for such aerodromes **by the state** in which the aerodrome is located.

<i>Aerodrome name</i> <i>Location indicator</i>	<i>Absolute Minima(m)</i>
<i>Abadan</i> <i>OIAA</i>	<i>1200</i>
<i>Abumusa Island / Abumusa</i> <i>OIBA</i>	<i>1500</i>
<i>Aghajari</i> <i>OLAG</i>	<i>1500</i>
<i>Ahwaz</i> <i>OIAW</i>	<i>1000</i>
<i>Arak</i> <i>OIHR</i>	<i>1400</i>
<i>Ardabil</i> <i>OITL</i>	<i>1000</i>

AD 1.1-3
1 JUL 12

Note 2. Such Absolute Minima for all ILS CAT I operations is shown in the table below:

	Full Facilities*	Basic Facilities**
Visibility***	800 m	1200 m
RVR	550 m	1200 m

Note 3. For CAT II operations, Absolute Minima is RVR 300 meter.



Aerodrome Operating Minima

One shall not initiate any flight made in accordance with **instrument flight rules** unless the available information indicates that the conditions at the aerodrome of predicted **destination** or, at an aerodrome of **alternative** destination, are at the **predicted time of arrival** **equal to or better** than the minimum conditions required for aerodrome use.

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Minimum descent altitude (MDA) or minimum descent height (MDH). A specified altitude or height in a **2D** instrument approach operation or **circling** approach operation below which **descent must not be made** without the required **visual reference**. **NOT GO-AROUND**

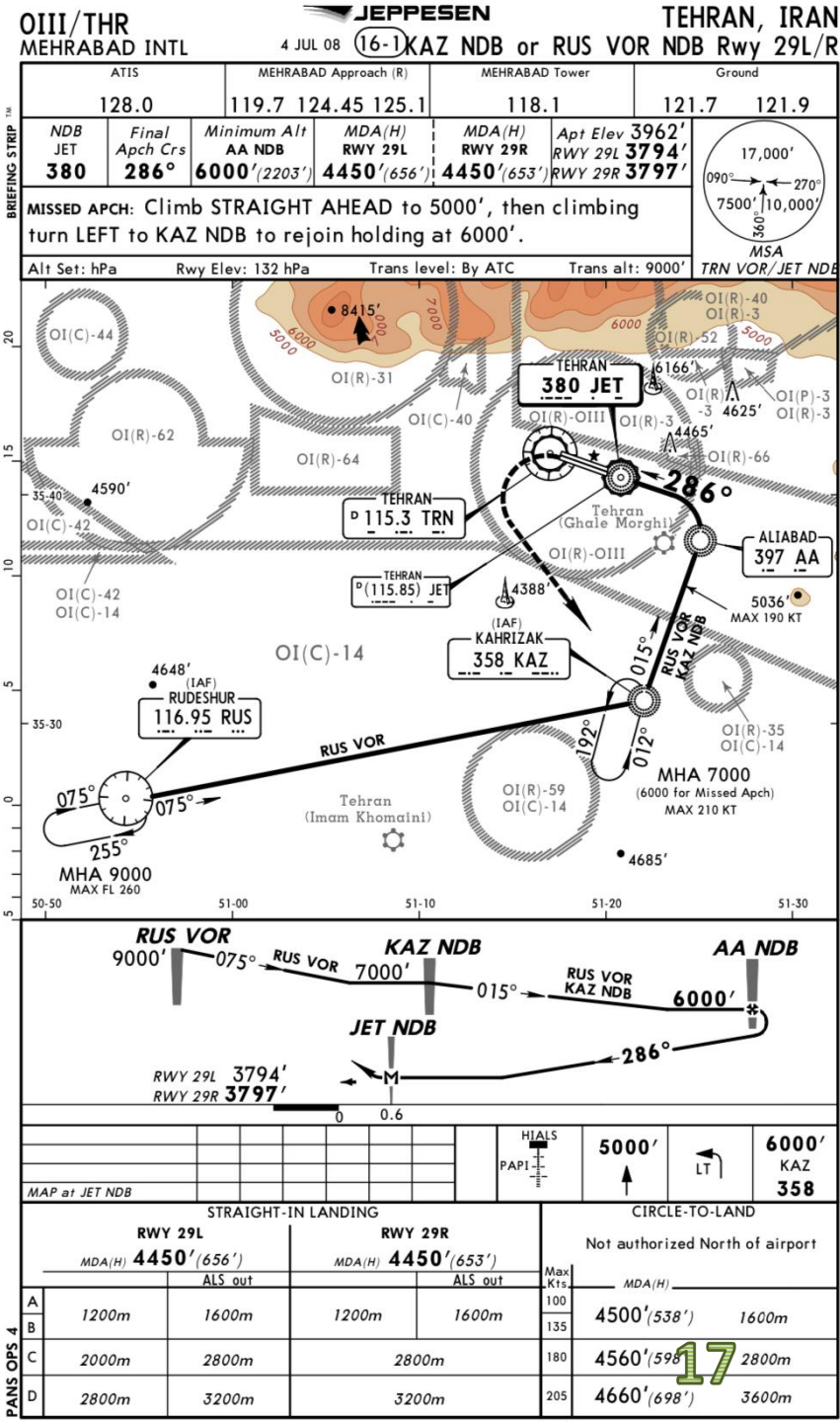
Note 1.— Minimum descent altitude (MDA) is referenced to **mean sea level** and minimum descent height (MDH) is referenced to the **aerodrome elevation** or to the **threshold elevation** if that is **more than 2 m (7 ft) below the aerodrome elevation**.

A **minimum descent height** for a circling approach is referenced to the **aerodrome elevation**.

Note 2.— The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.

In the case of a circling approach the required visual reference is the runway environment.

Note 3.— For convenience when both expressions are used they may be written in the form “minimum descent altitude/ height” and abbreviated “MDA/H”.



System minima	
Facility	Lowest MDH
Localiser with or without DME	250 ft
SRA terminating at 0.5 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	350 ft
VDF (QDM and QGH)	350 ft
NDB/DME	300 ft
RNAV/LNAV	300 ft

Non-precision Approach

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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 *Figure 5.4*.



Circling

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	Aeroplane Category			
	A	B	C	D
MDH	400 ft	500 ft	600 ft	700 ft
Minimum Met Visibility	1500 m	1600 m	2400 m	3600 m

Visibility & MDH for circling vs aeroplane category

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

MDH

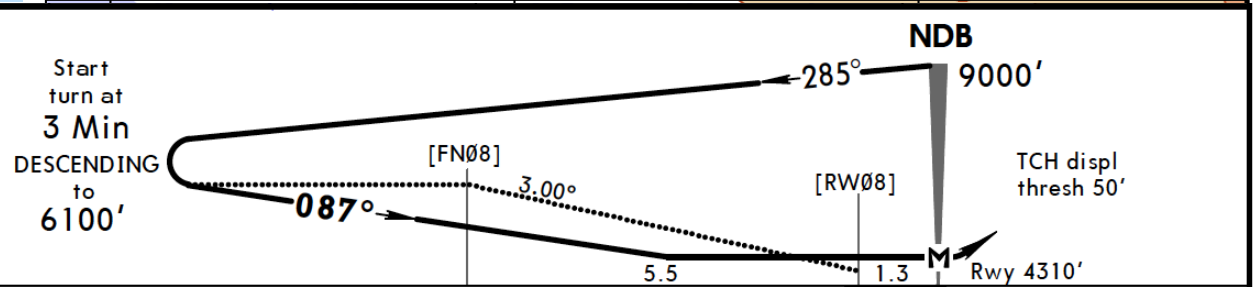
During a **2D** approach, the Minimum Descent Height (**MDH**) is referred to the **runway threshold** altitude and not to the aerodrome altitude if the runway threshold is at **more than 2 m (7 ft) below the aerodrome elevation**.

OITM/ACP
SAHAND
JEPPESEN
 24 MAR 17
 Eff 30 Mar (16-1) CAT C & D

 MARAGHEH, IRAN
 MISSED APCH CLIMB
 GRADIENT MIN 3.3% NDB Rwy 08

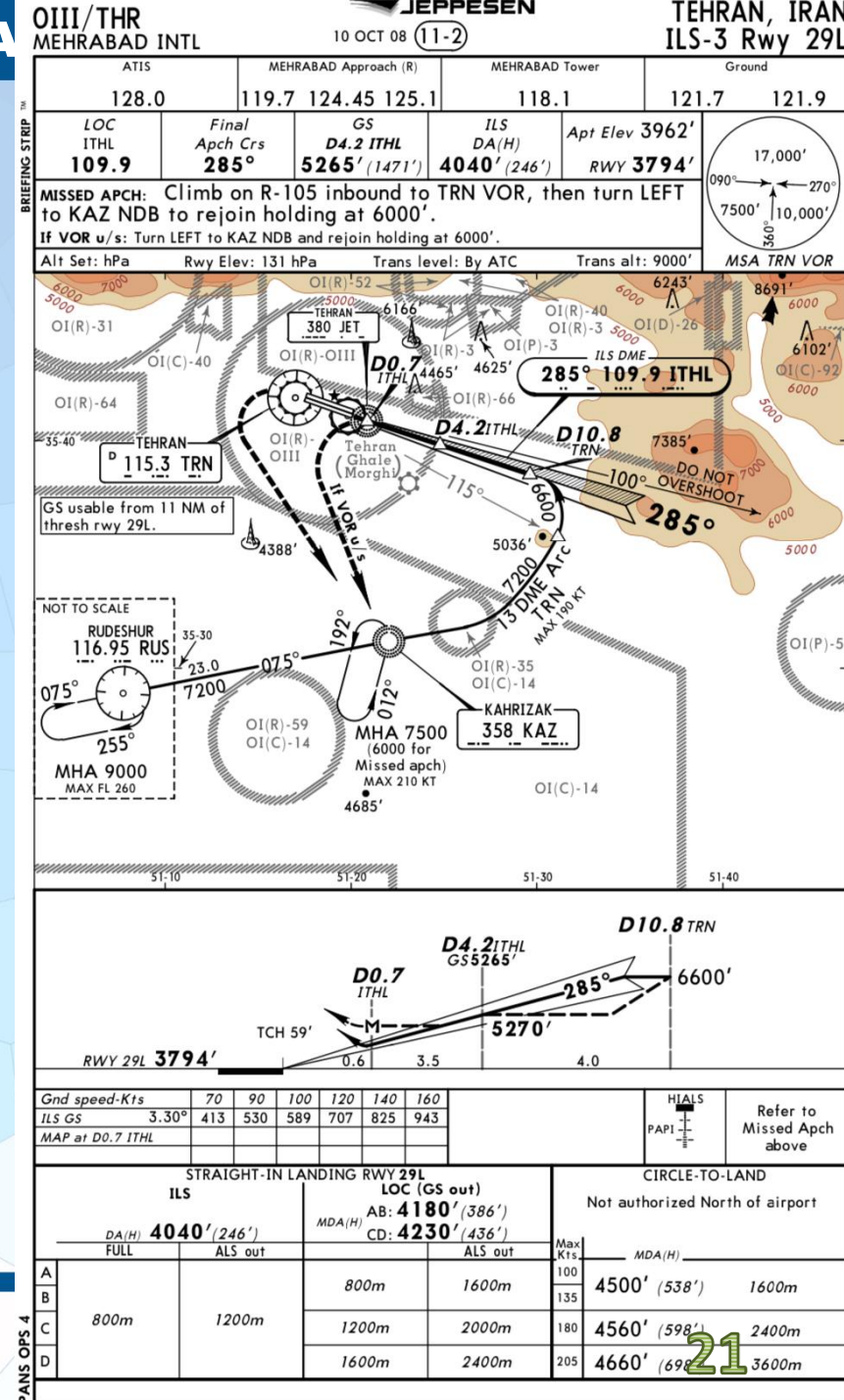
BRIEFING STRIP™

SAHAND Information					
127.450X					
NDB SHD 363	Final Apch Crs 087°	Minimum Alt No FAF	MDA(H) 5150' (840')	Apt Elev 4397' Rwy 4310'	 MSA SHD NDB
MISSED APCH: Turn RIGHT and climb on track 170° to 7000', then turn RIGHT to rejoin holding at 9000'.					
Alt Set: hPa	Rwy Elev: 148 hPa	Trans level: FL110	Trans alt: 9000'		



Gnd speed-Kts	70	90	100	120	140	160	170° 7000'	
Descent Angle 3.00°	372	478	531	637	743	849		
MAP at NDB							RT	↑
STRAIGHT-IN LANDING RWY 08 Missed apch climb grad min 3.3%							CIRCLE-TO-LAND	
MDA(H) 5150' (840')							Max Kts	MDA(H)
A	NOT APPLICABLE						A	NOT APPLICABLE
B							B	NOT APPLICABLE
C	4000m						180	5520' (1123') 4800m
D	4400m						205	5850' (1453') 4800m

Note 3.— For convenience where both expressions are used they may be written in the form “decision altitude/height” and abbreviated “DA/H”.



**Method of
determining
MDA/H
for non-precision
approaches**

Minimum descent altitude/height (MDA/H)

Margin or lower limit

Based on operational consideration of ground/airborne equipment characteristics, crew qualifications, met conditions, aerodrome characteristics, location of guidance aid relative to runway

Obstacle clearance altitude/height (OCA/H)

**Minimum Obstacle Clearance (MOC)
for the final segment**

Fixed margin for all aircraft:
90 m (295 ft) without FAF
75 m (246 ft) with FAF

Height of the highest obstacle in the final approach segment

Aerodrome Elevation or threshold elevation if more than 2 m (7 ft) below aerodrome elevation

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**Method of
determining
MDA/H
for circling
approaches**

Minimum descent altitude/height for circling (MDA/H)

Margin or lower limit

Based on operational consideration of aircraft characteristics, crew qualifications, met conditions, aerodrome characteristics

Obstacle clearance altitude/height (OCA/H)

The OCH shall not be less than

Cat A	120 m (394 ft)
Cat B	150 m (492 ft)
Cat C	180 m (591 ft)
Cat D	210 m (689 ft)
Cat E	240 m (787 ft)

Minimum Obstacle Clearance (MOC)

Category A and B	90 m (295 ft)
Category C and D	120 m (394 ft)
Category E	150 m (492 ft)

Height of the highest obstacle in the circling area

Aerodrome Elevation

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Method of determining **DA/H** for precision approaches

Decision altitude/height (DA/H)

Margin or lower limit

Based on operational consideration of ground/airborne equipment characteristics, crew qualifications, met conditions, aerodrome characteristics, terrain profile (rad alt), pressure error

Obstacle clearance altitude/height (OCA/H)

Margin

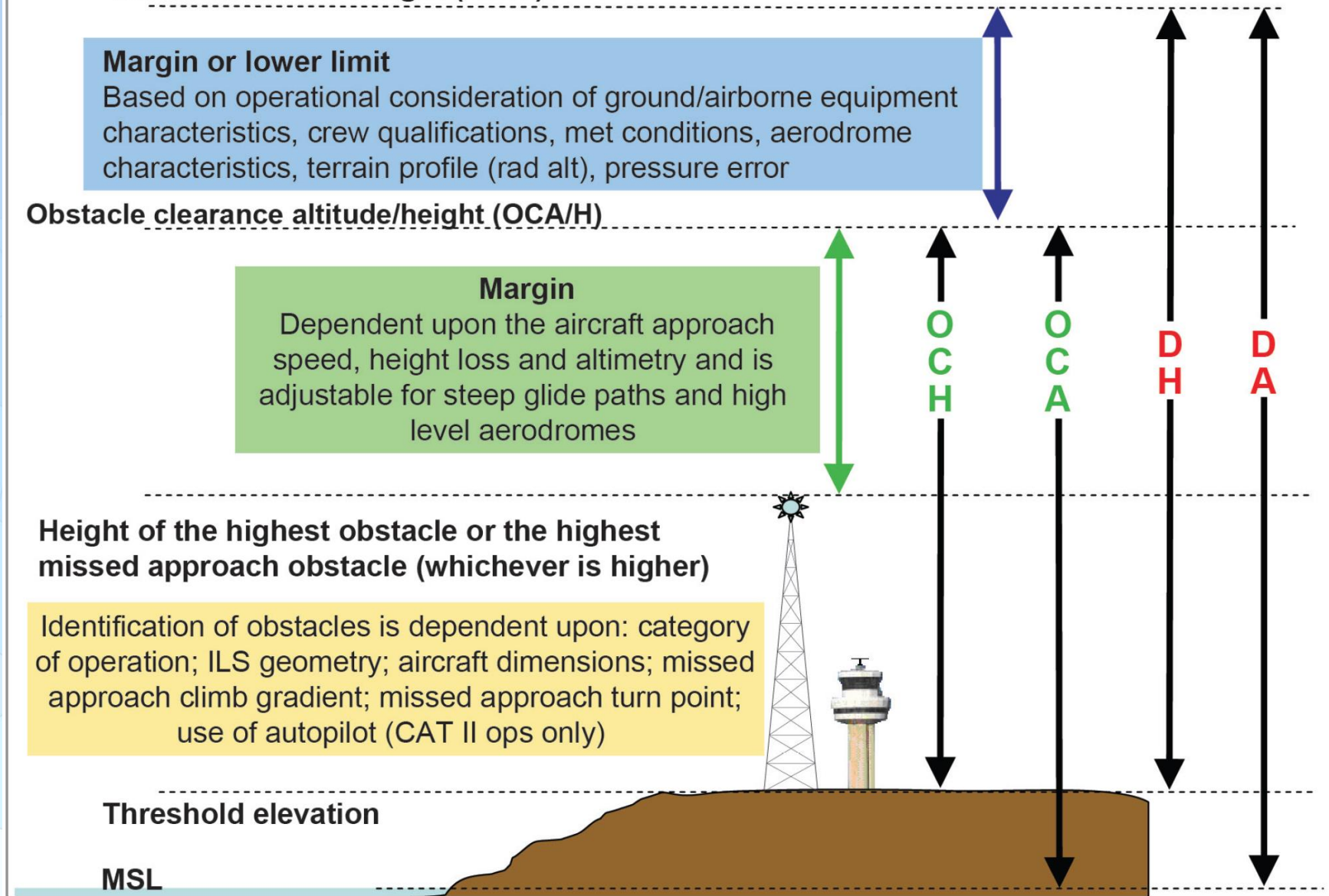
Dependent upon the aircraft approach speed, height loss and altimetry and is adjustable for steep glide paths and high level aerodromes

Height of the highest obstacle or the highest missed approach obstacle (whichever is higher)

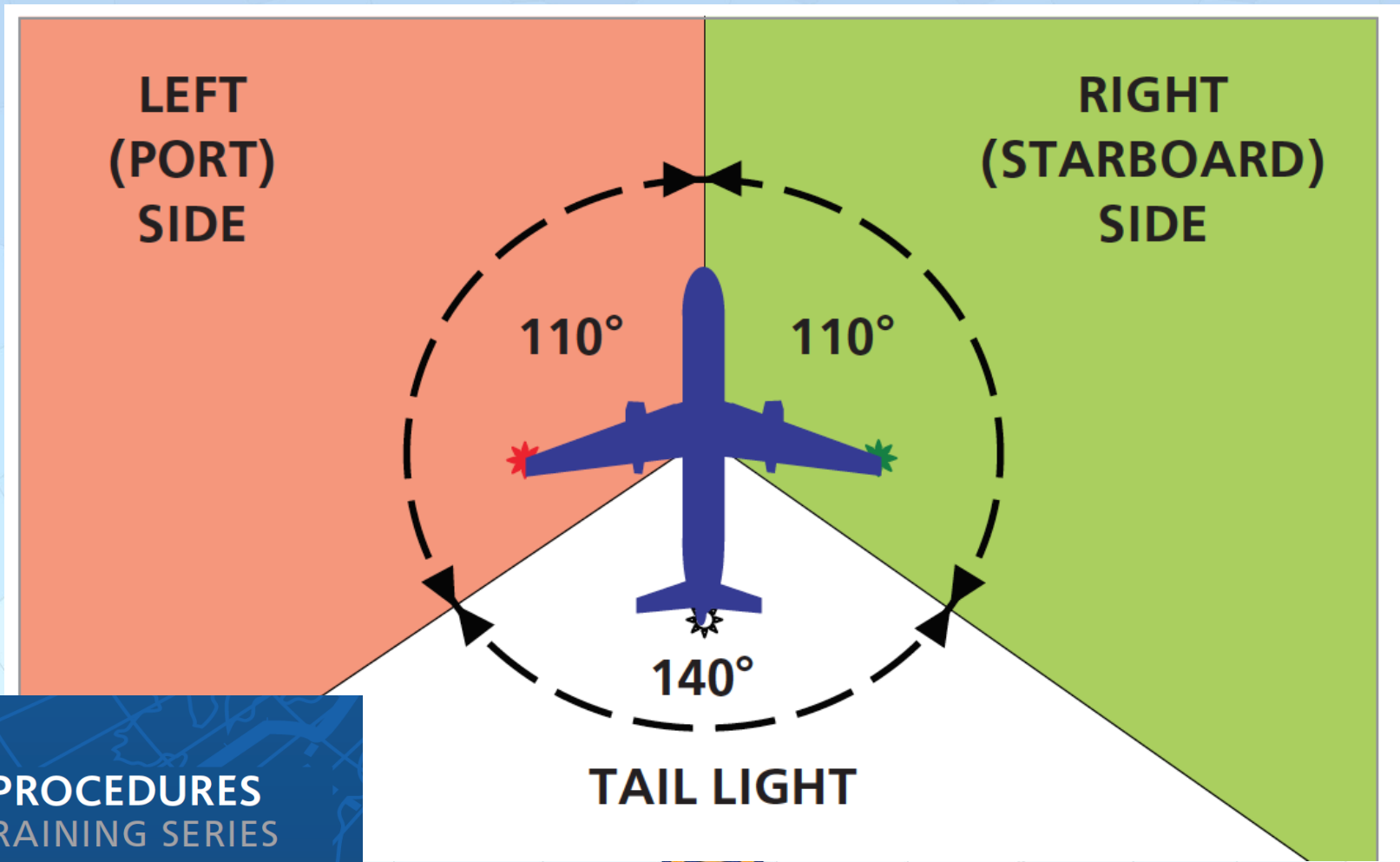
Identification of obstacles is dependent upon: category of operation; ILS geometry; aircraft dimensions; missed approach climb gradient; missed approach turn point; use of autopilot (CAT II ops only)

Threshold elevation

MSL



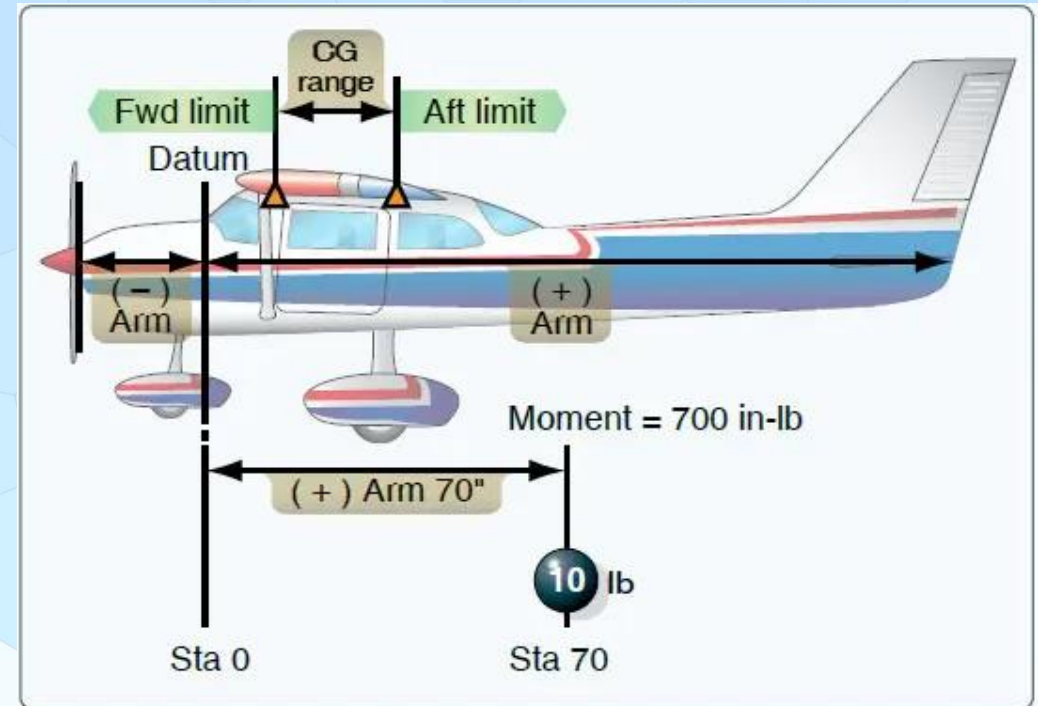
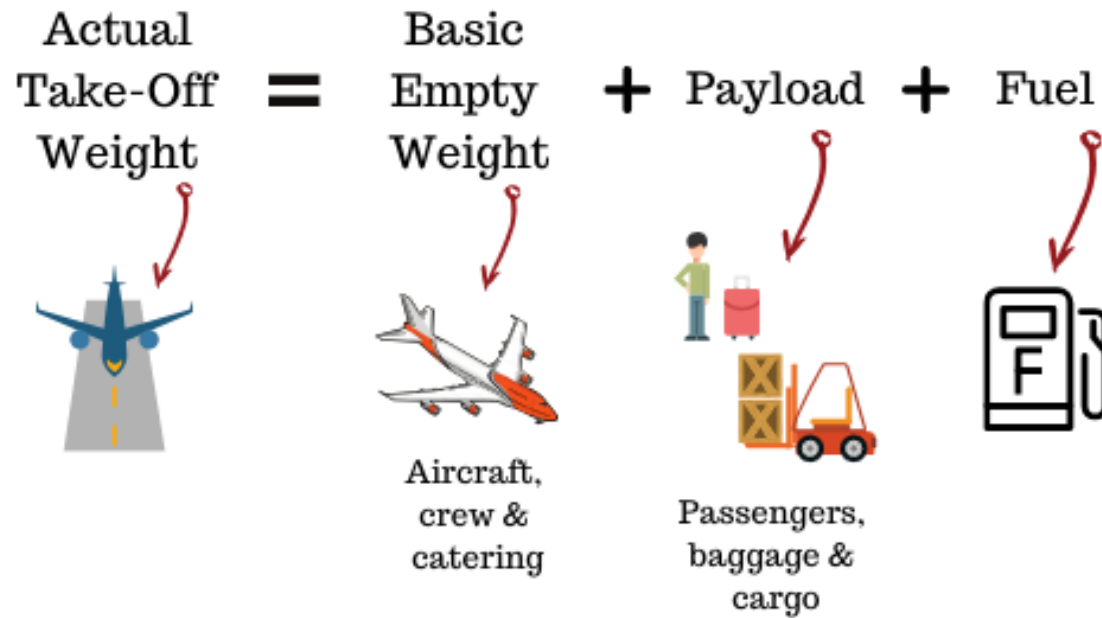
Navigation Lights



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Weight and Balance

Before flight, the **pilot in command** checks that the aircraft's **weight** is such that flight can be safely made, and that any transported cargo is properly **distributed** and **secured**.



Annex 6

Definition

State of Registry. The State on whose register the aircraft is entered.

State of the Aerodrome. The State in whose territory the aerodrome is located.

State of the Operator. The State in which the operator's **principal place of business** is located or, if there is no such place of business, the operator's **permanent residence**.



Leasing of Aeroplanes

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



- Leasing, in aviation law, is the situation whereby an aeroplane is **used** by one operator, whilst the **ownership** title remains with another operator.
- The operator using the aeroplane **pays the owner** an agreed sum for the use of the aeroplane over a specified period.
- They can range from an arrangement whereby an airline “**borrow**s” an aeroplane to use whilst one of its own is unusable, to the situation where an airline does not own any aeroplanes but operates a **fleet of leased aeroplanes** painted in the company **livery**, on a long term basis.

Leasing of Aeroplanes

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



- *Dry Lease*
 - This is when the leased aeroplane is operated under the AOC of the lessee (the operator **borrowing** the aeroplane).
- *Wet Lease*
 - This is when the leased aeroplane is operated under the AOC of the lessor (the operator **lending** the aeroplane to the lessee).

Definition

Aircraft operating manual. A manual, acceptable to the State of the **Operator**, containing **normal**, **abnormal** and **emergency** procedures, **checklists**, **limitations**, **performance** information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note.— The aircraft operating manual is **part of the operations manual**.

Operations manual. A manual containing procedures, instructions and guidance for use by **operational personnel** in the execution of their duties.



PSS A319 / A320 / A321



AOM

- Airbus Aircraft Operating Manual -

February 23, 2002

Definition

Flight manual. A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crew members for the safe operation of the aircraft.

- 1.General
- 2.Limitations
- 3.Emergency Procedures
- 4.Normal Procedures
- 5.Performance
- 6.Weight and Balance/Equipment List
- 7.Systems Description
- 8.Handling, Service, and Maintenance
- 9.Supplements



Definition

Airworthy.

The status of an **aircraft, engine, propeller** or part when it conforms to its approved design and is in a condition for safe operation.

Civil Aviation Organization

Certificate of Airworthiness

Number: 943528

1. Nationality and registration marks EP- [REDACTED]	2. Manufacture and manufacture's designation of aircraft Boeing Company B737-4H6	3. Aircraft serial number 26443
4. Categories: Large Aeroplane		
5. This certificate of Airworthiness is issued pursuant to the Convention on International Civil Aviation dated 7 December 1944 and "article 13 of civil aviation regulation of Islamic republic of Iran dated 19 august 1939" in respect of the above mentioned aircraft which is considered to be airworthy when maintained and operated in accordance with the foregoing and the pertinent operating limitations. Restrictions/Remark: MTOM 62822 KGs. Date of issue: 07 Jul. 2020 Date of expiry: 06 Jul. 2021 Signature: <i>[Signature]</i> M. Lotfi General Director of Airworthiness Department 		
6. This Certificate of Airworthiness remain valid until any specified date of expiry, unless revoked by Civil Aviation Organization of IR.Iran (CAO.IRI) A current Airworthiness Review Certificate shall be attached to this Certificate. This certificate shall be carried on board during all flight		

International Standards
and Recommended Practices



Annex 8
to the Convention on
International Civil Aviation

Airworthiness of Aircraft

Definition

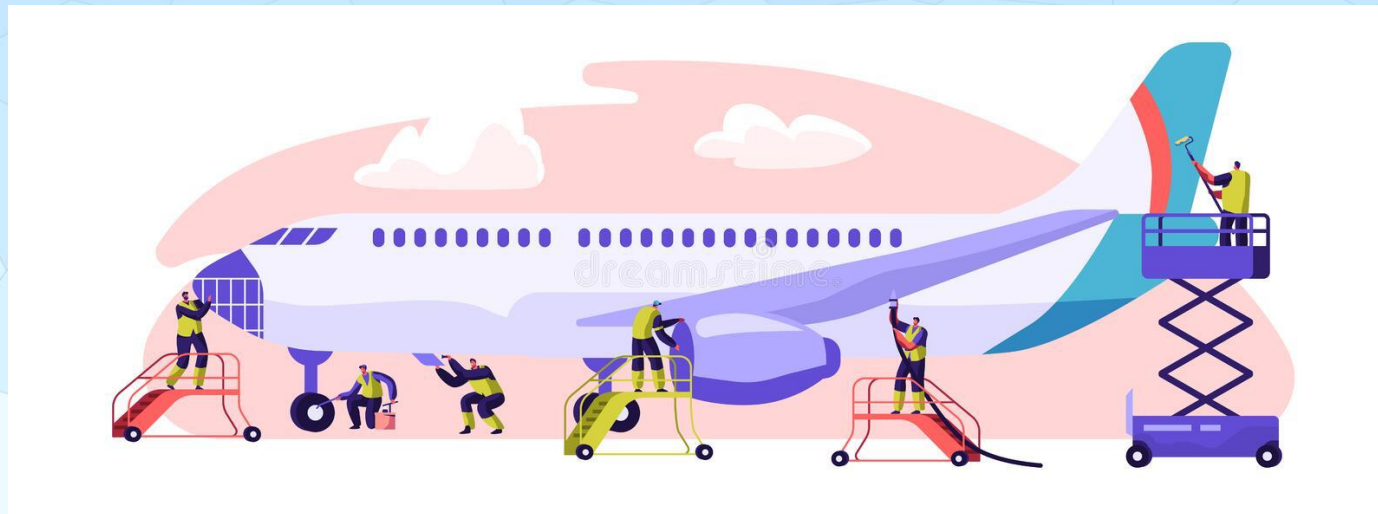
Maintenance. The performance of tasks required to ensure the continuing **airworthiness** of an aircraft, including any one or combination of **overhaul**, **inspection**, **replacement**, **defect rectification**, and the embodiment of a **modification** or **repair**.



Airworthiness

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

- Before any flight is commenced, forms have to be completed certifying that the aeroplane is airworthy.
- The commander has to be satisfied that the aeroplane is airworthy.



Definition

Maintenance release. A document which contains a certification confirming that the **maintenance** work to which it relates has been **completed** in a **satisfactory** manner, either in accordance with the approved data and the procedures described in the **maintenance organization's procedures manual** or under an equivalent system.

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

The certificate contains:

- Basic **details of the maintenance carried out** including detailed references to the approved data used.
- The **date** the maintenance was completed.
- The **identity** of the approved maintenance organization.
- The **identity** of the person signing the release.



Annex 6

Definition

Maintenance organization's procedures manual. A document endorsed by the **head of the maintenance organization** which details the maintenance organization's structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.



NAMIBIAN DIRECTORATE OF CIVIL AVIATION

MINISTRY OF WORKS AND TRANSPORT

Advisory Pamphlet

FSS-AOC-AP 0057/12

**MANUAL OF PROCEDURES(MOP) /
MAINTENANCE PROCEDURES MANUAL
(MPM) DEVELOPMENT**

Advisory Pamphlets are intended to provide recommendations and guidance to illustrate a means but not necessarily the only means of complying with the Regulations, or to explain certain Regulatory requirements by providing interpretative and explanatory material. Where an AP is referred to in a 'Note' below the regulation, the AP remains as guidance material.

APs should always be read in conjunction with the referenced regulations

FSS-AOC-AP057/12

1



Definition

Aircraft tracking. A process, established by the **operator**, that maintains and updates, at standardized intervals, a **ground-based** record of the four dimensional position of individual aircraft in flight.



Definition

Air operator certificate (AOC).

A certificate authorizing an operator to carry out specified commercial air transport operations.

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In the name of God

AIR OPERATOR CERTIFICATE

(Approval schedule for air transport operators)



Islamic Republic of Iran

Civil Aviation Organization

Types of operation: Commercial Air Transport (CAT) ☒ Passengers; ☒ Cargo; ☐ Other:AOC #:
IR.AOC.122Operator Name:
Zagros AirlinesOperator address:
**No.1, 3rd Alley, Shahid Riahi St., Karaj
Makhsoos Road, Tehran, Iran**Telephone:
(+9821) 44013583Fax:
(+9821) 44013583E-mail:
Info@Zagrosairlines.comContact detail, at which
operational management
can be contacted without
undue delay:
+982144690523

This certificate certifies that **Zagros Airlines** is authorised to perform commercial air operations, as defined in the attached operations specifications, in accordance with the Operations Manual (OM), Civil Aviation Regulation of IR Iran dated 19 august 1939 and CAO.IRI Air OPS.

Issue Number:1
Date of issue: 20 Jun 2020
Date of expiry: 22 Jun 2021

Name:
Ali Abedzadeh
Title:

President of the Civil Aviation Organization
Signature



OPERATIONS SPECIFICATION

(Subject to the approved conditions in the Operations Manual)



Civil Aviation Organization

Issuing Authority Contact Details

Telephone: (+9821) 66025230

Fax: (+9821) 44659348

E-mail: office@cao.ir

AOC No.: IR.AOC.122

Operator Name:

Zagros Airlines

Operation specification revision No.:00

Date of issue: 20 Jun 2020

Date of expiry: 22 Jun 2021

Signature

Ali Abedzadeh

President of the Civil Aviation Organization

Aircraft Model:

A319

A320

A321

Registration Marks:

EP-ZAX

EP-ZAL, EP-ZAT, EP-ZAJ, EP-ZAU, EP-ZAP, EP-ZGC, EP-ZAV

EP-ZGA, EP-ZGB

Commercial operations ☒ Passengers; ☒ Cargo; ☐ Other:

Area of operation: **IR, IRAN, Armenia, Bahrain, Iraq, Oman, Russia, Turkey, Georgia, UAE, Uzbekistan, Qatar, EP-ZAV(only Domestic)**

Special Limitations: Nil

Specific Approvals:	Yes	No	Specification	Remarks
Dangerous Goods	☐	☒		
Low Visibility Operations (LVO)	☐	☒		
Approach and Landing	☐	☒		
Take-off	☐	☒		
RVSM ☐ N/A	☒	☐		
ETOPS ☐ N/A	☐	☒		
Complex Navigation specifications for PBN Operations	☐	☒		
Minimum Navigation Performance Specification (MNPS)	☐	☒		
Cabin crew training	☐	☒		
Issue of CC attestation	☐	☒		
Continuing airworthiness	☒	☒	IR.MG.16 according to CAO IRI Part-M Subpart G	
Others	☒	☐	EFB Class 1, Type B	



Attachment A

Operational Management Contact Details



Civil Aviation Organization

Issuing Authority Contact Details

Telephone: (+9821) 66025230

Fax: (+9821) 44659348

E-mail: office@cao.ir

Operator Name:

Zagros Airlines

AOC No.:

IR.AOC.122

Signature

Ali Abedzadeh

President of the Civil Aviation Organization



No	Department	Contact No.	Email
1	Accountable Manager	+982144630054	Info@Zagrosairlines.com
2	Flight Operation	+982144647236	
3	Maintenance	+982144647236	
4	Quality Assurance	+982144627582	
5	Ground Operations	+982144013581	
6	Training	+982144647236	
7	Security	+982144055611	
8	Safety	+982144647582	
9	Cabin Crew	+982144647236	

Variation, Revocation or Suspension of an AOC

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

- At the discretion of the Authority, an AOC may be **varied**, **revoked** or **suspended** if the Authority ceases to be satisfied that the operator can continue to operate safe operations.
- In order to be satisfied, the Authority carries out **periodic audits** of the operation which will include inspection and assessment of the **operator's own internal audit system**, and inspection of the financial records of the operation.
- For continuation of the approval, the primary responsibility of the operator is to ensure that the **conditions of issue** of the AOC are complied with, and any **limitations** or **restrictions** imposed by the Authority (which must be stated on the certificate) are also **respected**.



States

- **State of Registry:**

Certificate of airworthiness (C of A), Radio operator license, Flight Manual, Noise certificate (in English), Maintenance program and record and data and manual, Certificate of release to service (CRS), PBN, EFB, **HUD, CVS, SVS, EVS [APPROACH BAN credits]**, RVSM, seat or berth for each person

- **State of Design:**

MMEL, CDL

- **State of Operator:**

Other documents and procedures and manuals, such as MEL, OM, Aircraft Operating Manual (AOM), AOC,...

Quality System

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

The **Operator** is required to establish a **Quality System** to ensure:

- a) safe operational practices; and
- b) airworthy aeroplanes.

A **Quality Manager** is to be appointed to ensure compliance with the **quality system**.

Compliance monitoring must include a feed-back system to the **Accountable Manager** who has responsibility to the **Authority** for compliance with the requirements of the **AOC**.

**Quality
Management
Systems (QMS)**



Annex 6

Definition

Crew member. A person assigned by an **operator** to duty on an aircraft during a **flight duty period**.

Cabin crew member.

A **crew member** who performs, in the interest of **safety of passengers**, duties assigned by:

- the **operator** or
- the **pilot-in-command**

of the aircraft, but who *shall not act as a flight crew member*.

Flight crew member. A licensed **crew member** charged with duties **essential to the operation of an aircraft** during a **flight duty period**.



Additional Crew Members (ACM)

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

Where additional crew members (e.g. ***personnel engaged in checking; non-operating crew or where animals are carried, veterinarian personnel***) are carried on operational flights, the Operator is to ensure that such personnel are properly trained and proficient in the execution of their duty.

Passengers must be able to distinguish between cabin crew and additional crew.



OPERATIONAL PROCEDURES

ATPL GROUND TRAINING SERIES

A crew member is not to present him or herself for duty on an aeroplane:

- If under the influence of any **drug** that may affect his/her faculties in a manner contrary to safety.
- Until a reasonable period of time has elapsed after deep **water diving**.
- Until a reasonable period of time has elapsed after **blood donation**.
- If he or she is in any **doubt** as to his or her ability to accomplish the assigned duty.
- If he or she knows or suspects that he or she is suffering from **fatigue** to the extent where safety may be endangered.



OPERATIONAL PROCEDURES

ATPL GROUND TRAINING SERIES

A crew member must not:

- Consume **alcohol** less than **8 hours** prior to reporting for duty or the commencement of standby duty.
- Report for duty with a blood alcohol level exceeding 0.2 promille.
- Consume alcohol **during flight time** or when on standby.



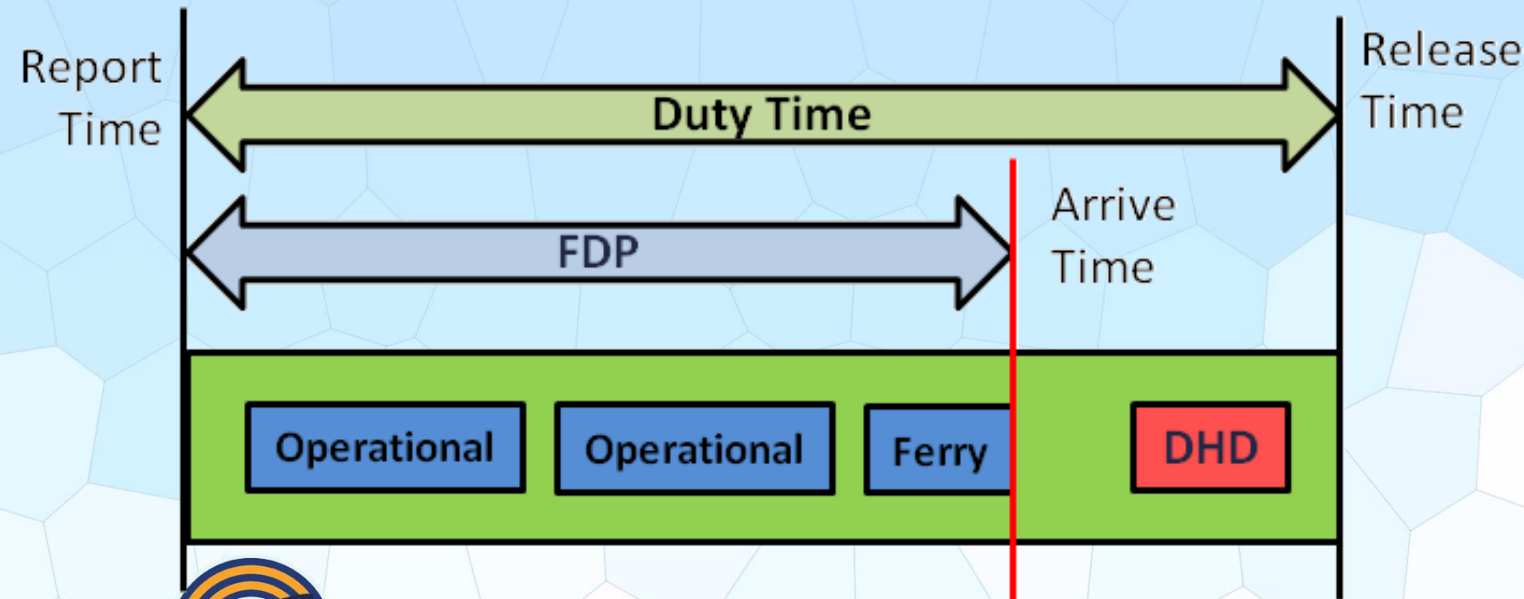
Annex 6

Definition

Duty period. A period which starts when a **flight or cabin crew member** is required by an operator to **report** for or to **commence** a duty and ends when that person is free from all duties.

Flight duty period. A period which commences when a **flight or cabin crew member** is required to **report for duty** that includes a flight or a series of flights and which finishes when the aeroplane finally comes to rest and the **engines are shut down** at the end of the last flight on which he/she is a crew member.

Flight Duty Period (FDP)



Annex 6

Definition

Rest period. A **continuous** and defined period of time, subsequent to and/or prior to duty, during which **flight or cabin crew** members are free of all duties.



Travel time to/from accommodation
• never less than 30 minutes each way



Physiological needs
• never less than 1 hour



Sleep opportunity
• never less than 8 hours



Rest period - measured from Release to Report
• Never less than the total from the above or
• As stipulated within the regulations

Definition

Flight time — aeroplanes. The total time from the moment an aeroplane **first moves for the purpose** of **taking off** until the moment it finally **comes to rest** at the end of the flight.

Note.— Flight time as here defined is synonymous with the term “**block to block**” time **or** “**chock to chock**” time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

The above definition is synonymous with the term ‘**block to block**’ time, or ‘**chock to chock**’ time in general usage, which is measured from the time the aeroplane first moves **under its own power** (**after the push-back or tow out**) for the purpose of taking off (taxiing to the runway, not to another parking stand or **de-icing bay**), until it finally stops (at the parking stand, not an intermediate stop after turning off the landing runway) at the end of the flight

Flight Safety and Accident Prevention

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

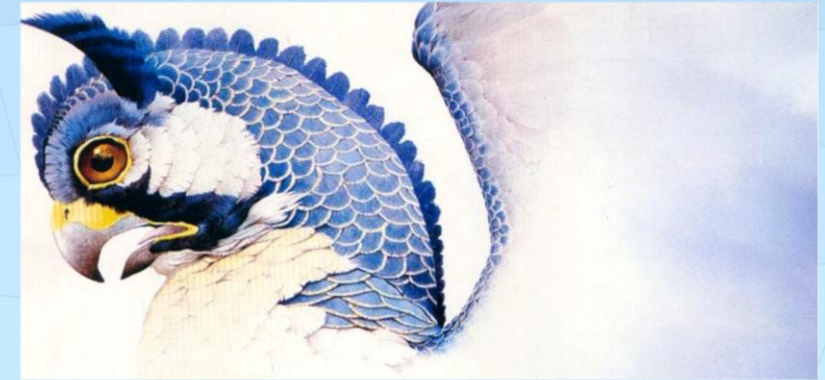
The State of the Operator is required to establish a safety programme which sets an **acceptable level of safety** to be achieved by all certified operators. The Operator is required to establish a **Safety Management System (SMS)** throughout the operation. The required safety level is defined by the State. The programme must:

- Identify safety **hazards**.
- Ensure that **remedial action** is implemented to maintain the standard.
- Provide continuous **monitoring** and **assessment** of the level achieved.
- Make **continuous improvement** of the overall level of safety.



The total duty periods to which a Crew Member may be assigned shall not exceed:

- ❖ 60 duty hours in any 7 consecutive days;
 - ❖ 110 duty hours in any 14 consecutive days; and
 - ❖ 190 duty hours in any 28 consecutive days, spread as evenly as practicable throughout this period.
- Since IRANAIR is not applying fatigue risk management consecutive night duties of more than 10 hours shall be avoided.



IranAir

CABIN OPERATIONS MANUAL

COMMON LANGUAGE

Operators are required to ensure that **all crew members** (**flight** crew and **cabin** crew) are able to communicate (with each other) in a common language, and that they are able to understand the language in which those parts of the **Operations Manual** containing the crew member's duty, is written.



Definition

Emergency locator transmitter (ELT). A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be **automatically** activated by **impact** or be **manually** activated. An ELT may be any of the following:

- **Automatic fixed ELT (ELT(AF)).** An automatically activated ELT which is permanently attached to an aircraft.
- **Automatic portable ELT (ELT(AP)).** An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.
- **Automatic deployable ELT (ELT(AD)).** An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.
- **Survival ELT (ELT(S)).** An ELT which is removable from an aircraft, **stowed** so as to facilitate its ready use in an emergency, and **manually** activated by survivors.

Definition

- **Enhanced vision system (EVS).** A system to display electronic real-time images of the external scene achieved through the use of **image sensors**.
- Note.— EVS does not include night vision imaging systems (NVIS).

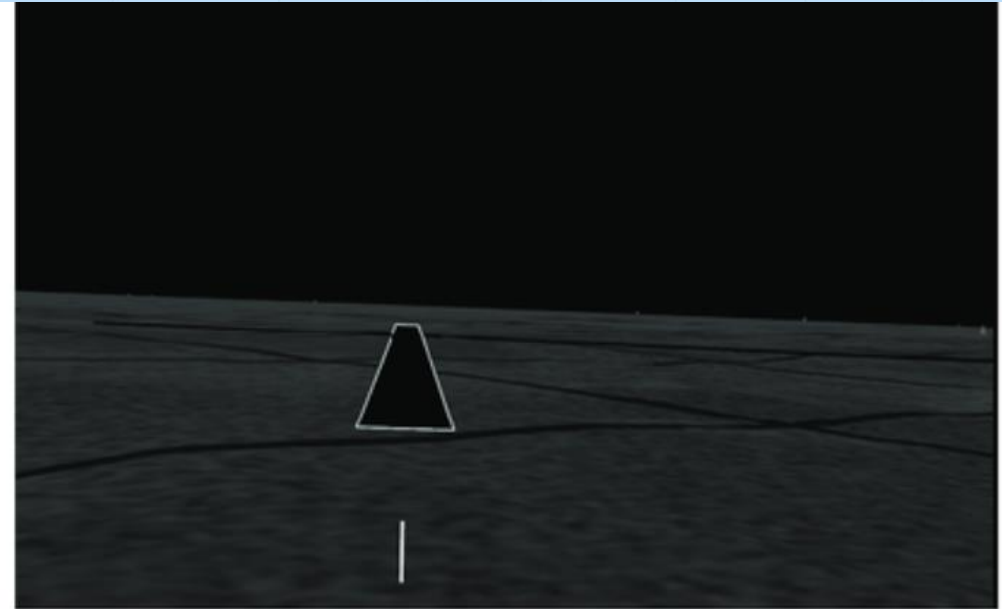


Definition

Synthetic vision system (SVS). A system to display data-derived synthetic images of the external scene from the perspective of the flight deck.



(a)



(b)

An example of (a) enhanced vision system (EVS) and (b) synthetic vision system (SVS) image frames.

A system to display images from
a combination of:

- an enhanced vision system (EVS) and a
- synthetic vision system (SVS).



Definition

Commercial air transport operation. An aircraft operation involving the transport of **passengers, cargo** or **mail** for remuneration or hire.

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



Whenever it is available (it will always be available in controlled airspace (CAS) and at controlled aerodromes) an **ATC service is to be requested** and the ATC **instructions complied with**.

All commercial operations will take place inside CAS.

As a controlled flight inside CAS ATC will apply the required separation standards to all flights thus maximizing safety.

Annex 6

Definition

Configuration deviation list (CDL). A list established by the organization responsible for the type **design** with the approval of the **State of Design** which identifies any **external** parts [e.g. panels and fairings] of an aircraft type which **may be missing at the commencement of a flight**, and which contains, where necessary, any information on associated **operating limitations** and performance correction.

The operator shall include it in the operations manual.

 A320 AIRPLANE FLIGHT MANUAL	MASTER CONFIGURATION DEVIATION LIST PRELIMINARY PAGES TABLE OF CONTENTS
--	--

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MCDL-54-01 Nacelle Strake	
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MCDL-71 POWER PLANT

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Fan Cowl Hold Open Rod.....	A
Illustration Fan Cowl Hold Open Rod.....	B

LAN A320-233 FLEET
AFMMCDL-PLP-TOC P 7/8
24 JUL 12

Definition

Master minimum equipment list (MMEL). A list established for a particular **aircraft type** by the organization responsible for the type **design** with the approval of the **State of Design** containing items, one or more of which is permitted to be unserviceable at the commencement of a flight.

The MMEL may be associated with special operating conditions, limitations or procedures.

Minimum equipment list (MEL). A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, **prepared by an operator** in conformity with, or **more restrictive than, the MMEL** established for the aircraft type.

OPERATIONAL PROCEDURES

ATPL GROUND TRAINING SERIES

The Commander is to decide whether or not to accept an aeroplane with unserviceabilities allowed by the Minimum Equipment List (**MEL**) or the Configuration Deviation List (**CDL**).



Definition

Flight operations officer/flight dispatcher. A person designated by the **operator** to engage in the **control** and **supervision** of flight operations, *whether licensed or not*, suitably qualified in accordance with Annex 1, who **supports, briefs and/or assists** the pilot-in-command in the safe conduct of the flight.

ATT C, 2.1.2

- a) **operational control** refers to the exercise, by the operator, of responsibility for the **initiation, continuation, termination** or **diversion** of a flight;
- b) **flight dispatch** procedures refer to the method of **control** and **supervision** of flight operations. This does not imply a specific requirement for licensed flight dispatchers or a full flight following system;

Definition

Operational control. The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

[The operational control is responsibility of operator]

Alternate aerodrome

An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where **1)** the necessary services and facilities are available, **2)** where aircraft performance requirements can be met and **3)** which is operational at the expected time of use.

Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure. alternate aerodrome for that flight.

During the period **1 hour before until 1 hour after** the ETA at the (alternate) aerodrome the met conditions will be at or above the applicable aerodrome operating minima.



Alternate aerodrome

An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where **1)** the necessary services and facilities are available, **2)** where aircraft performance requirements can be met and **3)** which is operational at the expected time of use.

Alternate aerodromes include the following:

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note.— The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.



OPERATIONAL PROCEDURES

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ETOPS en route alternate.

This is a suitable and appropriate aerodrome at which an aeroplane would be able to land after experiencing an **engine shut down** or other abnormal or **emergency condition** whilst en route in an **ETOPS (Extended Twin-engine OPerationS)** operation.

An ETOPS aeroplane must always be flying within 'range' of a suitable alternate aerodrome.

Annex 6

Definition

Isolated aerodrome. A destination aerodrome for which there is no **destination alternate** aerodrome suitable for a given aeroplane type.

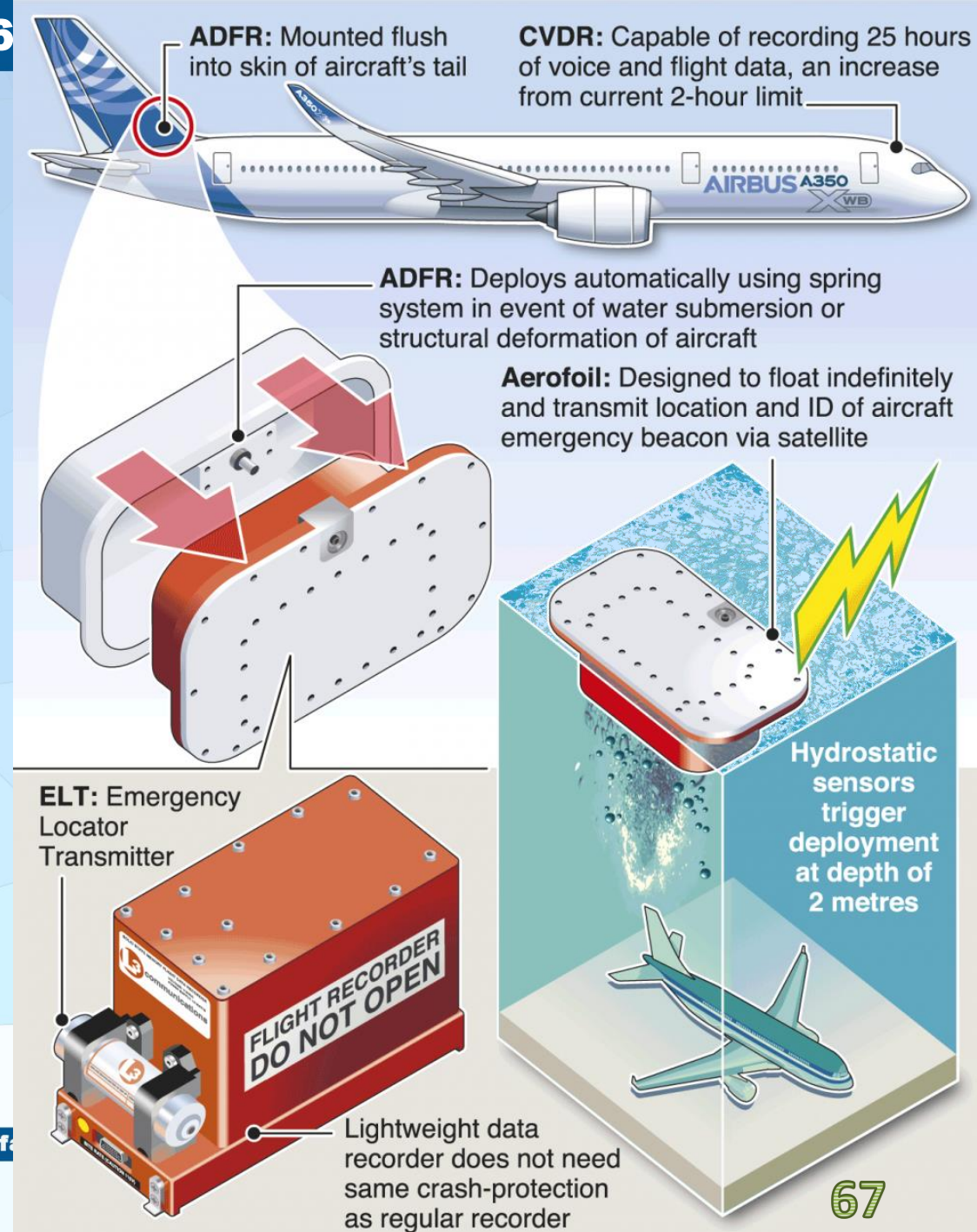
Point of no return. The last possible geographic point at which an aircraft can proceed to the destination aerodrome as well as to an available en-route alternate aerodrome for a given flight.



Definition

Flight recorder. Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation.

Automatic deployable flight recorder (ADFR). A combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft.



Definition

Large aeroplane. An aeroplane of a maximum certificated take-off mass of **over 5 700 kg**.

Small aeroplane. An aeroplane of a maximum certificated take-off mass of **5 700 kg or less**.

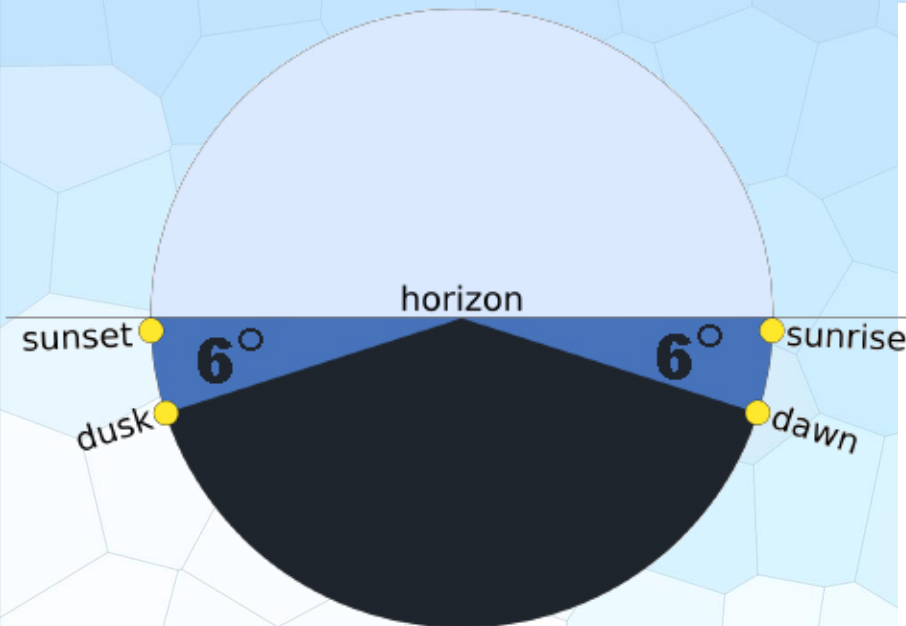


Annex 6

Definition

Night. The hours between the **end of evening civil twilight** and the **beginning of morning civil twilight** or such other period between sunset and sunrise, as may be prescribed by the appropriate authority.

Note.— Civil twilight ends in the evening when the centre of the sun's disc is **6 degrees below the horizon** and begins in the morning when the centre of the sun's disc is **6 degrees below the horizon**.



GEN 2.7 - 54
WEF 3 DEC 20

AI
ISLAMIC REPUBLIC OF IRAN

GEN 2.7 - SUNRISE/SUNSET TABLES				
LAMERD OISR 272223N 0531117E				
Date	Morning Twilight	sunrise	Sunset	Evening Twilight
04-Jan-21	2:53	3:18	13:47	14:12
11-Jan-21	2:53	3:19	13:52	14:17
18-Jan-21	2:53	3:18	13:57	14:22
25-Jan-21	2:52	3:16	14:03	14:28
01-Feb-21	2:49	3:13	14:09	14:33
08-Feb-21	2:45	3:09	14:14	14:38
15-Feb-21	2:40	3:04	14:19	14:43

Definition

Safe forced landing. Unavoidable landing or ditching with a reasonable expectancy of **no injuries** to persons in the aircraft or on the surface.



DITCHING

Ditching, or the deliberate alighting (=landing) of an aeroplane on the surface of the sea, is a possibility where aircraft are operated over the sea at a distance where in the event of engine failure the aircraft cannot reach land suitable for an emergency landing.

Operators are not to operate aeroplanes with a passenger seating capacity **more than 30** at a distance from land **greater than 120 minutes flying time at cruising speed, or 400mn whichever is less**, unless the aeroplane complies with the applicable airworthiness code.



CHAPTER 3. GENERAL



CHAPTER 3. GENERAL

3.1.3 The operator or a designated representative shall have responsibility for operational control.

3.1.6 If an emergency situation which endangers the safety of the aeroplane or persons necessitates the taking of action which involves a violation of local regulations or procedures, the pilot-in-command shall notify the appropriate local authority without delay.

If required by the State in which the incident occurs, the pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the pilot-in-command shall also submit a copy of it to the State of the Operator. Such reports shall be submitted as soon as possible and normally within ten days.

3.1.8 Operators shall ensure that flight crew members demonstrate the ability to speak and understand the language used for radiotelephony communications as specified in Annex 1.

CHAPTER 3. GENERAL

3.3.2 The **operator** of an aeroplane of a maximum certificated take-off mass in excess of 27 000 kg shall establish and maintain a **flight data analysis programme** as part of its **safety management system (SMS)**.

3.5 AIRCRAFT TRACKING

3.5.1 The **operator** shall establish an **aircraft tracking** capability to track aeroplanes throughout its area of operations.

3.5.3 The operator shall track the position of an aeroplane through **automated reporting** at least **every 15 minutes** for the portion(s) of the in-flight operation(s) that is planned in an **oceanic** area(s) under the following conditions:

- a) the aeroplane has a maximum certificated take-off mass of **over 45 500 kg** and a seating capacity greater than **19**; and
- b) where an **ATS** unit obtains aeroplane position information at **greater than 15 minute intervals**.

Note 1.— **Oceanic** area, for the purpose of aircraft tracking, is the airspace which overlies waters **outside the territory of a State**.

CHAPTER 4. FLIGHT OPERATIONS



CHAPTER 4. FLIGHT OPERATIONS

4.1 OPERATING FACILITIES

4.1.1 The **operator** shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and/or water **facilities** available and directly required on such flight, for the safe operation of the aeroplane and the **protection of the passengers**, are adequate for the **type of operation** under which the flight is to be conducted and are adequately operated for this purpose.

*Note.— “Reasonable means” in this Standard is intended to denote the use, at the point of departure, of information available to the operator either through official information published by the **aeronautical information services** or readily obtainable from **other sources**.*



CHAPTER 4. FLIGHT OPERATIONS

4.1.2 The **operator** shall ensure that any **inadequacy of facilities** observed in the course of operations is reported to the **authority responsible for them**, without undue delay.

4.1.3 Subject to their published **conditions of use**, aerodromes and their facilities shall be kept continuously available for flight operations during their **published hours of operations**, **irrespective of weather conditions**.

بخاطر بدی هوا فرودگاه بسته اعلام نمی شود.

4.2.1 The air operator certificate

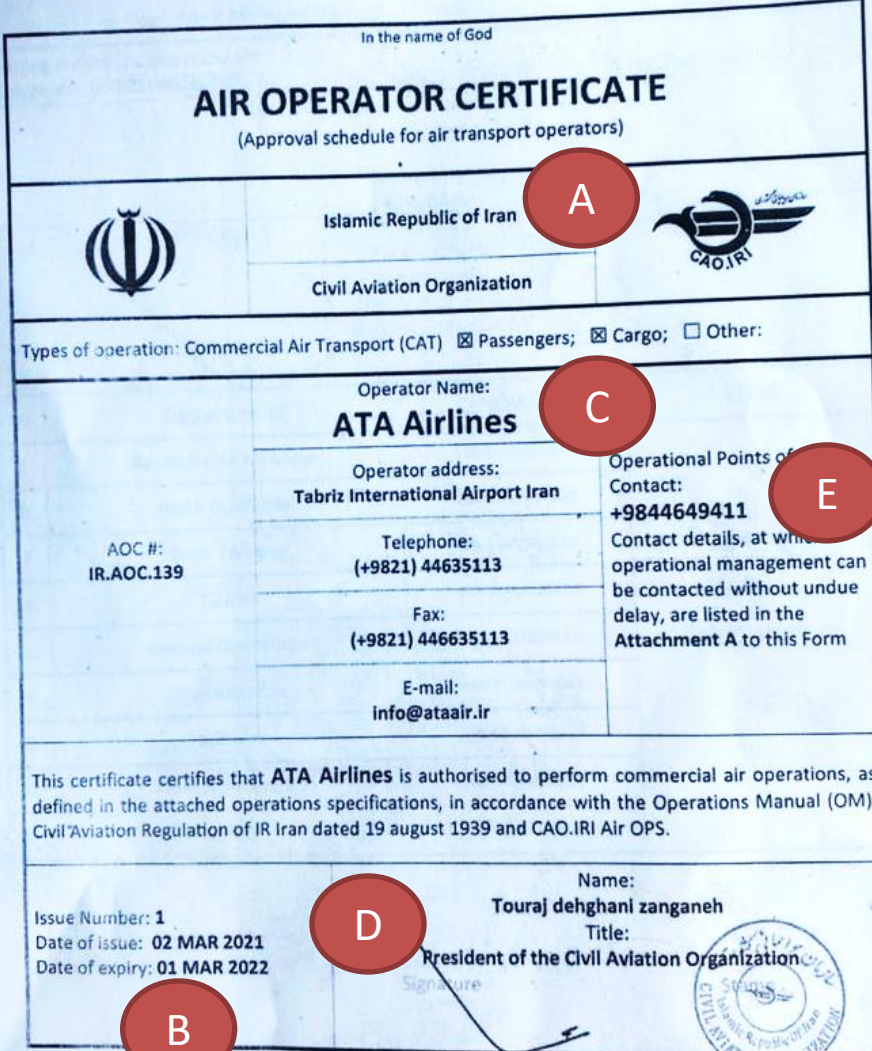
4.2.1.1 The operator shall not engage in commercial air transport operations unless in possession of a valid **air operator certificate** issued by the **State of the Operator**.

4.2.1.3 The issue of an air operator certificate by the State of the Operator shall be dependent upon the operator demonstrating an adequate **organization**, method of control and supervision of flight operations, **training** programme as well as **ground handling** and **maintenance** arrangements consistent with the nature and extent of the operations specified.

CHAPTER 4. FLIGHT OPERATIONS

4.2.1.5 The air operator certificate shall contain at least the following information and shall follow the layout of Appendix 6, paragraph 2:

- the **State of the Operator** and the issuing authority;
- the air operator certificate **number and its expiration date**;
- the **operator name**, trading name (if different) and **address** of the principal place of business;
- the **date of issue** and the name, signature and title of the **authority** representative; and
- the location, in a controlled document carried on board, where the **contact details** of operational management can be found.



In the name of God

AIR OPERATOR CERTIFICATE

(Approval schedule for air transport operators)

Islamic Republic of Iran **A**

Civil Aviation Organization

Types of operation: Commercial Air Transport (CAT) ☒ Passengers; ☒ Cargo; ☐ Other:

Operator Name: **ATA Airlines** **C**

Operator address: Tabriz International Airport Iran

Telephone: (+9821) 44635113

Fax: (+9821) 446635113

E-mail: info@ataair.ir

Operational Points of Contact: **+9844649411** **E**

Contact details, at which operational management can be contacted without undue delay, are listed in the Attachment A to this Form

This certificate certifies that **ATA Airlines** is authorised to perform commercial air operations, as defined in the attached operations specifications, in accordance with the Operations Manual (OM), Civil Aviation Regulation of IR Iran dated 19 august 1939 and CAO.IRI Air OPS.

Issue Number: **1** **B**

Date of issue: 02 MAR 2021

Date of expiry: 01 MAR 2022

Name: **Touraj dehghanl zanganeh**

Title: **Resident of the Civil Aviation Organization**

Signature **D**

CAO.IRI Form 139



CHAPTER 4. FLIGHT OPERATIONS

4.2.3 Operations manual



KISH AIRLINES

Operations Department Operation Manual Part “A” General & Basic

ISSUE 04, REV. 02

October 2019



Date: Jan.2020

Number: 53749

CAOIRI Approval

The Civil Aviation Organization of IR Iran (CAOIRI) hereby confirms that the following document is approved in accordance with CAOIRI AiroPS:

Document:
OM Part-A
Issue :04
Revision:02
Date : Oct 2019

Holder:
Kish Airlines (AOC No : IR.AOC.104)

Note : Any change to OM PART-A in accordance with CAO.IRI AiroPS requires the prior approval of CAOIRI.

M.Hassanloo
Vice President for
Flight Standards



Operations Manual

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

The aircraft **operator** shall provide the flight operations **personnel** with an Operations Manual and also issue the **amendments** to keep it **up to date**.



4.2.3 Operations manual

4.2.3.1 The **operator** shall provide, for the use and guidance of **operations personnel** concerned, an operations manual in accordance with **Appendix 2**. The operations manual shall be **amended or revised** as is necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel that are required to use this manual.

4.2.3.2 The **State of the Operator** shall establish a requirement for the operator to provide a copy of the operations manual together with all amendments and/or revisions, for **review** and **acceptance** and, where required, **approval**. The operator shall incorporate in the operations manual such mandatory material as the State of the Operator may require.

 هواپیمایی مازان Mahan Air	OPERATIONS MANUAL Part A			
	TITLE PAGE	INTRODUCTION OF MANUAL		
Subchapter: --	Issue: 04	Revision: 05	Date: 01 SEP 2020	Page 1 of 30

MAHAN AIR OPERATIONS MANUAL PART A



ISSUE: 04
REVISION: 05
01 SEP 2020



APPENDIX 2. ORGANIZATION AND CONTENTS OF AN OPERATIONS MANUAL



APPENDIX 2. ORGANIZATION AND CONTENTS OF AN OPERATIONS MANUAL

1. ORGANIZATION

An operations manual, which may be issued in separate parts corresponding to specific aspects of operations, provided in accordance with Chapter 4, 4.2.3.1, shall be organized with the following structure:

- a) **General** [including The method for determining minimum flight altitudes] ;
- b) **Aircraft operating information;**
- c) **Areas, routes and aerodromes; and**
- d) **Training.**



KISH AIRLINES

Operations Department Operation Manual Part “A” General & Basic

ISSUE 04, REV. 02

October 2019

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Email: info@Kishair.com

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Tell: +98-21-48681014



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

OPERATIONS MANUAL

Part A - General and Basic Information.

- Administration and Control of OM.
- Organization and Responsibilities.
- Operational Control and Supervision.
- **Quality System.**
- **Crew Composition.**
- Qualification Requirements.
- Crew Health Precautions.
- **Flight Time Limitations.**
- Operating Procedures.
- **Dangerous Goods** and Weapons.
- Security.
- Handling, Notifying and Reporting of Occurrences.
- Rules of the Air.
- **Leasing.**



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

OPERATIONS MANUAL

Part B - Aeroplane Operating Matters.

- General Information and Units of Measurement.
- **Limitations.**
- **Normal** Procedures.
- **Abnormal and Emergency** Procedures.
- Performance.
- Flight Planning.
- **Mass and Balance.**
- Loading.
- Configuration Deviation List (**CDL**).
- Minimum Equipment List (**MEL**).
- Survival and Emergency Equipment including Oxygen.
- Emergency Evacuation Procedures.
- Aeroplane Systems.



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

OPERATIONS MANUAL

Part C - Route and Aerodrome Instructions and Information.

This is the section in which staff will find **aerodrome operating minima** and any special instruction for the calculation of minima and special data relating to aerodromes used as part of the operation.

Part D - Training.

All personnel are required to be competent to carry out their duties. This section details the **training method and requirements** to ensure that all personnel are competent.



CHAPTER 4. FLIGHT OPERATIONS

4.2.5 In-flight simulation of emergency situations

The operator shall ensure that when *passengers* or *cargo* are being carried, *no emergency* or abnormal situations shall be simulated.



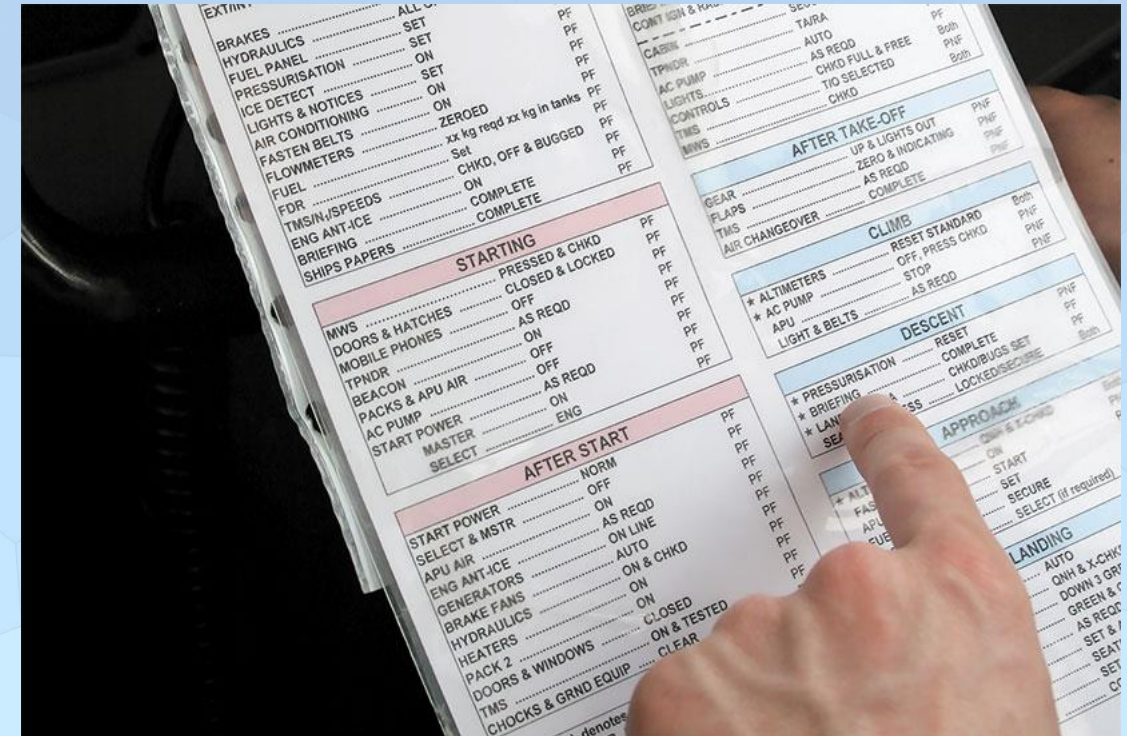
Annex 6

4.2.6 Checklists

The **checklists** provided in accordance with **6.1.4** shall be used by flight crews **prior** to, **during** and **after** all phases of operations, and in emergency, to ensure compliance with the operating procedures contained in the **aircraft operating manual and the aeroplane flight manual** or other documents associated with the certificate of airworthiness and otherwise in the operations manual. The design and utilization of checklists shall observe Human Factors principles.

6.1.4 The operator shall provide **operations staff and flight crew** with an **aircraft operating manual**. The manual shall include details of the aircraft systems and of the **checklists** to be used. The design of the manual shall observe Human Factors principles.

Normal checklists should be identified by **green** headings, system **malfunctions** by yellow headings, and emergency checklists by **red** headings. (DOC 8168 Vol. 3.)



CHAPTER 4. FLIGHT OPERATIONS

4.2.7 Minimum flight altitudes

4.2.7.1 The operator shall be permitted to establish minimum flight altitudes for those routes flown for which minimum flight altitudes have been established by the State flown over or the responsible State, provided that *they shall not be less than those established by that State*.

4.2.7.2 The operator shall specify the **method** by which it is intended to determine minimum flight altitudes for operations conducted over routes for which minimum flight altitudes **have not been established** by the State flown over or the responsible State, and shall include this method in the **operations manual**. The minimum flight altitudes determined in accordance with the above method **shall not be lower than specified in Annex 2**.

4.2.7.3 Recommendation.— The **method** for establishing the minimum flight altitudes should be approved by the **State of the Operator**.

5.1.2 Minimum levels

Except when necessary for take-off or landing, or except when specifically authorized by the appropriate authority, an IFR flight shall be flown at a level which is not below the minimum flight altitude established by the State whose territory is overflown, or, where no such minimum flight altitude has been established:

- a) over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;
- b) elsewhere than as specified in a), at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.

Note 1.— The estimated position of the aircraft will take account of the navigational accuracy which can be achieved on the relevant route segment, having regard to the navigational facilities available on the ground and in the aircraft.

CHAPTER 4. FLIGHT OPERATIONS

4.2.8 Aerodrome operating minima

4.2.8.1 The **State of the Operator** shall require that the **operator** establish *aerodrome operating minima* for each aerodrome to be used in operations and shall approve the **method** of determination of such minima.

Such minima **shall not be lower** than any that may be established for such aerodromes by the **State of the Aerodrome**, except when specifically approved by that State.

CHAPTER 4. FLIGHT OPERATIONS

4.2.8 Aerodrome operating minima

4.2.8.1.1 The **State of the Operator** may approve **operational credit(s)** for operations with aeroplanes equipped with **automatic landing systems**, a **HUD** or equivalent displays, **EVS**, **SVS** or **CVS**.

Such approvals shall not affect the classification of the instrument approach procedure.

Note 1.— Operational credit includes:

- a) for the purposes of an **approach ban** (4.4.1.2), a minima below the aerodrome operating minima;
- b) reducing or satisfying the visibility requirements; or
- c) requiring fewer ground facilities as compensated for by airborne capabilities.

CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

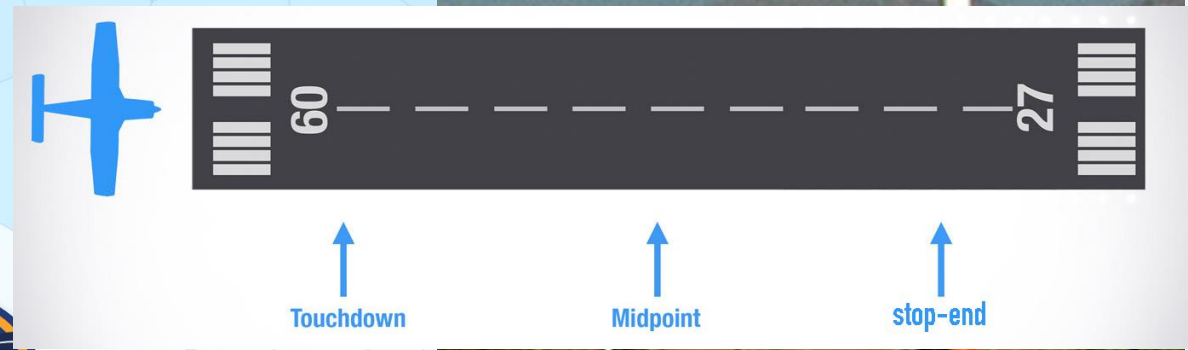
4.4.1 Aerodrome operating minima (AIP AD 1.1)

4.4.1.2 An **instrument approach** shall not be **continued below 300 m (1 000 ft)** above the **aerodrome elevation** or into the **final approach** segment unless the reported visibility or controlling RVR is at or above the **aerodrome operating minima**.

Note.— Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met.

*Where RVR is used, the controlling RVR is the **touchdown RVR**, unless otherwise specified by State criteria.*

New Generation RVR Sensor



CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

4.4.1 Aerodrome operating minima

4.4.1.3 If, **after entering the final** approach segment or after **descending below 300 m (1 000 ft)** above the aerodrome elevation, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to **DA/H or MDA/H**.

In any case, an aeroplane shall not continue its approach-to-land at any aerodrome beyond a point at which the limits of the operating minima specified for that aerodrome would be infringed.

CHAPTER 4. FLIGHT OPERATIONS

4.2.8 Aerodrome operating minima

4.2.8.2 The **State of the Operator** shall require that in establishing the aerodrome operating minima which will apply to any particular operation, **full account shall be taken of:**

- a) the **type**, performance and handling characteristics of the aeroplane;
- b) the composition of the **flight crew**, their competence and experience;
- c) the dimensions and characteristics of the **runways** which may be selected for use;
- d) the adequacy and performance of the available **visual and non-visual ground aids**;
- e) the **equipment** available on the aeroplane for the purpose of navigation, acquisition of visual references and/or control of the flight path during the approach, landing and the missed approach;
- f) the **obstacles** in the approach and missed approach areas and the **obstacle clearance altitude/height** for the instrument approach procedures;
- g) the means used to determine and report **meteorological** conditions; and
- h) the **obstacles** in the climb-out areas and necessary clearance margins.

CHAPTER 4. FLIGHT OPERATIONS

4.2.8 Aerodrome operating minima

4.2.8.3 *Instrument approach operations* shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

- a) **Type A:** a **MDH** or DH at or above 75 m (250 ft); and
- b) **Type B:** a DH below 75 m (250 ft).

Type B instrument approach operations are categorized as:

- 1) **Category I (CAT I):** a DH not lower than 60 m (200 ft) and with either a **visibility not less than 800 m** or an RVR not less than 550 m;
- 2) **Category II (CAT II):** a DH lower than 60 m (200 ft) but not lower than 30 m (100 ft) and an **RVR** not less than 300 m;
- 3) **Category IIIA (CAT IIIA):** a DH lower than 30 m (100 ft) or no DH and an **RVR** not less than 175 m;
- 4) **Category IIIB (CAT IIIB):** a DH lower than 15 m (50 ft) or no DH and an **RVR** less than 175 m but not less than 50 m; and
- 5) **Category IIIC (CAT IIIC):** no DH and no **RVR** limitations.

Type	CAT	Visibility	RVR	MDH	DH
A		+1000 m		+250ft	+250ft
	I	+800 m	+550m		+200ft
	II		+300m		+100ft
	IIIA		+175m		-100ft
	IIIB		+50m		-50ft
	IIIC				

Conversion of Met into RVR

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

Lighting elements in operation	RVR = Reported Met Vis x	
	Day	Night
High intensity (HI) approach and runway lighting	1.5	2.0
Any type of lighting installed other than above	1.0	1.5
No lighting	1.0	Not applicable



Annex 6 Amend 44, 5/11/2020

a) Type A: a **MDH** or **DH** at or above 75 m (250 ft); and

b) Type B: a DH below 75 m (250 ft).

Type B instrument approach operations are categorized as:

- 1) **Category I (CAT I):** a **DH** not lower than 60 m (**200 ft**) and with either a **visibility** not less than **800 m** or a RVR not less than **550 m**;
- 2) **Category II (CAT II):** a **DH** lower than 60 m (**200 ft**) but not lower than 30 m (**100 ft**) and a **RVR** not less than **300 m**; and
- 3) **Category III (CAT III):** a DH lower than 30 m (**100 ft**) or **no** DH and a **RVR** less than **300 m** or **no** RVR limitations.

Annex 6 Amend 44, 5/11/2020

Type	CAT	Visibility	RVR	MDH	DH
A		+1000 m		+250ft	+250ft
	I	+800 m	+550m		+200ft
	II		+300m		+100ft
	III		-300m		-100ft

CHAPTER 4. FLIGHT OPERATIONS

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

4.2.8 Aerodrome operating minima

*Note 2. — The required **visual reference** means that section of the **visual aids** or of the **approach area** which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft **position** and **rate of change** of position, in relation to the desired flight path.*

*In the case of a **circling approach** operation, the required visual reference is the **runway environment**.*

A pilot may not continue an approach below MDA/MDH unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

- Elements of the approach **light** system.
- The threshold.
- The threshold markings.
- The threshold lights.
- The threshold identification lights.
- The visual glide slope indicator.
- The touchdown zone or touchdown zone markings.
- The touchdown zone lights.
- Runway edge lights, or
- Other visual references accepted by the Authority.

CHAPTER 4. FLIGHT OPERATIONS

4.2.8 Aerodrome operating minima

4.2.8.4 **Category II and Category III** instrument approach operations shall not be authorized unless **RVR** information is provided.

4.2.8.5 **Recommendation.**— For instrument approach operations, aerodrome operating minima **below 800 m** visibility should not be authorized unless RVR information is provided.

4.2.8.6 The operating minima for **2D [including CIRCLING]** instrument approach operations using instrument approach procedures shall be determined by establishing a minimum descent altitude (**MDA**) or minimum descent height (**MDH**), minimum **visibility** and, if necessary, **cloud** conditions.

4.2.8.7 The operating minima for **3D** instrument approach operations using instrument approach procedures shall be determined by establishing a decision altitude (**DA**) or decision height (**DH**) and the minimum **visibility** or **RVR**.

CHAPTER 4. FLIGHT OPERATIONS

4.2.9 Threshold crossing height for 3D instrument approach operations

The **operator** shall establish operational procedures designed to ensure that an aeroplane being used to conduct **3D [=APV & Precision] instrument approach operations** crosses the threshold by a **safe margin**, with the aeroplane in the landing configuration and attitude.

CHAPTER 4. FLIGHT OPERATIONS

4.2.10 Fuel and oil records

4.2.10.3 Fuel and oil records shall be retained by the operator for a period of **three months**.

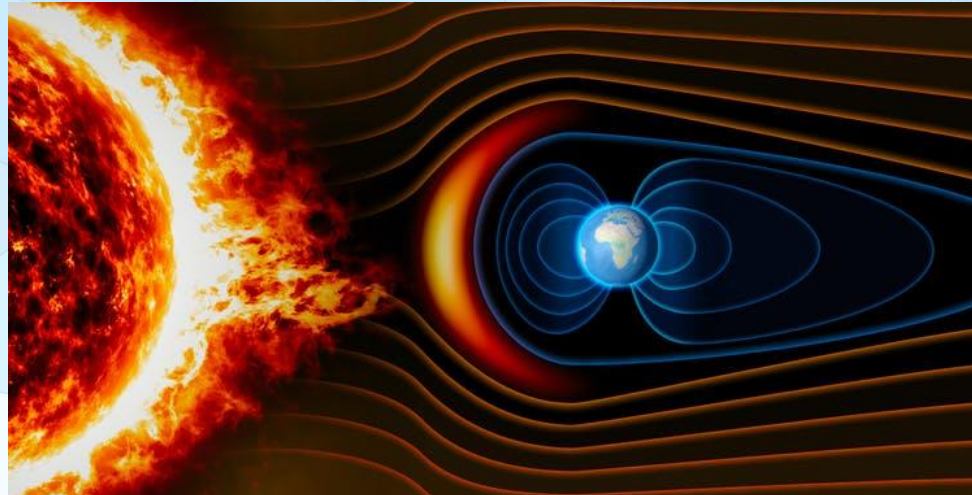


CHAPTER 4. FLIGHT OPERATIONS

4.2.11 Crew

4.2.11.1 **Pilot-in-command.** For each flight, the **operator** shall designate **one** pilot to act as **pilot-in-command**.

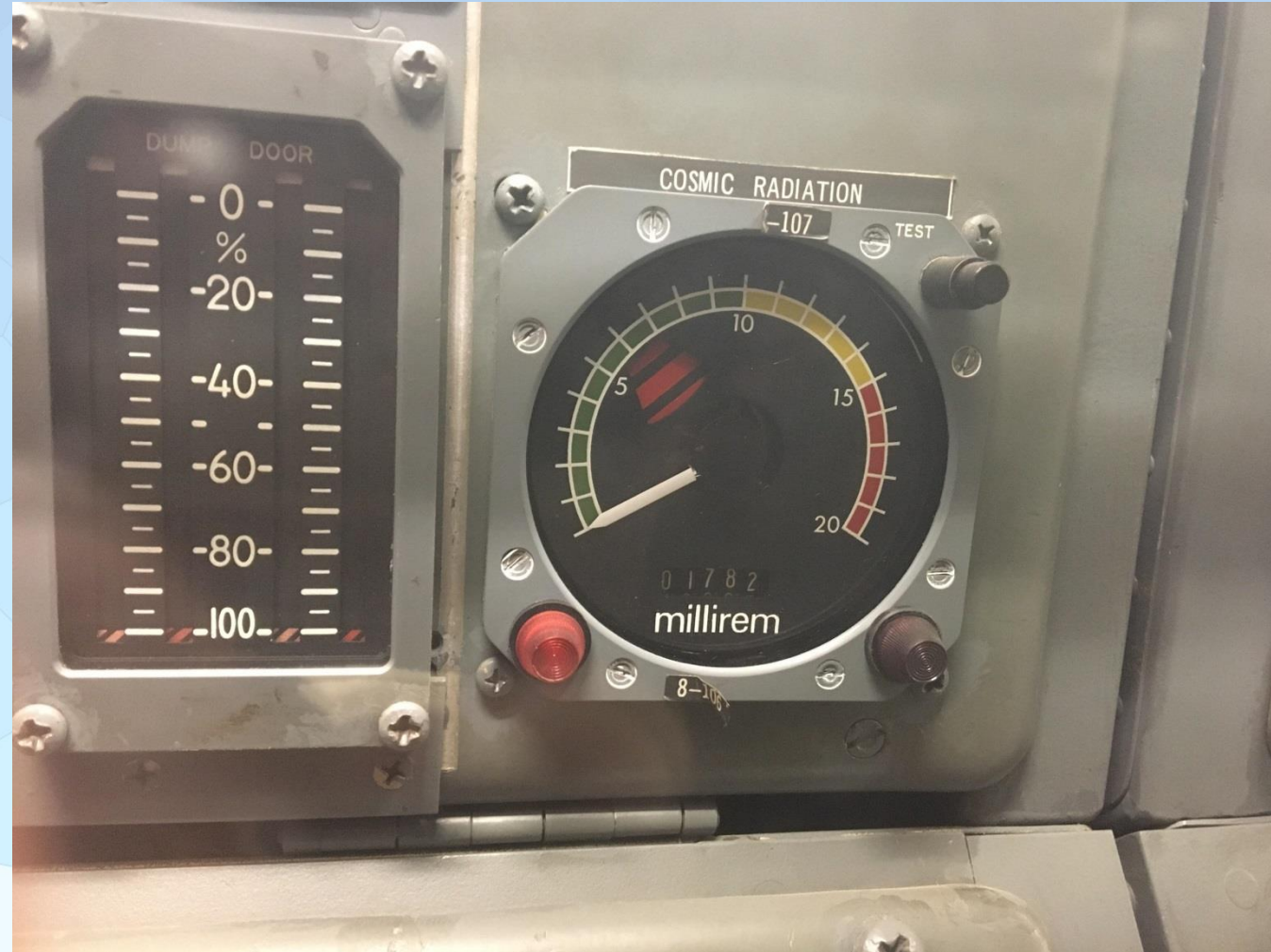
4.2.11.2 For each flight of an aeroplane **above 15 000 m (49 000 ft)**, the operator shall maintain records so that the total **cosmic radiation** dose received by each crew member over a period of **12 consecutive months** can be determined.



Cosmic Radiation

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

A cosmic radiation indicator shall be carried for flights **above 49000ft.**

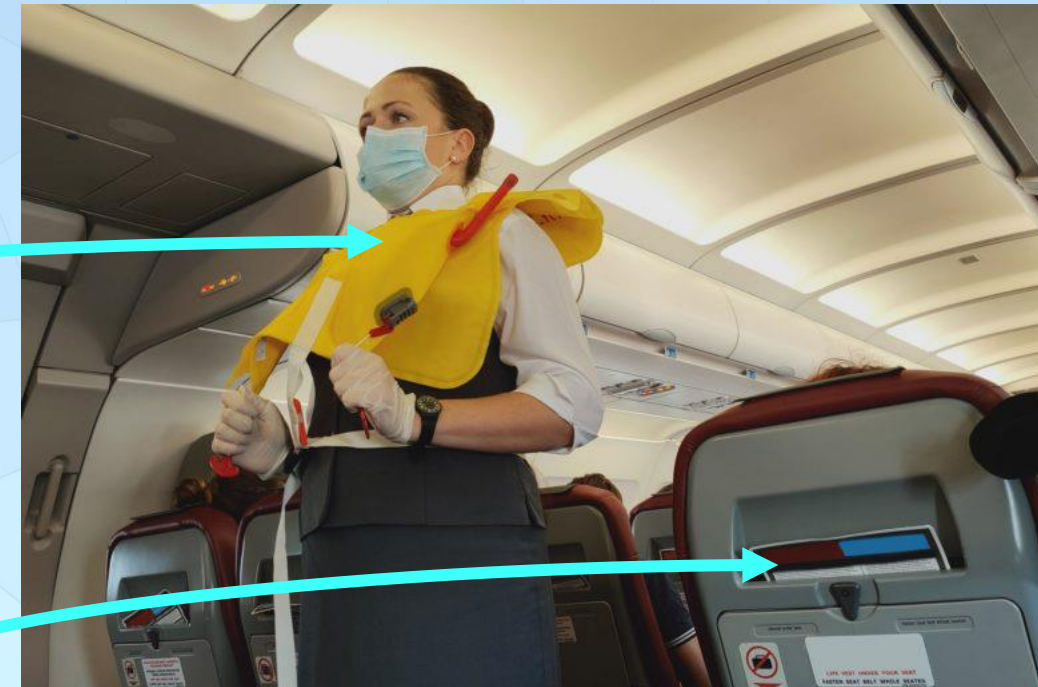


CHAPTER 4. FLIGHT OPERATIONS

4.2.12 Passengers

4.2.12.1 The operator shall ensure that passengers are made familiar with the location and use of:

- a) **seat belts**;
- b) emergency **exits**;
- c) **life jackets**, if the carriage of life jackets is prescribed;
- d) **oxygen dispensing equipment**, if the provision of oxygen for the use of passengers is prescribed; and
- e) other **emergency equipment** provided for individual use, including passenger emergency **briefing cards**.



OPERATIONAL PROCEDURES

ATPL GROUND TRAINING SERIES



Portable Electronic Devices

The **Operator** is to take all reasonable measures to **prevent** the use of any portable electronic device on board an aeroplane that could adversely affect the performance of the aeroplane's **systems and equipment**.



Passenger Briefing

A briefing is to be given to all passengers **before the flight commences**. This can be delivered either **verbally** or by **audio-visual means**. The briefing before take-off is to cover:

- **Smoking** regulations.
- **Seat** position and **tray stowage**.
- Location of **emergency exits**.
- Location and use of **floor escape path markings**.
- Stowage of **hand baggage**.
- Restrictions on the use of **portable electronic devices**.
- Location and the content of the **briefing card**.

Passengers are to receive a demonstration of:

- **Seat belt fastening** and **unfastening**.
- Use of **oxygen equipment**.
- Location and use of life **jackets** (if required to be fitted).

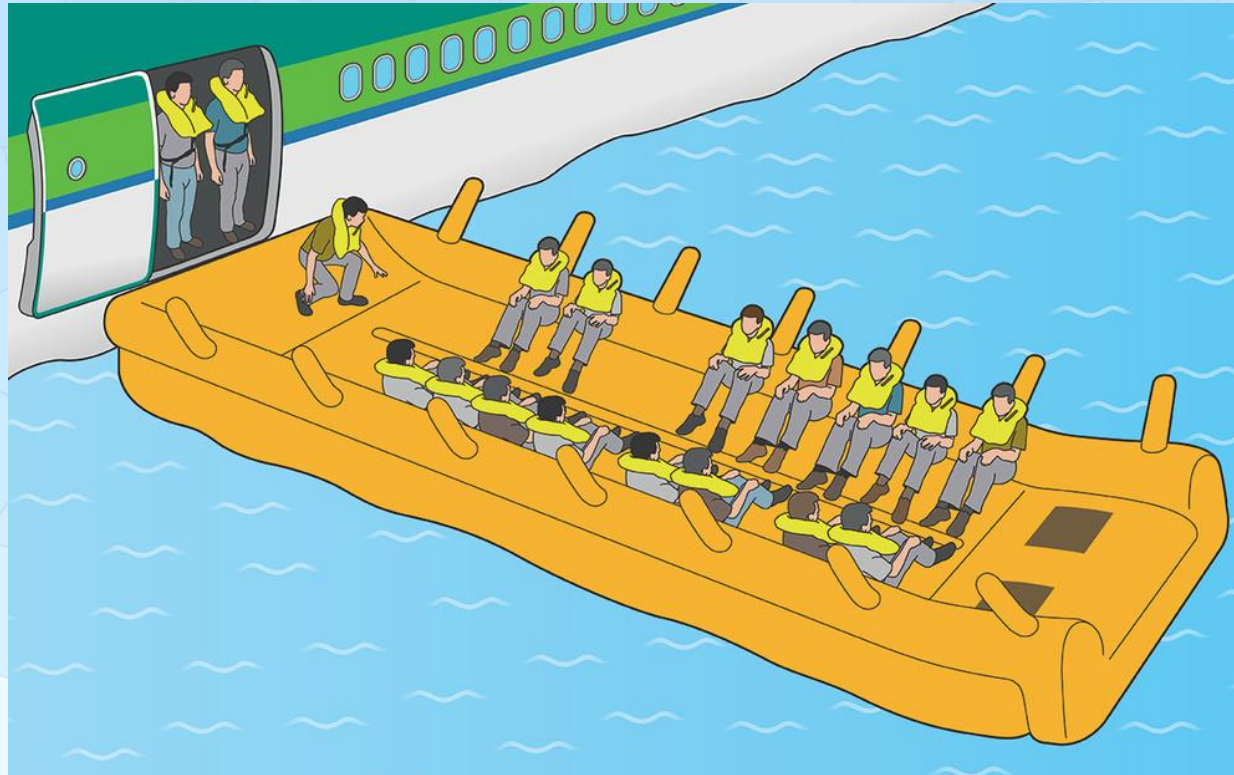


floor escape path markings



CHAPTER 4. FLIGHT OPERATIONS

4.2.12.2 The operator shall inform the passengers of the location and general manner of use of the principal emergency equipment carried for **collective use**.



CHAPTER 4. FLIGHT OPERATIONS

4.2.12.3 The operator shall ensure that in an emergency **during flight**, passengers are instructed in such emergency action as may be appropriate to the circumstances.

4.2.12.4 The operator shall ensure that, during **take-off and landing** and whenever considered necessary by reason of **turbulence** or any **emergency** occurring during flight, all passengers on board an aeroplane shall be **secured in their seats** by means of the **seat belts** or **harnesses** provided.



Passenger Seat belts

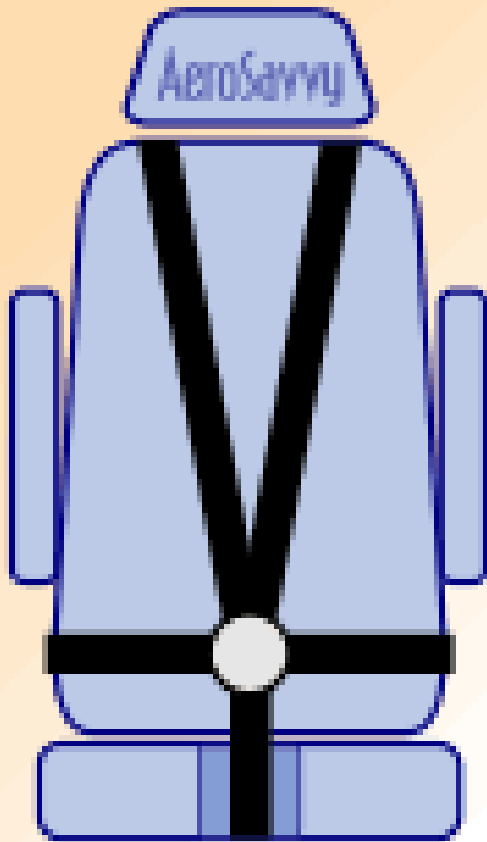
Each passenger is to occupy a seat and the seat belt (or harness) is to be properly fastened :

- before **take-off**
- before **landing**,
- during **taxiing**
- during **turbulence**
- during **emergencies.**



Flight crew Seat belts

Flight crew member on the flight deck shall keep their safety belt fastened while at their station.



**Pilot
Five-Point Harness**



CHAPTER 4. FLIGHT OPERATIONS

4.3 FLIGHT PREPARATION

4.3.1 *A flight shall not be commenced* until **flight preparation forms** have been completed certifying that the **pilot-in command** *is satisfied* that:

- a) the aeroplane is **airworthy** and the appropriate **certificates** (i.e. airworthiness, registration) are on board the aeroplane;
- b) the **instruments** and **equipment** prescribed in Chapter 6, for the particular type of operation to be undertaken, are installed and are **sufficient** for the flight;
- c) a **maintenance release** as prescribed in 8.8 has been issued in respect of the aeroplane;
- d) the **mass** of the aeroplane and **centre of gravity** location are such that the flight can be conducted safely;
- e) any **load** carried is properly distributed and safely **secured**;
- f) a check has been completed indicating that the **operating limitations** of Chapter 5 can be complied with for the flight to be undertaken; and
- g) the Standards of 4.3.3 relating to **operational flight planning** have been complied with.

4.3.2 Completed flight preparation forms shall be kept by the operator for a period of **three months**.

Flight Preparation

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

- For each flight as part of the operation, an **operational flight plan** (OFP) is to be formulated.
- From this the **ATC flight plan** will be produced.
- Before commencing the flight, the commander is to satisfy him/herself that, *inter alia*:
 - The aeroplane is airworthy
 - CDL & MEL are met
- When you want to select an alternate aerodrome, the runway must be sufficiently long to allow a full stop landing from 50 ft above the threshold (jet type aircraft, dry runway) within **60%** of the **landing distance available (LDA)**.

Kish Airlines

Operational Flight Plan
QVQX8OIBK/kih - OIMM/MHD
KISH ISLAND AB - MASHHAD / SHAHID HASHEMI NEJAD

Date of Flight: 29-Jun-2021

Flight Number 7134
EP-LCL

Captain: EBRAHIMI

Generated by GHAZIZADEH at 19:52

--- KISH AIRLINES FLIGHT PLAN ---

-- NOTE --

ALL SPEEDS -WIND-TAS-G/S IN KTS DISTANCE IN NMS
NAV D.B VALID FROM 17 JUNE 2021 TILL 15 JULY 2021COST INDEX
COMPANY ROUTE ID 1DEGRADATION FACTOR EP-LCL 10.0 PCT
CRZ WIND P7 AVG TMP M34
MAX SHEAR 01/TBS

FLT	AC/REG	DATE	ROUTE	MACH	STD	ETA	STA	ALTN	DATE	MET
KIS7134	EP-LCL	29/06/21	OIBK OIMM	M76	0400	0604	0600	OIII	281200	
			kih MHD					THR		
			APT ELEV 99	3266				3962		

ETOW 63410	ELDW 57030	EZFW 51490	TOF 11920	BURN 6380	PLD 13500
MTOW 66678	MLDW 58060	MZFW 54431			

ALTN OIII DIST 411	TIME	FUEL	SR/SS	OIBK	0134/1521
FL 340 WC M016	01.08	3750	SR/SS	OIMM	0047/1523
HOLD ALTN 1500	00.30	1480			
MIN FUEL RQ.MIS APP	01.38	5230		STD	04.00
ROUTE RES 5 P/C	00.05	310		TAXI OUT	00.05
TOTAL RESERVES	01.43	5540		ETOT	04.05
				TRIP TIME	01.54
TRIP FUEL	01.54	6380		ELT	05.59
ENDURANCE	03.37	11920		TAXI IN	00.05
TAXI OUT		200		ETA	06.04
FUEL ON BOARD		12120		STA	06.00

FOR URGENT COMMUNICATION WITH FLIGHT DISPATCH
HEAD OF DISPATCH OFFICE MR NOROWZIPHONE NUMBERS: +982144690097-8 TEHRAN DISPATCH
+987644444062 KISH DISPATCH
+987644444060 KISH DISPATCH

SITA ADDRESS: XXXXXXXX

FLIGHT DISPATCHER

NAME: GHAZIZADEH

SIGNATURE: _____

PILOT-IN-COMMAND

NAME: EBRAHIMI

SIGNATURE: _____

Ali



Erfanian

TO	AWY	FL	MT	WIND	TAS	G/S	IMT/FMT	DTGO	ET	FUEL	ETO
FREQY	GRMORA	LAT		LONG	MAC	SR	(ITT/FTT)	DIST	T/T	REM	ATO
----	-----	-----	----	-----	----	---	-----	----	---	----	----
OIBK	X	X	X	X	X	X	X	742	X	X	X
		N2631.7		E05358.8							
MIVUN	MIVU1A	CLB		04003		396	087/087	18	6	570	. ..
	73	N2631.9		E05419.9		00	(089/089)	724	00.06	11350	. ..
DENSA	M561	CLB		05011		389	087/087	8	1	130	. ..
	73	N2632.0		E05429.3		00	(089/089)	716	00.07	11220	. ..
LEN	M561	CLB		06012		388	087/088	20	3	300	. ..
114.80	73	N2632.2		E05451.1		00	(089/089)	696	00.10	10920	. ..
BOSOS	M561	CLB		02002		397	074/075	48	7	730	. ..
	73	N2643.4		E05543.2		00	(076/077)	648	00.17	10190	. ..
KHM	M561	CLB		25012		410	075/075	10	2	140	. ..
335.00	85	N2645.8		E05554.5		00	(077/077)	638	00.19	10050	. ..
TOC	M318	330		24023		409	004/004	40	6	590	. ..
	150	N2725.7		E05559.4		00	(006/006)	598	00.25	9460	. ..
ASMUK	M318	330	34	24023	458	472	004/004	44	5	310	. ..
	150	N2809.9		E05604.9	M760	00	(006/006)	554	00.30	9150	. ..
						55.8					
ASMET	M318	330	33	24024	458	471	005/005	38	5	260	. ..
	150	N2848.0		E05610.3	M760	00	(007/007)	516	00.35	8890	. ..
						56.1					
GETIS	M318	330	33	25025	459	468	005/005	84	11	580	. ..
	150	N3011.8		E05622.4	M760	00	(007/007)	432	00.46	8310	. ..

DISPATCHED BY ACCEPTED BY CAPTAIN
GHAZIZADEH EBRAHIMI

1ST ALT: OIII
OIMM DCT ORDOB A647 MUXOR DCT OIII

2ND ALT: OIIY
OIMM RAMI1A RAMIL G663 BOMIT DCT OIIY

er

ANNEX 6 & OPERATIONAL PROCEDURES

START OF ALTERNATE FLIGHT PLAN 1 OIMM TO OIII

ROUTE: 343885

POSITION LAT LONG
FREQY AWID TRAKM DIST MORA

OIMM N3614.1 E05938.7
DCT 268 60 132

ORDOB N3616.2 E05825.1
A647 257 42 128

START OF ALTERNATE FLIGHT PLAN 2 OIMM TO OIIY

ROUTE: 221832

POSITION LAT LONG
FREQY AWID TRAKM DIST MORA

OIMM N3614.1 E05938.7
RAMI1A 119 10 132

MSD N3613.9 E05939.0
114.00 RAMI1A 218 60 132



- - - DATA SUPPLIED BY SITA SURFACE WEATHER SYSTEM - - -

FT 28/18:00

TAF OIMM 281730Z 2818/2924 22008KT 8000 NSC

TEMPO 2909/2915 06018KT FEW035CB SCT040 SCT100=

FT 28/18:00

TAF OIII 281730Z 2818/2924 06008KT 8000 FEW040 SCT100

TEMPO 2907/2914 13018KT FEW035CB SCT040 SCT100 PROB30 TSRA=

FT OIYY NO DATA FOUND.

FT 28/18:00

TAF OIKB 281730Z 2818/2924 11006KT 4000 HZ FEW030 SCT100

TEMPO 2823/2905 3000 HZ SCT025

TEMPO 2909/2915 18018KT 4000 SA=

FC 28/18:00

TAF OIYY 281720Z 2818/2903 33008KT 8000 FEW045=

SA 28/19:30

METAR OIMM 281930Z 19004KT CAVOK 27/09 Q1014 A2996=

SA 28/19:30

METAR OIII 281930Z 07004KT 9999 FEW040 32/M00 Q1015 A2

SA 28/19:00

METAR OIYY 281900Z 16004KT 9999 FEW040 31/M04 Q1016=

SA 28/19:30

METAR OIKB 281930Z 22004KT 5000 HZ NSC 34/24 Q1002 A29

- - - DATA SUPPLIED BY SITA SURFACE WEATHER SYSTEM - - -

START OF ICAO FLIGHT PLAN

(FPL-KIS7134-IS

-MD82/M-SDFGRWY/S

-OIBK0400

-N0458F330 MIVUN1A MIVUN M561 KHM M318 TBS G663 RAMIL RAMIL1P

-OIMM0148 OIII OIYY

-PBN/D2D3 DOF/210629 REG/EPLCL CODE/73306C
C/EBRAHIMI)

END OF ICAO FLIGHT PLAN

END OF CFP REF : QVQX8 - KIS7134 01 OIBK OIMM



CHAPTER 4. FLIGHT OPERATIONS

4.3.3 Operational flight planning

4.3.3.1 An **operational flight plan** shall be completed for every intended flight. The operational flight plan shall be **approved and signed by the pilot-in-command** and, where applicable, signed by the **flight operations officer/flight dispatcher**, and a copy shall be filed with the operator or a designated agent, or, if these procedures are not possible, it shall be left with the aerodrome authority or on record in a suitable place at the point of departure.

4.3.3.2 The **operations manual** must describe the content and use of the operational flight plan.

operational flight plan

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

A copy of the operational flight plan must be kept on the **ground** by an operator for the duration of each flight

CHAPTER 4. FLIGHT OPERATIONS

4.3.4 Alternate aerodromes

4.3.4.1.1 A **take-off alternate aerodrome** [TALT/----] shall be selected and specified in the **operational flight plan** if either the meteorological conditions at the aerodrome of departure are **below** the operator's established aerodrome landing minima for that operation or if it would not be possible to return to the aerodrome of departure for **other reasons**.

CHAPTER 4. FLIGHT OPERATIONS

4.3.4.1.2 The **take-off alternate aerodrome** shall be located within the following **flight time** from the aerodrome of departure:

- a) for aeroplanes with **two engines**, **one hour** of flight time at a **one-engine-inoperative [=single engine = OEI]** cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the **actual take-off mass**; or
- b) for aeroplanes with **three or more engines**, **two hours** of flight time at an **all engines operating [=AEO]** cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the **actual take-off mass**; or
- c) for aeroplanes engaged in **extended diversion time operations (EDTO)** where an alternate aerodrome meeting the distance criteria of a) or b) is not available, the **first available alternate aerodrome** located **within the distance of the operator's approved maximum diversion time** considering the actual take-off mass.

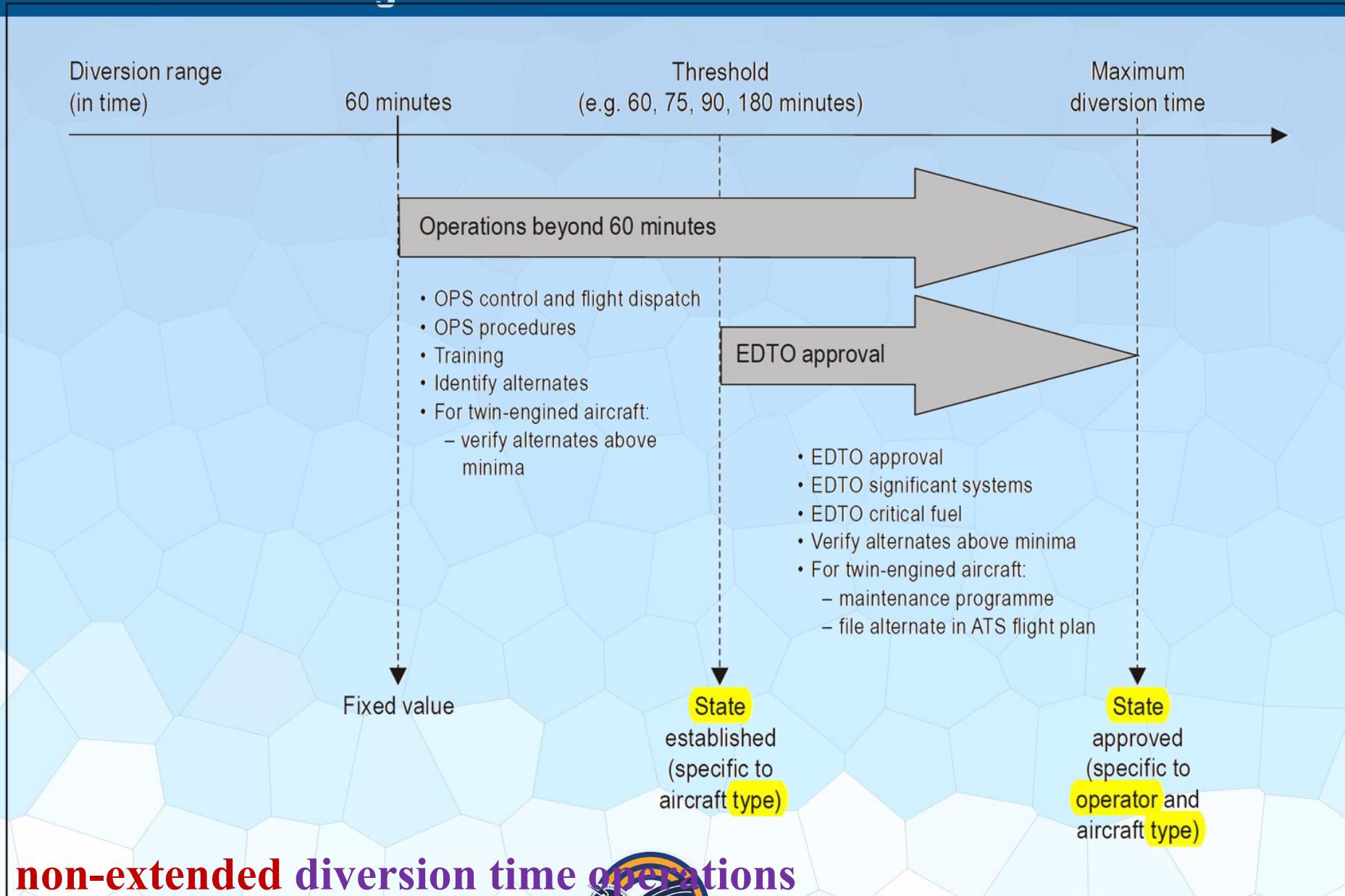
Extended diversion time operations (EDTO). Any operation by an aeroplane with **two or more turbine** engines where the diversion time to an **en-route alternate** aerodrome is greater than the **threshold time** established by the State of the Operator.

Take-off Alternate

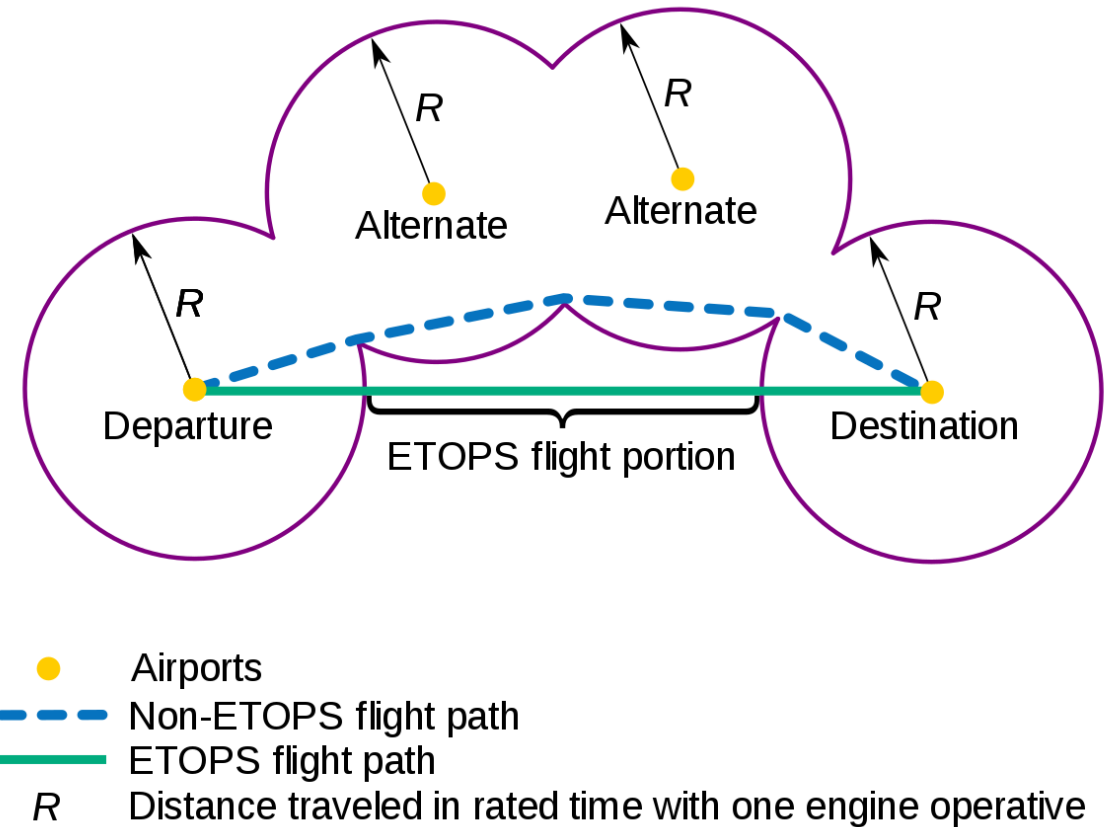
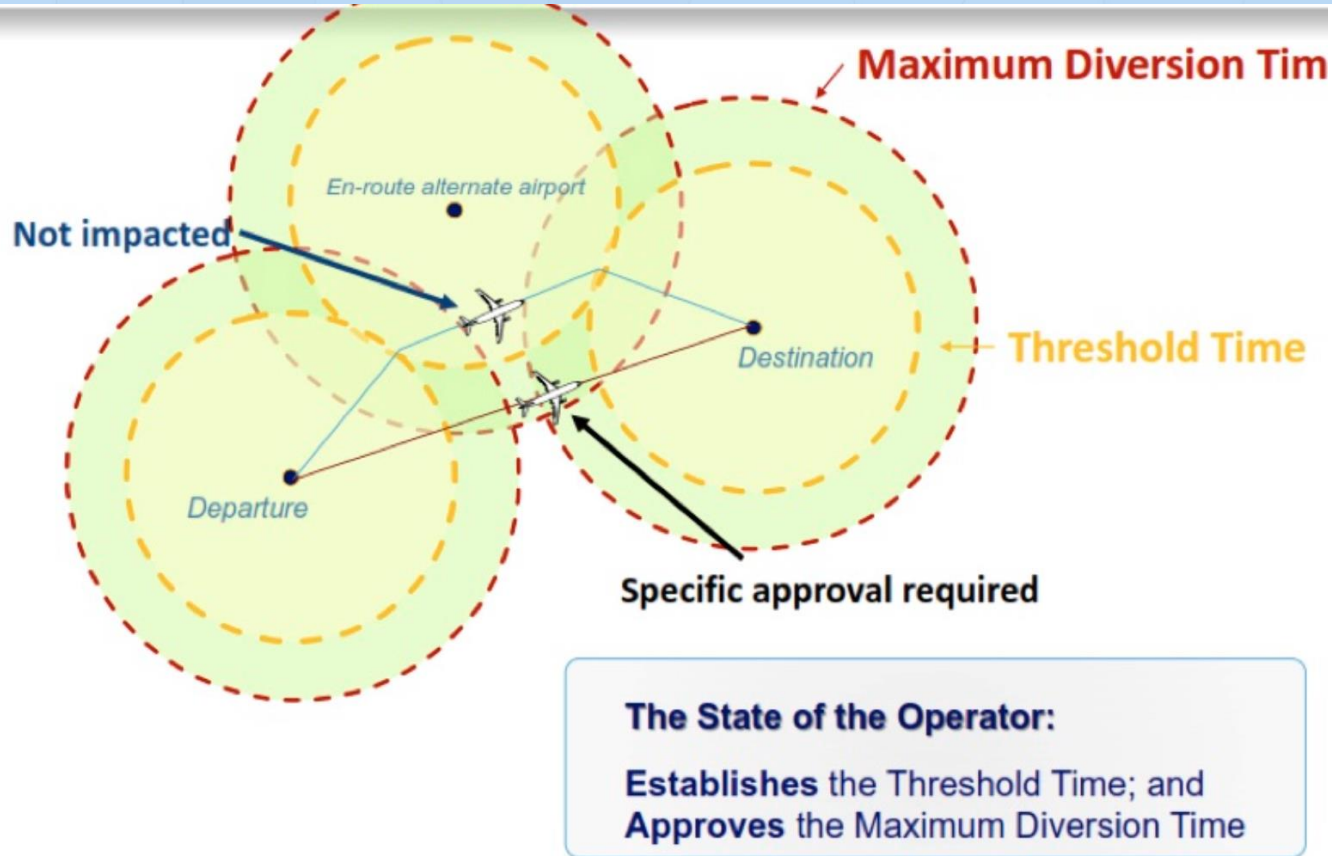
For **twin-engine** aircraft, the **takeoff alternate** shall be located at a distance that does not exceed the equivalent of **one hour** of flight time, at cruising speed with only **one engine operative**.



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



EDTO



Note.— EDTO may be referred to as ETOPS in some documents (FAA/EASA).

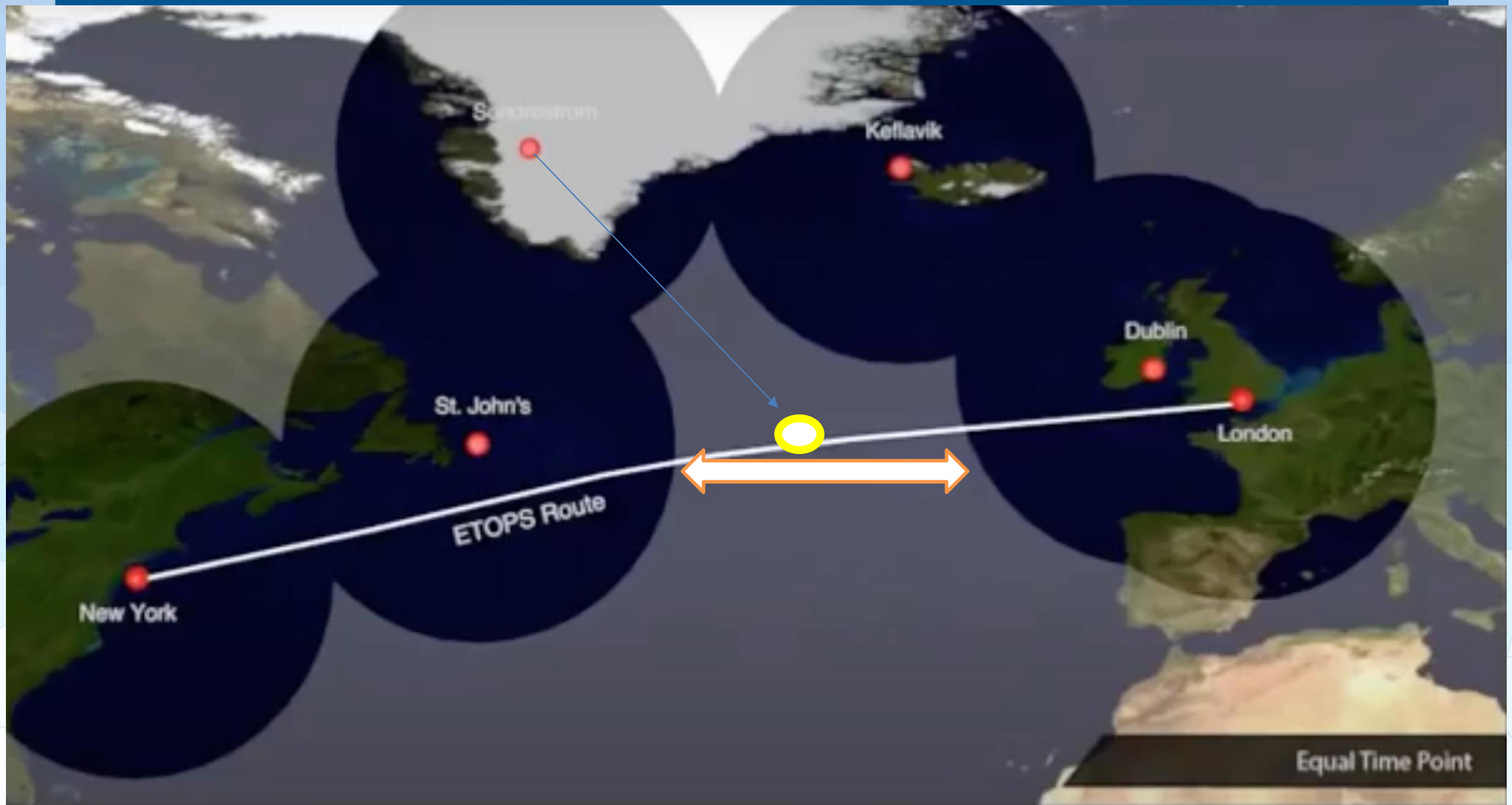
ATT C:**3.1.3 Threshold time**

3.1.3.1 It is a flight time to an en-route alternate aerodrome, which is established by the **State of the Operator** as being the **EDTO threshold** beyond which particular consideration should be given to the *aeroplane* capability as well as the *operator's* relevant operational experience, before granting an **EDTO approval**.

3.1.4 Maximum diversion time

3.1.4.1 The maximum diversion time should take into consideration the most limiting EDTO **significant system** time limitation for a particular **aeroplane type** and the operator's operational and EDTO **experience** with the aeroplane type or, if relevant, with another aeroplane type or model.

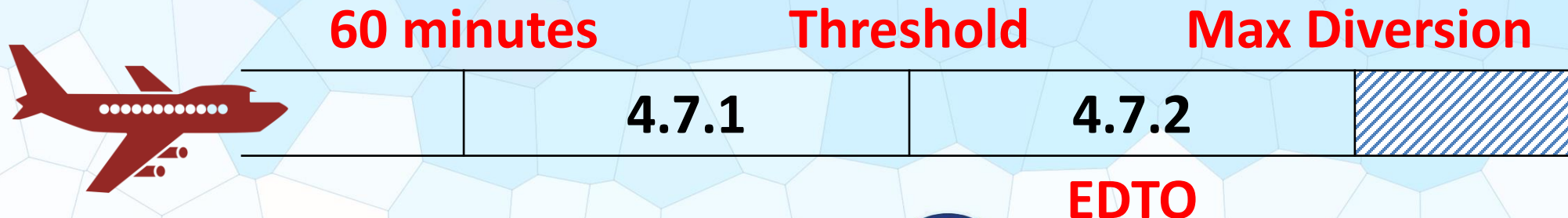
Note.— EDTO may be referred to as **ETOPS** in some documents.



ZCZC MNA3253 031042
FF OIIXZQZX
031042 HECAZPZX
(FPL-CSC3864-1S
-A333/H-SDE1E2E3FGHIJ5M1RWYP2/EB1D1
-HECA1430
-N0460F340 CVO A16 MELDO N307 LAKTO N71 STEPA DCT ODELO DCT VESAR
UL619 EVKIT/N0467F350 UT284 SIV UA4 ERZ UN161 INDUR N161 PEMAN N161
GASBI N161 SARIN/K0839S1010 A368 FKG W192 ESDEX W191 DNC W565 XIXAN
B330 MEXAD
-ZUUU0910 ZUCK ZLXY
-PBN/A1B1C1D1L1O1S2T1 SUR/RSP180 DOF/230203 REG/B8589 EET/LCCCC0030
LTAA0057 UDDD0207 UBBA0218 UATT0248 UACN0411 UAAA0448 ZWUQ0542
ZLHW0657 ZPKM0828 SEL/HJFM CODE/781403 OPR/SICHUAN AIRLINES
RALT/HECA UTSB ZWWW ZLIC ZLXY UACC ZBHH UTTT RIE/NODID W191 DNC
W565 XIXAN W214 HO HO1W ZLXY RMK/ACAS II CAT II ETOPS180 SCHEDULED
PAX)



4.7 ADDITIONAL REQUIREMENTS FOR OPERATIONS BY AEROPLANES WITH **TURBINE ENGINES** BEYOND 60 MINUTES TO AN EN- ROUTE ALTERNATE AERODROME INCLUDING EXTENDED DIVERSION TIME OPERATIONS (**EDTO**)



CHAPTER 4. FLIGHT OPERATIONS

4.7.1 Requirements for operations beyond 60 minutes to an en-route alternate aerodrome

4.7.1.1 Operators conducting **operations beyond 60 minutes** from a point on a route to an en-route alternate aerodrome shall ensure that:

a) for **all** aeroplanes:

- 1) **en-route alternate** aerodromes are identified; and
- 2) the most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;

b) for aeroplanes with **two turbine engines**, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator's established **aerodrome operating minima** for the operation at the estimated time of use.

CHAPTER 4. FLIGHT OPERATIONS

4.7.2 Requirements for extended diversion time operations (EDTO)

4.7.2.1 An aeroplane with **two or more turbine engines** [e.g. B727] shall not be operated on a route where the **diversion time** to an **en-route alternate** aerodrome from any point on the route, calculated in ISA and still-air conditions at the **one-engine-inoperative** cruise speed for aeroplanes with two turbine engines and at the **all engines operating** cruise speed for aeroplanes with **more than two turbine engines**, exceeds a **threshold time** established for such operations by that State.

Note.— When the diversion time exceeds the threshold time, the operation is considered to be an **extended diversion time operation (EDTO)**.

Note.— For the purpose of EDTO, the **take-off and/or destination aerodromes** may be considered **en-route alternate aerodromes**.

CHAPTER 4. FLIGHT OPERATIONS

4.3.4.2 En-route alternate aerodromes [RALT/----]

En-route alternate aerodromes, required by 4.7 for *extended diversion time operations (EDTO)* by aeroplanes with **two turbine engines**, shall be selected and specified in the **operational and air traffic services (ATS) flight plans.**

CHAPTER 4. FLIGHT OPERATIONS

4.3.4.3 Destination alternate aerodromes [ALTN/-----]

4.3.4.3.1 For a flight to be conducted in accordance with the **instrument flight rules**, **at least one** destination alternate aerodrome shall be selected and specified in the **operational and ATS flight plans**, *unless*:

a) the **duration of the flight** from the departure aerodrome, or from the point of in-flight re-planning, to the destination aerodrome is such that, taking into account all **meteorological** conditions and **operational information** relevant to the flight, at the estimated time of use, a reasonable certainty exists that:

- 1) the approach and landing may be made **under visual meteorological conditions**; and
- 2) **separate runways** are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational **instrument approach procedure**; or

b) **the aerodrome is isolated**. Operations into isolated aerodromes do not require the selection of a destination alternate aerodrome(s) and shall be planned in accordance with 4.3.6.3 d) 4);

- 1) for each flight into an isolated aerodrome a **point of no return** shall be determined; and
- 2) a flight to be conducted to an isolated aerodrome **shall not be continued past the point of no return** **unless** a current assessment of **meteorological** conditions, **traffic** and other **operational conditions** indicate that a safe landing can be made at the estimated time of use.

CHAPTER 4. FLIGHT OPERATIONS

4.3.4.3 Destination alternate aerodromes

Note 1.— **Separate runways** are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

*These runways may **overlay or cross** in such a way that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway. Each runway shall have a **separate approach procedure based on a separate navigation aid.***

4.3.4.3.2 **Two destination alternate aerodromes** shall be selected and specified in the operational and ATS flight plans when, for the destination aerodrome:

- a) meteorological conditions at the estimated time of use will be **below the operator's established** aerodrome operating minima for that operation; or
- b) **meteorological** information is **not available**

CHAPTER 4. FLIGHT OPERATIONS

4.3.6 Fuel requirements

4.3.6.3 The pre-flight calculation of usable fuel required shall include:

- a) **taxi** fuel (A343:600kg)
- b) **trip** fuel (OMDB:22 ton)
- c) **contingency** fuel
- d) **destination alternate** fuel
- e) **final reserve** fuel (4.2 ton)
- f) **additional** fuel
- g) **discretionary** fuel

Cruise degradation e.g. 2.5%



CHAPTER 4. FLIGHT OPERATIONS

4.3.6 Fuel requirements

taxi fuel shall be the amount of fuel expected to be consumed **before take-off**;

trip fuel shall be the amount of fuel required to enable the aeroplane to fly **from take-off**, or the point of inflight re-planning, until **landing at the destination** aerodrome;

contingency fuel [=unforeseen factors] shall be **five per cent of the planned trip fuel** and shall not be lower than the amount required to fly for **five minutes** at holding speed at 450 m (1 500 ft) above the destination aerodrome in standard conditions;

final reserve fuel shall be for a **turbine-engined** aeroplane the amount of fuel required to fly for **30 minutes** and for a **reciprocating** [=piston] engine aeroplane **45 minutes** **with the mass of aircraft** at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required;

discretionary fuel, which shall be the extra amount of fuel to be carried at the discretion of the **pilot-in-command**.

Note: The **level above destination or alternate aerodrome** which shall be considered in fuel computing for turbine engine airplanes is **1500 ft**.

CHAPTER 4. FLIGHT OPERATIONS

4.3.6 Fuel requirements

DESTINATION ALTERNATE FUEL

- 1) where **a destination alternate** aerodrome is required, the amount of fuel required to enable the aeroplane to:
 - i) perform a missed approach at the destination aerodrome;
 - ii) climb to the expected cruising altitude;
 - iii) fly the expected routing;
 - iv) descend to the point where the expected approach is initiated; and
 - v) conduct the approach and landing at the **destination alternate aerodrome**; or
- 2) **where two destination alternate aerodromes** are required, the amount of fuel, as calculated in 4.3.6.3 d) 1), required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the **greater amount of alternate fuel**; or

CHAPTER 4. FLIGHT OPERATIONS

4.3.6 Fuel requirements

DESTINATION ALTERNATE FUEL

- 3) where a flight is operated **without a destination alternate aerodrome**, the amount of fuel required to enable the aeroplane to fly for **15 minutes at holding speed** at 450 m (1 500 ft) above destination aerodrome elevation in standard conditions; or
- 4) where the aerodrome of intended landing is an **isolated aerodrome**:
- i) for a **reciprocating** [=piston] **engine** aeroplane, the amount of fuel required to fly for **45 minutes plus 15 per cent** of the flight time planned to be spent at **cruising level**, including final reserve fuel, **or two hours**, whichever is **less**; or
 - ii) for a **turbine-engined** aeroplane, the amount of fuel required to fly for **two hours** at **normal cruise** consumption above the destination aerodrome, including final reserve fuel;

CHAPTER 4. FLIGHT OPERATIONS

4.3.6 Fuel requirements

ADDITIONAL FUEL [engine failure or depressurization]

Shall be specified if the fuel calculated in 4.3.6.3 b), c), d) and e) is not sufficient to:

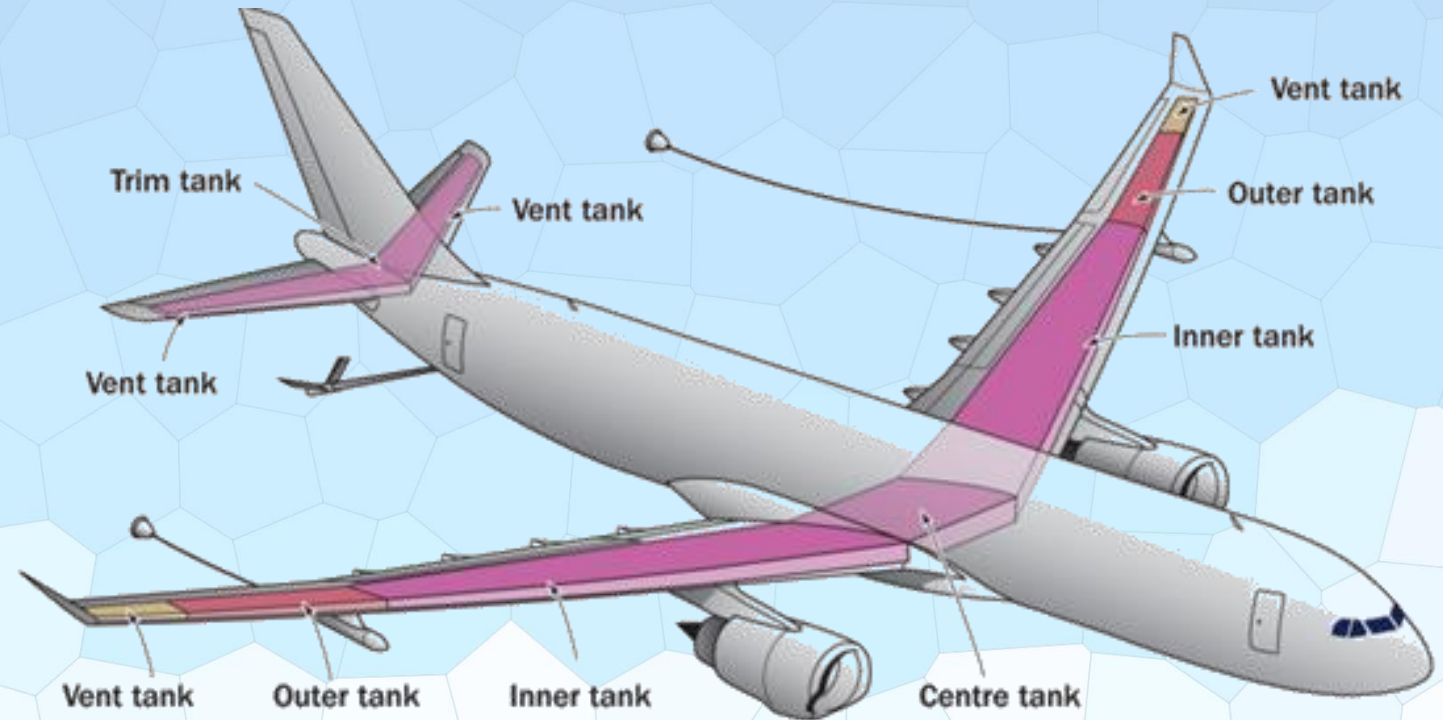
- 1) allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss of pressurization, whichever requires the *greater* amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;
 - i) fly for 15 minutes at holding speed at 450 m (1 500 ft) above aerodrome elevation in standard conditions; and
 - ii) make an approach and landing;
- 2) allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the State of the Operator;
- 3) meet additional requirements not covered above;

CHAPTER 4. FLIGHT OPERATIONS

4.3.7 In-flight fuel management

4.3.7.1 The operator shall establish policies and procedures, approved by the State of the Operator, to ensure that **inflight fuel checks** and **fuel management** are performed.

4.3.7.2 The pilot-in-command shall continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with the planned **final reserve fuel remaining upon landing**.



CHAPTER 4. FLIGHT OPERATIONS

4.3.7 In-flight fuel management

4.3.7.2.2 The pilot-in-command shall advise ATC of a **minimum fuel** state by declaring **MINIMUM FUEL** when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in *landing with less than the planned final reserve fuel*.

Note 1.— The declaration of **MINIMUM FUEL** is **not an emergency** situation but an indication that an emergency situation is possible should any additional delay occur.

4.3.7.2.3 The pilot-in-command shall declare a situation of fuel emergency by broadcasting **MAYDAY MAYDAY MAYDAY FUEL**, when the **calculated usable fuel** predicted to be available upon landing at the nearest aerodrome where a safe landing can be made **is less than the planned final reserve fuel**.

CHAPTER 4. FLIGHT OPERATIONS

4.3.8 Refuelling with passengers on board

4.3.8.1 An aeroplane shall not be refuelled when passengers are **embarking, on board or disembarking** unless it is properly attended by qualified personnel ready to initiate and direct an ***evacuation of the aeroplane*** by the most practical and expeditious means available.

4.3.8.2 When refuelling with passengers embarking, on board or disembarking, ***two-way communication*** shall be maintained by the aeroplane's inter-communication system or other suitable means between the ground crew supervising the refuelling and the qualified personnel on board the aeroplane.



Refuelling

- The refuelling of aeroplanes is not permitted with Avgas or wide cut fuels (e.g. Jet B - a mixture of gasoline and kerosene), when passengers are on board, embarking or disembarking.
- If other fuels are being used (e.g. Jet A1) then procedures are to be established to ensure that the aeroplane is properly manned by qualified personnel ready to **initiate an immediate evacuation** by the most expeditious means.

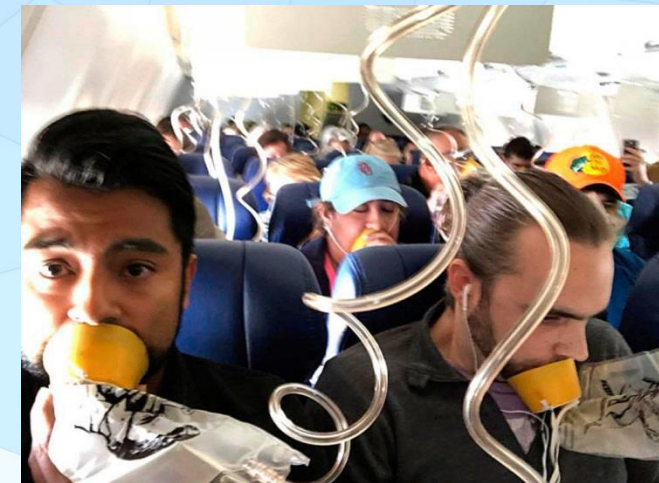
Maintain **two-way communications** with the fire crew directly or via air traffic.

The **ground area** beneath the exits intended for emergency **evacuation** and **slide** deployment areas **must be kept clear**.



Depressurization

- Decompression is defined as either slow, or rapid (or explosive).
- Rapid or explosive decompression is the result of a failure of the airframe.
- In a normal system, once the cabin pressure reaches **10 000 ft** (700 mb) the **altitude warning horn will sound**.
- As **cabin altitude increases**, the **differential pressure decreases**. It means when the pressurization system fails, the differential pressure falls.
- Following an **explosive decompression**, the maximum altitude **without oxygen** at which flying efficiency is not impaired is **8000 ft**.
- Before cabin altitude reaches **15000 ft** the oxygen drop out masks must be **automatically presented**.



Depressurization

In case of a pressurization malfunction:

Noise increases.

Cabin Rate of Climb/Descent is changed.

Pressure differential decreases.

Gradual decompression may be caused by:

Window leak.

Door leak.

A malfunction of the pressurization



Rapid decompression may be caused by:

- Loss of a cabin compartment window.
- Loss of a cargo-hold door.



CHAPTER 4. FLIGHT OPERATIONS

4.3.9 Oxygen supply

Absolute pressure	Metres	Feet
<i>700 hPa</i>	<i>3 000</i>	<i>10 000</i>
<i>620 hPa</i>	<i>4 000</i>	<i>13 000</i>
<i>376 hPa</i>	<i>7 600</i>	<i>25 000</i>

0 ft – 10000 ft → $1013 - 700 = 313$ hpa

10000 ft – 13000 ft → $700 - 620 = 80$ hpa (NOT 93.9 hpa)

13000 ft – 25000 ft → $620 - 376 = 244$ hpa (NOT 320 hpa)

هواپیمایی که PRESSURIZED نیست

CHAPTER 4. FLIGHT OPERATIONS

4.3.9 Oxygen supply

4.3.9.1 A flight to be operated at flight altitudes at which the atmospheric pressure in **personnel compartments** will be **less than 700 hPa (=above 10000ft)** shall not be commenced unless sufficient stored **breathing oxygen** is carried to supply:

- a) **all crew members and 10 per cent of the passengers** for any period in excess of **30 minutes** that the pressure in compartments occupied by them will be **between 700 hPa and 620 hPa (= 10 to 13 thousand feet)**; and
- b) **the crew and passengers** for any period that the atmospheric pressure in compartments occupied by them will be **less than 620 hPa (above 13000 ft)**.

FL100 to FL130

FL130 to UNL

تا ۳۰ دقیقه اشکال ندارد. بقیه ش:
کل خدمه + ۱۰ درصد مسافران

کل خدمه + کل مسافران

هواپیمایی که PRESSURIZED است

CHAPTER 4. FLIGHT OPERATIONS

4.3.9 Oxygen supply

4.3.9.2 A flight to be operated with a **pressurized aeroplane** shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply **all the crew members and passengers**, as is appropriate to the circumstances of the flight being undertaken, **in the event of loss of pressurization, for any period** that the atmospheric pressure in any compartment occupied by them would be **less than 700 hPa (=above 10000ft)**. In addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is **less than 376 hPa (=above 25000ft)**, **or** which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and **cannot descend safely within four minutes** to a flight altitude at which the atmospheric pressure is **equal to 620 hPa (=13000 ft)**, there shall be **no less than a 10-minute supply** for the occupants of the passenger compartment.

(۱) اگر هواپیما زیر FL250 بود:

❖ بین اگر depressurized شد، چقدر طول می کشد برسد به FL100؟ همان مقدار اکسیژن لازم است.

❖ اگر ظرف ۴ دقیقه نمی توانست برسد به FL130، ۱۰ دقیقه برای کل سرنشینان کابین مسافران اکسیژن لازم است.

(۲) اگر هواپیما بالای FL250 بود: ۱۰ دقیقه برای کل سرنشینان کابین مسافران اکسیژن لازم است.

Use of Supplemental Oxygen

The **Commander** is to ensure that **all flight crew members** performing essential duties use supplemental oxygen continuously whenever the **cabin altitude:**

- exceeds 10 000 ft for a period **in excess of 30 minutes**, and
- at **all times** whenever the cabin altitude exceeds 13 000 ft.

For an **oxygen diluter demand system**, the regulator controls the amount of pure oxygen mixed with air. Following explosive decompression with the regulator set to normal, at approximately **32000ft pure oxygen** will be supplied.



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Use of Supplemental Oxygen

- On board a **pressurized aircraft**, a flight shall be undertaken only if the aircraft is provided with an oxygen reserve enabling **all the crew members** and **part of the passengers** to be supplied with oxygen in the event of a cabin depressurization, throughout the flight period, during which the pressure altitude is **greater than 10000ft.**

OPERATIONAL PROCEDURES
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(۱) اگر هواپیما زیر **FL250** بود:

❖ بین اگر depressurized شد، چقدر طول می کشد برسد به FL100؟ همان مقدار اکسیژن لازم است.

❖ اگر ظرف ۴ دقیقه نمی توانست برسد به FL130، ۱۰ دقیقه برای کل سرنشینان کابین مسافران اکسیژن لازم است.

(۲) اگر هواپیما بالای **FL250** بود: ۱۰ دقیقه برای کل سرنشینان کابین مسافران اکسیژن لازم است.

Use of Supplemental Oxygen

On board of a **non-pressurized aircraft**, **10% of the passengers** must be supplied with oxygen throughout the period of flight, reduced by **30 minutes**, during which the pressure altitude is between **10000ft** and **13000ft**.

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standby power supply

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Aeroplanes with a take-off mass **greater than 5700 kg** shall be fitted with an independent automatically operated emergency power supply to operate and illuminate the **artificial horizon** for **30 minutes**.



CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

4.4.4 Flight crew members at duty stations

4.4.4.1 **Take-off and landing.** All flight crew members required to be on **flight deck** duty shall be at their stations.

4.4.4.2 **En route.** All flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the **operation of the aeroplane** or for **physiological needs**.

4.4.4.3 **Seat belts.** All flight crew members shall **keep their seat belts** fastened when at their stations.

4.4.4.4 **Safety harness.** Any flight crew member occupying a **pilot's seat** shall keep the safety harness fastened during the **take-off and landing** phases; all **other flight crew members** shall keep their safety harnesses fastened during the take-off and landing phases **unless** the shoulder straps **interfere** with the performance of their duties, in which case the **shoulder straps may be unfastened** but **the seat belt must remain fastened**.

Note.— **Safety harness** includes shoulder straps and a seat belt which may be used independently.

CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

4.4.5 Use of oxygen

4.4.5.2 All flight crew members of **pressurized** aeroplanes operating above an altitude where the atmospheric pressure is **less than 376 hPa** shall have available at the flight duty station a **quick-donning** type of oxygen mask which will readily supply oxygen upon demand.



Crew Protective Breathing Equipment (PBE)

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- **Un-pressurized** aeroplanes with a MTOM greater than **5700** kg, or with more than **19** passenger seats, and **all pressurized** aeroplanes, must carry equipment which protects the eyes, nose and mouth of each flight crew member whilst on flight crew duty and provide **oxygen** for a period of at least **15 minutes**.
- Sufficient PBE must also be carried for each **cabin crew** member stowed at the cabin crew member station.



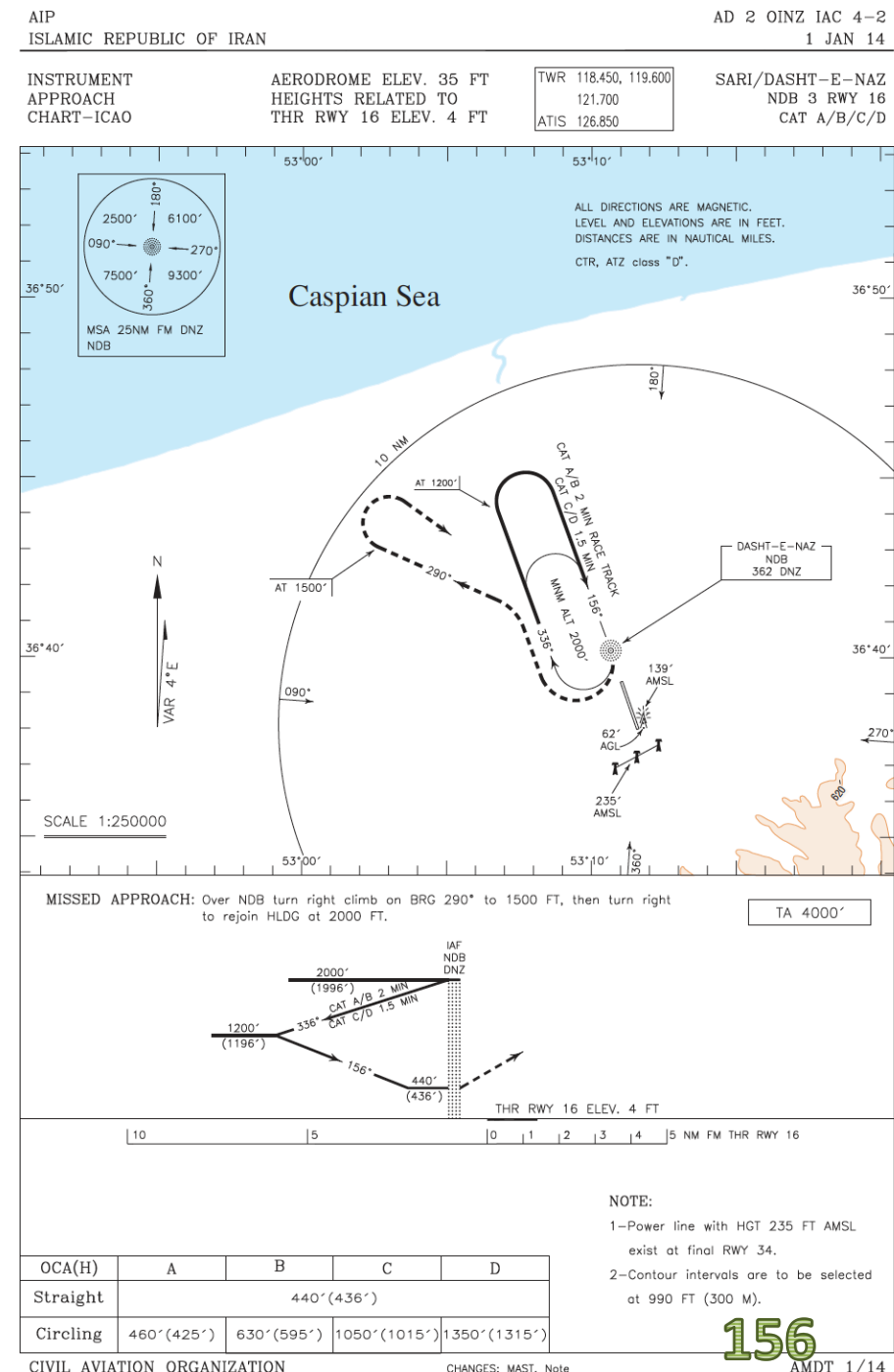
CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

4.4.8 Instrument flight procedures

4.4.8.1 One or more **instrument approach procedures** designed to support instrument approach operations shall be approved and promulgated by the **State** in which the aerodrome is located to serve each instrument runway or aerodrome utilized for instrument flight operations.

4.4.8.2 All aeroplanes operated in accordance with **instrument flight rules** shall comply with the instrument flight procedures approved by the State in which the aerodrome is located.

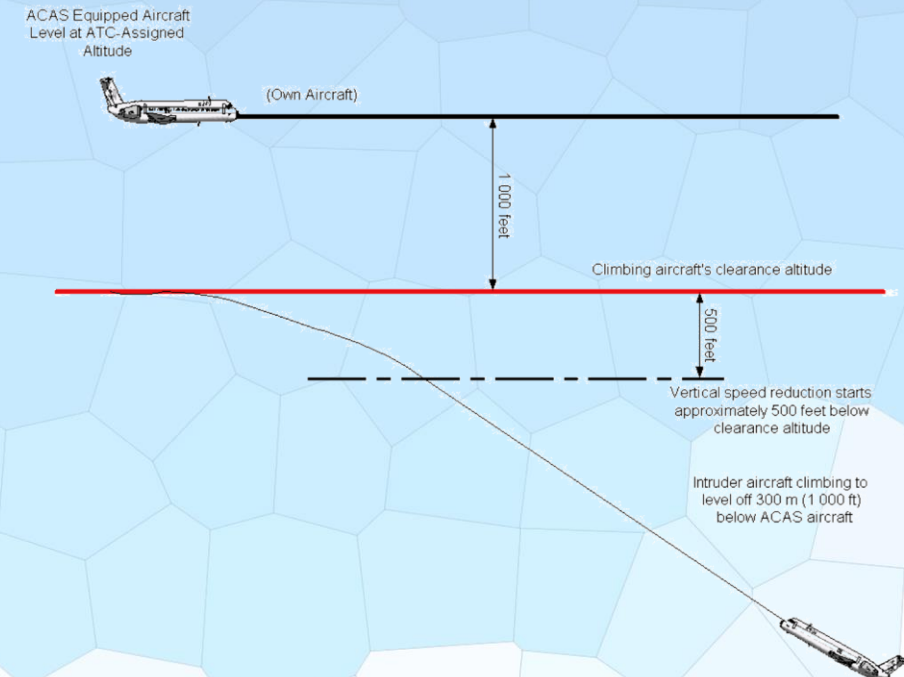


CHAPTER 4. FLIGHT OPERATIONS

4.4 IN-FLIGHT PROCEDURES

4.4.10 Aeroplane operating procedures for rates of climb and descent

Recommendation.— *Unless otherwise specified in an air traffic control instruction*, to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at or approaching adjacent altitudes or flight levels, **operators** should specify procedures by which an aeroplane climbing or descending to an assigned altitude or flight level, especially with an autopilot engaged, may do so at a rate **less than 1 500 ft/min [IN IRAN 1000 FT/MIN]** throughout the last 300 m (1 000 ft) of climb or descent to the assigned level when the pilot is made aware of another aircraft at or approaching an adjacent altitude or flight level.



CHAPTER 4. FLIGHT OPERATIONS

4.5 DUTIES OF PILOT-IN-COMMAND

4.5.1 The pilot-in-command shall be responsible for the **safety** of all **crew** members, **passengers** and **cargo** on board **when the doors are closed**.

The pilot-in-command shall also be responsible for the **operation** and **safety** of the **aeroplane** from the moment the aeroplane is **ready to move** for the purpose of taking off until the moment it finally **comes to rest** at the end of the flight and the engine(s) used as primary propulsion units are shut down **[=during flight time]**.

4.5.2 The pilot-in-command shall ensure that the **checklists** specified in 4.2.6 are complied with in detail.

4.5.3 **The pilot-in-command shall be responsible** for notifying the nearest appropriate authority by the quickest available means of any **accident** involving the aeroplane, resulting in **serious injury** or **death** of any person or **substantial damage** to the aeroplane or property.

4.5.4 The pilot-in-command shall be responsible for reporting all known or suspected **defects** in the aeroplane, **to the operator**, at the **termination** of the flight.

4.5.5 The pilot-in-command shall be responsible for the **journey log book** or the general declaration containing the information listed in 11.4.1.

CHAPTER 4. FLIGHT OPERATIONS

4.6 DUTIES OF FLIGHT OPERATIONS OFFICER/FLIGHT DISPATCHER

- a) assist the pilot-in-command in **flight preparation** and provide the relevant information;
- b) assist the pilot-in-command in preparing the operational and ATS **flight plans**, sign when applicable and file the ATS flight plan with the appropriate ATS unit;
- c) furnish the pilot-in-command **while in flight**, by appropriate means, with **information** which may be necessary for the safe conduct of the flight; and
- d) notify the appropriate ATS unit when the position of the aeroplane cannot be determined by an **aircraft tracking** capability, and attempts to establish **communication** are **unsuccessful**.

CHAPTER 4. FLIGHT OPERATIONS

4.6 DUTIES OF FLIGHT OPERATIONS OFFICER/FLIGHT DISPATCHER

4.6.2 In the event of an **emergency**, a flight operations officer/flight dispatcher shall:

- a) initiate such procedures as outlined in the **operations manual** while avoiding taking any action that would conflict with ATC procedures; and
- b) convey **safety-related information** to the pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any **amendments to the flight plan** that become necessary in the course of the flight.

Note .— It is equally important that the pilot-in-command also convey similar information to the flight operations officer/ flight dispatcher during the course of the flight, particularly in the context of emergency situations.

Responsibilities of the Commander

- 4.5.1 The pilot-in-command shall be responsible for the **safety** of all **crew** members, **passengers** and **cargo** on board ***when the doors are closed.***

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- The Commander is responsible for the **safety** of all **crew** members, **passengers** and **cargo** on board ***as soon as he/she arrives on board, until he/she leaves the aeroplane at the end of the flight.***

Responsibilities of the Commander

OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

Additionally he/she:

- Has the authority to **disembark (off load)** any person, or part of cargo, which in his/her opinion presents a **potential hazard to the safety of the aeroplane**.
- (Will not allow any person to be carried in the aeroplane whom appears to be under the influence of **alcohol** or **drugs**, and may endanger the safety of the aeroplane of the occupants.)
- Is to decide whether or not to accept an aeroplane with **unserviceability** allowed by the **Minimum Equipment List** or the **Configuration Deviation List**.



CHAPTER 4. FLIGHT OPERATIONS

4.9 ADDITIONAL REQUIREMENTS FOR SINGLE PILOT OPERATIONS UNDER THE INSTRUMENT FLIGHT RULES (IFR) OR AT NIGHT

4.9.1 An aeroplane shall not be operated under the **IFR or at night** by a **single pilot** unless approved by the **State of the Operator**.

4.9.2 An aeroplane shall not be operated under the IFR or at night by a single pilot unless:

- a) the flight manual does not require a flight crew of more than one;
- b) the aeroplane is **propeller**-driven;
- c) the maximum approved passenger seating configuration is not more than **nine**;
- d) the maximum certificated take-off mass does not exceed **5 700 kg**;
- e) the aeroplane is equipped as described in 6.23; and
- f) the pilot-in-command has satisfied requirements of **experience, training, checking and recency** described in 9.4.5.

ACAS

Airborne Collision Avoidance System

6.19.1 All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than 19 passengers shall be equipped with an airborne collision avoidance system (ACAS II).



6.19.2 **Recommendation.**— All aeroplanes should be equipped with an airborne collision avoidance system (ACAS II).

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.21 MICROPHONES

All flight crew members required to be on flight deck duty shall communicate through **boom** or **throat** microphones *below the transition level/altitude.*

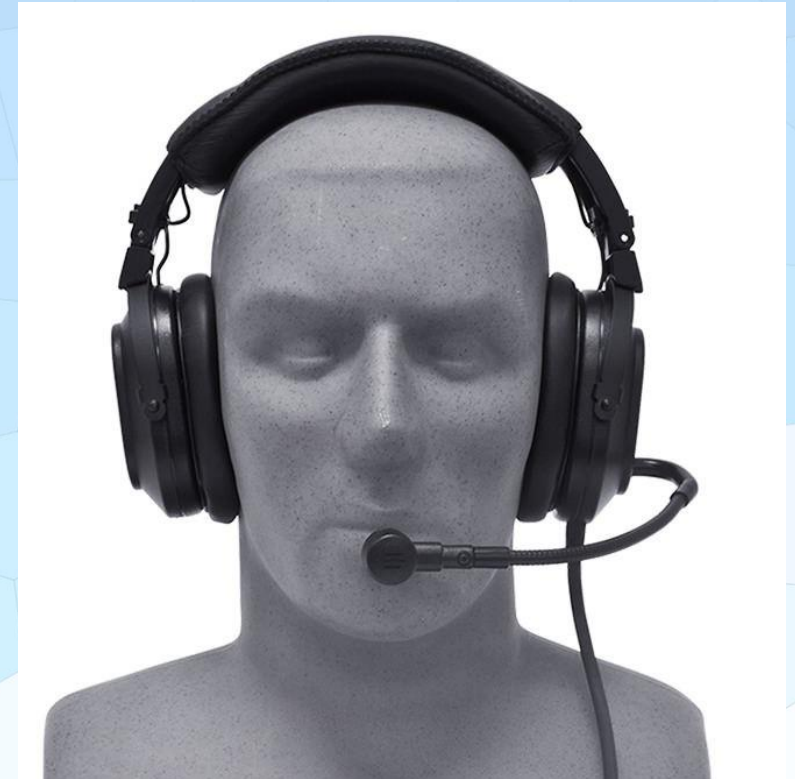


CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.23 ALL AEROPLANES OPERATED BY A SINGLE PILOT UNDER THE INSTRUMENT FLIGHT RULES (IFR) OR AT NIGHT

All aeroplanes operated by a single pilot under the IFR or at night shall be equipped with:

- a) a serviceable **autopilot** that has at least **altitude** hold and **heading** select modes;
- b) a **headset** with a **boom microphone** or equivalent; and
- c) means of displaying **charts** that enables them to be readable in all ambient **light** conditions.



CHAPTER 4. FLIGHT OPERATIONS



4.10 FATIGUE MANAGEMENT

Amend 44, 2020

4.10.1 The State of the Operator shall establish regulations for the purpose of managing fatigue.

These regulations shall be based upon scientific principles, knowledge and operational experience with the aim of ensuring that flight and cabin crew members are performing at an adequate level of alertness.

Accordingly, the State of the Operator shall establish:

- a) prescriptive regulations for flight time, flight duty period, duty period limitations and rest period requirements; and
- b) where authorizing the operator to use a Fatigue Risk Management System (FRMS) to manage fatigue, FRMS regulations.



CHAPTER 5. AEROPLANE PERFORMANCE OPERATING LIMITATIONS

CHAPTER 5. AEROPLANE PERFORMANCE OPERATING LIMITATIONS

5.1.2 Except as provided in 5.4, **single-engine aeroplanes** 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**.

5.4.2 All single-engine turbine-powered aeroplanes operated at **night and/or in IMC** shall have an **engine trend monitoring (ETM) system**, and those aeroplanes for which the individual certificate of airworthiness is first issued on or after 1 January 2005 shall have an **automatic trend monitoring system**.

Engine Trend Monitoring is the collection and analysis of engine data to detect deterioration, accelerated wear and other damage. Trend analysis requires recording of parameters such as N1/N2 RPM, ITT, Fuel Flow, OAT (Outside Air Temperature), airspeed and altitude.



Latitude's engine data acquisition unit

CHAPTER 5. AEROPLANE PERFORMANCE

OPERATING LIMITATIONS

5.2.3 An aeroplane shall be operated in compliance with the terms of its certificate of airworthiness and within the approved **operating limitations** contained in its **flight manual**.

MAXIMUM FLAPS / SLATS SPEEDS

LEVER POSITION	SLATS	FLAPS	Ind. on ECAM	MAX SPD	FLIGHT PHASE
1	18	0	1	230	HOLDING
1	18	10	1 + F	215	TAKEOFF
2	22	15	2	200	TAKEOFF/APPROACH
3	22	20	3	185	TAKEOFF/APPROACH/LANDING
FULL	27	35	FULL	177	LANDING

CHAPTER 6. **AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS**

Note.— Specifications for the provision of aeroplane **communication and navigation equipment** are contained in Chapter 7.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.1 GENERAL

6.1.1 The prescribed instruments and equipment, including their installation, shall be approved or accepted by the State of Registry.

6.1.2 An aeroplane shall carry a certified true copy of the air operator certificate specified in Chapter 4, 4.2.1, and a copy of the operations specifications relevant to the aeroplane type, issued in conjunction with the certificate.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.1 GENERAL

6.1.3 The operator shall include in the **operations manual** a minimum equipment list (**MEL**), approved by the **State of the Operator** which will enable the pilot-in-command to determine whether a flight may be commenced or continued from any intermediate stop should any instrument, equipment or systems become inoperative.

Where the State of the Operator is not the State of Registry, the State of the Operator shall ensure that the MEL does not affect the aeroplane's compliance with the airworthiness requirements applicable in the State of Registry.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.2 ALL AEROPLANES ON ALL FLIGHTS

6.2.1 An aeroplane shall be equipped with **instruments** which will enable the flight crew to **control the flight path** of the aeroplane, carry out any required **procedural manoeuvres** and observe the operating limitations of the aeroplane in the expected operating conditions.

6.2.2 *An aeroplane shall be equipped with:*

- a) accessible and adequate **medical supplies**;
- b) portable **fire extinguishers** of a type which, when discharged, will not cause dangerous contamination of the air within the aeroplane. **At least one** shall be located in:
 - 1) the **pilot's compartment**; and
 - 2) each passenger compartment that is separate from the pilot's compartment and that is not readily accessible to the flight crew;

Flight Deck Extinguisher

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

- There should be **at least one extinguisher, Halon 1211** (bromochlorodifluoromethane, CBrClF_2) suitable for both flammable **fluid** and **electrical** equipment fires installed on the **flight deck**.
- **Dry chemical** fire extinguishers should not be used on the flight deck or in any compartment not separated from the flight deck, because of the **adverse effect on vision** during discharge.
- Where a **galley** is **not** located on the main passenger deck, **at least one** extinguisher is to be provided at that location.

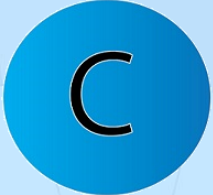


The number of extinguishers in the passenger compartment

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Maximum approved passenger seating configuration	Number of Extinguishers
7 - 30	1
31 - 60	2
61 - 200	3
201 - 300	4
301 - 400	5
401 - 500	6
501 - 600	7
601 or more	8

classification of fires

		Ordinary Combustibles	Wood, Paper, Cloth, Etc.
		Flammable Liquids	Grease, Oil, Paint, Solvents
		Live Electrical Equipment	Electrical Panel, Motor, Wiring, Etc.
		Combustible Metal	Magnesium, Aluminum, Etc.
		Commercial Cooking Equipment	Cooking Oils, Animal Fats, Vegetable Oils

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.2 ALL AEROPLANES ON ALL FLIGHTS

6.2.2 *An aeroplane shall be equipped with:*

- c) 1) a **seat** or **berth** for each person over an age to be determined by the **State of the Operator**;
2) a **seat belt** for each seat and restraining belts for each berth; and
3) a **safety harness** for each **flight crew seat**.
- d) means of ensuring that the following **information and instructions are conveyed to passengers**:
 - 1) when **seat belts** are to be fastened;
 - 2) when and how **oxygen** equipment is to be used if the carriage of oxygen is required;
 - 3) restrictions on **smoking**;
 - 4) location and use of **life jackets** or equivalent individual flotation devices; and
 - 5) location and method of opening **emergency exits**; and
- e) spare electrical **fuses** of appropriate ratings for replacement of those accessible in flight.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.2 ALL AEROPLANES ON ALL FLIGHTS

6.2.3 An aeroplane shall carry:

- a) the **operations manual** prescribed in Chapter 4, 4.2.3, or those parts of it that pertain to flight operations;
- b) the **flight manual** for the aeroplane, or other documents containing performance data required for the application of Chapter 5 and any other information necessary for the operation of the aeroplane within the terms of its certificate of airworthiness, **unless these data are available in the operations manual**; and
- c) current and suitable **charts to cover the route** of the proposed flight **and** any route along which it is reasonable to expect that the flight may be **diverted**.

Documents to Be Carried

OPERATIONAL PROCEDURES
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The following documents are required to be carried on board each flight:

- The **Certificate of Registration** (original).
- The **certificate of airworthiness** (original).
- The **Noise Certificate** (original).
- The **air operators certificate** (copy will suffice).
- The Aircraft **radio licence** (original).
- **Third party insurance** certificate (copy will suffice).
- Each flight crew member is to carry the valid **flight crew licence** plus any necessary ratings.
- **Relevant parts of the ops manual and AFM**

No. : 953570

شماره: ۱۵۳۵۷۰

سازمان هواپیمایی کشوری
CAO.IRI

وزارت هواپیمایی کشوری جمهوری اسلامی ایران
Civil Aviation Organization of Islamic Republic of Iran

Certificate of Registration

کوائفنامه ثبت

۱. علامت تابعیت و علامت ثبت: 1. Nationality and registration mark: EP-IFA	۲. کارخانه سازنده و مدل و سید پرند: 2. Manufacturer and manufacturer's designation of aircraft: AIRBUS SAS A321-211	۳. شماره سریال و سید پرند: 3. Aircraft serial number: 7418
۴. نام مالک: شرکت هواپیمایی جمهوری اسلامی ایران (ایران ایر) 4. Name of owner: Airline of the Islamic Republic of Iran (Iran Air)		
۵. آدرس مالک: تهران - فرودگاه بین المللی مهرآباد 5. Address of owner: Mehrabad International Airport, Tehran, Iran		
۶. بدین وسیله گواهی می شود که وسیله پرنده مذکور در دفتر ثبت سازمان هواپیمایی کشوری جمهوری اسلامی ایران مطابق مفاد قرارداد بین المللی هواپیمایی کشوری مورخ ۷ دسامبر ۱۹۴۴ و قانون هواپیمایی کشوری مورخ ۱۹ آگوست ۱۳۳۱ به ثبت رسیده است. 6. It is hereby certified that the above described aircraft has been duly entered on the register of the Civil Aviation Organization of Islamic Republic of Iran in accordance with the Convention on International Civil Aviation dated 7 December 1944 and with the civil aviation regulation of Islamic Republic of Iran dated 19 august 1939.		
Date of Issue : 07 Jan. 2017	Signature M. Lotfi General Director Of Airworthiness Department	تاریخ صدور: ۱۳۹۵/۰۱/۱۸ Stamp سازمان هواپیمایی کشوری دفتر صلاحیت پرواز AIRWORTHINESS DEPARTMENT CAO.IRI OF IRAN

Note: The Certificate of registration is not to certify the right for aircraft ownership.

توجه: کوائفنامه ثبت و تابعیت دلیل حق مالکیت وسیله پرنده نمی باشد.

CAO.IRI Form 25(a)

MANUAL to be Carried

The Operator is to ensure that the following manuals are carried on all flights:

- Parts of the Operations Manual relating to flight crew duty
- Parts of the Operations Manual required for the conduct of the flight
- The current Aeroplane Flight Manual (AFM)
 1. The Operational Flight Plan (OFP)
 2. The required parts of the Aeroplane Technical Log
 3. The ATS flight plan
 4. Appropriate NOTAM/AIS briefing material
 5. Mass and Balance documentation
 6. Details of special categories of passengers

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.2 ALL AEROPLANES ON ALL FLIGHTS

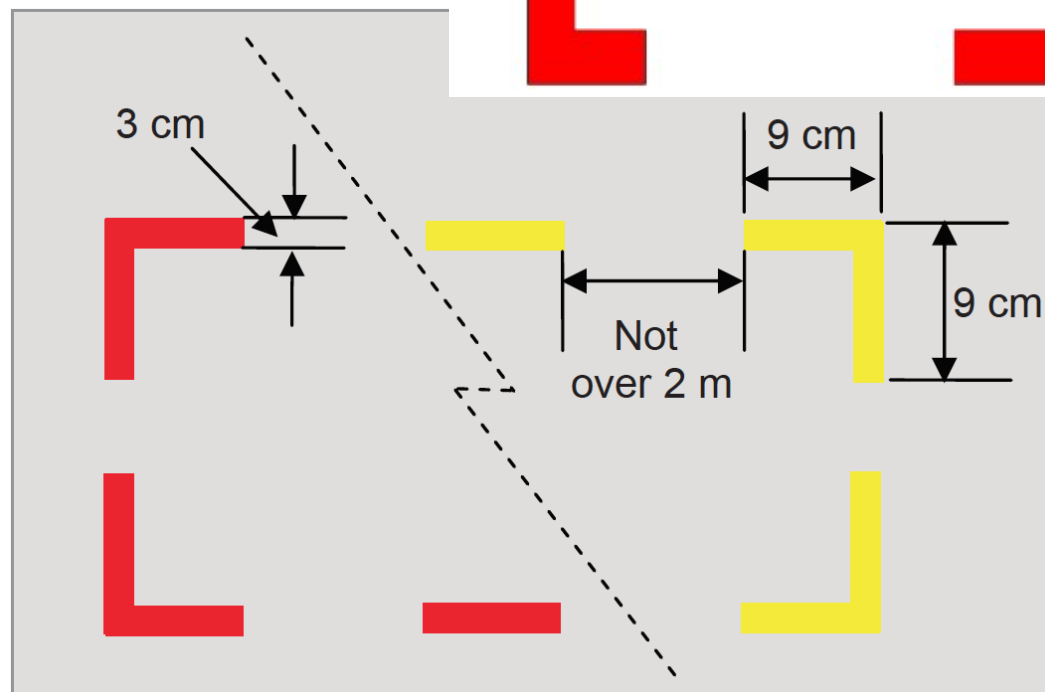
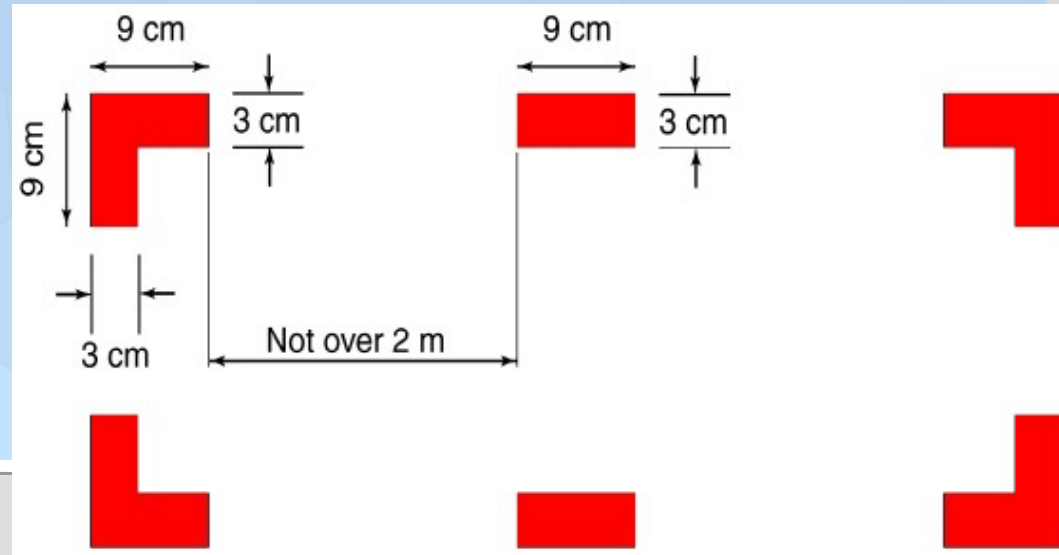
6.2.4 Marking of break-in points

6.2.4.1 If areas of the fuselage suitable for **break-in** by **rescue** crews in an **emergency** are marked on an aeroplane, such areas shall be marked as shown below (see figure following). **The colour of the markings shall be red or yellow**, and if necessary they shall be outlined in white to contrast with the background.

6.2.4.2 If the corner markings are **more than 2 m apart**, intermediate lines **9 cm x 3 cm** shall be inserted so that there is **no more than 2 m** between adjacent markings.

Note.— This Standard does not require any aeroplane to have break-in areas.

Annex 6



Appendix 8

2.2 Parameters to be recorded

2.2.1 Flight data recorders shall be classified as

- a) Type I, (**32 parameters/25 hrs**)
- b) Type IA, (**78 parameters/25 hrs**)
- c) Type II and (**16 parameters/25 hrs**)
- d) Type IIA (**16 parameters/30 min**)

depending upon the **number of parameters** to be recorded and the **duration** required for retention of the recorded information.

OLD VERSION
of Annex 6

Parameters, Appendix 8

1. Time
2. Pressure-altitude
3. Indicated airspeed
4. Heading
5. Normal acceleration
6. Pitch attitude
7. Roll attitude
8. Radio transmission keying
9. Power on each engine
10. Trailing edge flap
11. Leading edge flap
12. Thrust reverser
13. Ground spoiler/speed brake
14. Outside air temperature
15. Autopilot/auto throttle
16. Longitudinal acceleration
17. Lateral acceleration
18. pitch, roll, yaw
19. Pitch trim position
20. Radio altitude
21. Vertical beam deviation
22. Horizontal beam deviation
23. Marker beacon passage
24. Master warning
25. Each NAV receiver frequency
26. DME 1 and 2
27. Air/ground status
28. GPWS/TAWS/GCAS status
29. Angle of attack
30. Hydraulics
31. Navigation data
32. Landing gear
33. Groundspeed
34. Brakes
35. Additional engine parameters
36. TCAS/ACAS
37. Wind shear warning
38. Selected barometric setting
39. Selected altitude
40. Selected speed
41. Selected Mach
42. Selected vertical speed
43. Selected heading
44. Selected flight path
45. Selected decision height
46. EFIS display format
47. Multifunction/ engine/alert s display format
48. AC electrical bus
49. status
-
80. Aeroplane computed weight
81. Flight director command
82. Vertical speed



6.3 Flight Recorders

Crash protected **flight recorders comprise** one or more of the following systems:

- a) a flight data recorder (**FDR**),
- b) a cockpit voice recorder (**CVR**),
- c) an airborne image recorder (**AIR**) and/or
- d) a data link recorder (**DLR**).

Lightweight flight recorders comprise one or more of the following systems:

- a) an aircraft data recording system (**ADRS**),
- b) a cockpit audio recording system (**CARS**),
- c) an airborne image recording system (**AIRS**) and/or
- d) a data link recording system (**DLRS**).



For general aviation and helicopters.

Height: 4.9 in. (12.45 cm)

Width: 3.9 in. (9.9 cm)

Depth: 8.0 in. (20.3 cm)

Weight: < 5 lb. (2.27 kg)

Reliability: 10,000 hours MTBF

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.3.1 Flight data recorders and aircraft data recording systems

Lightweight

6.3.1.2 Operation [NEW VERSION: Applicability]

6.3.1.2.1 All turbine-engined aeroplanes of a maximum certificated take-off mass of 5 700 kg or less shall be equipped with:

- a) a Type II FDR [shall record at least the first 16 parameters]; or
- b) a Class C AIR or AIRS capable of recording flight path and speed parameters displayed to the pilot(s); or
- c) an ADRS capable of recording the essential parameters defined in Table A8-3 of Appendix 8. [shall record at least the first 7 parameters]

AIRBORNE IMAGE RECORDER (**AIR**) AND AIRBORNE IMAGE RECORDING SYSTEM (**AIRS**)

Amend 44, July 2020

6.2.1 A **Class A** AIR or AIRS captures the general cockpit area in order to provide data supplemental to conventional flight recorders.

6.2.2 A **Class B** AIR or AIRS captures data link message displays.

6.2.3 A **Class C** AIR or AIRS captures instruments and control panels.

Note.— A Class C AIR or AIRS may be considered as a means for recording flight data where it is not practical or is prohibitively expensive to record on an FDR or an ADRS, or where an FDR is not required.

6.3.1 Flight data recorders and aircraft data recording systems

6.3.1.2.3 All aeroplanes of a maximum certificated take-off mass of **over 27 000 kg** shall be equipped with a **Type I** FDR. [shall be equipped with an FDR which shall record at least the first **32** parameters]

6.3.1.2.4 All aeroplanes of a maximum certificated take-off mass of **over 5 700 kg, up to and including 27 000 kg**, shall be equipped with a **Type II FDR**. [shall be equipped with an FDR which shall record at least the first **16** parameters]

6.3.1.2.11 All aeroplanes of a maximum certificated take-off mass of **over 5 700 kg** for which the individual certificate of airworthiness is first issued after **1 January 2005** shall be equipped with a **Type IA FDR**. [shall record at least the first **78** parameters]

6.3.1.4 Duration

All FDRs shall be capable of retaining the information recorded during at least the **last 25 hours** of their operation, except for the **Type IIA** [**16 parameters**] FDR which shall be capable of retaining the information recorded during at least the **last 30 minutes** of its operation.

	5700kg	27000kg
ADRS/AIR/AIRS/Type II	Type II (16 parameters)	Type I (32 parameters)
	1 January 2005 Type IA FDR. [shall record at least the first 78 parameters]	

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.3.5 Flight recorders — general

6.3.5.2.1 Flight recorders **shall not be switched off during flight time.**

6.3.5.2.2 To preserve flight recorder records, flight recorders **shall be deactivated upon completion of flight time following an accident or incident.** The flight recorders shall not be reactivated before their disposition as determined in accordance with Annex 13.



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Following an **incident**, all FDR and CVR recordings are to be retained for a period of **60 days** unless a longer period is requested by the Authority.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.3.2 Cockpit voice recorders and cockpit audio recording systems

6.3.2.3 Duration

6.3.2.3.1 All CVRs shall be capable of retaining the information recorded during at least the last **30 minutes [2 hours]** of their **operation**.

6.3.2.3.2 From **1 January 2016**, all CVRs shall be capable of retaining the information recorded during at least the last **two hours** of their operation. [~~o-m-i-t-t-e-d~~]

6.3.2.3.2 All aeroplanes of a maximum certificated take-off mass of **over 27 000 kg** shall be equipped with a CVR which shall retain the information recorded during at least the **last 25 hours** of its operation.

6.3.4 Flight recorders — general

6.3.4.5.2 All aeroplanes of a maximum certificated take-off mass of **over 15 000 kg** and which are required to be equipped with **both a CVR and an FDR**, shall be equipped with **two combination recorders (FDR/CVR)**. One recorder shall be located as **close to the cockpit** as practicable and the other recorder located **as far aft as practicable**.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.4 ALL AEROPLANES OPERATED AS VFR FLIGHTS

6.4.1 All aeroplanes when operated as **VFR** flights shall be equipped with:

- a) a magnetic **compass**;
- b) an accurate **timepiece** indicating the time in **hours**, **minutes** and **seconds**;
- c) **a sensitive pressure altimeter**;
- d) an **airspeed indicator**; and
- e) such additional instruments or equipment as may be prescribed by the **appropriate authority**.

6.4.2 VFR flights which are operated as controlled flights shall be equipped in accordance with 6.9 [=IFR].



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.5 ALL AEROPLANES ON FLIGHTS OVER WATER

6.5.2 Landplanes

6.5.2.1 **Landplanes** shall carry the one **life jacket** or equivalent individual **flotation device** *for each person on board*:

- a) when flying over water and at a distance of more than 93 km (**50 NM**) away from the **shore**;
- b) when flying en route over water ***beyond gliding distance from the shore***; and
- c) when taking off or landing at an aerodrome where, in the opinion of the ***State of the Operator***, the **take-off or approach path** is so disposed over water that in the event of a mishap there would be a likelihood of a **ditching**.



Flights over Water

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

- Regulations apply to flights over water when aircraft are considered to be **vulnerable to ditching**. This is considered to be **more than 93 km (50 NM) from shore**, or when **take-off** or **approach** path is over water.
- A **life jacket** is mandatory for any passenger on board an aircraft flying away from the shore by more than **50 NM**.
- The ICAO rules governing flight over water for a **single engine** aeroplane engaged in the public transport of passengers Limits such flight to a **height sufficient to land safely if the engine fails**.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.5.3 All aeroplanes on long-range over-water flights

6.5.3.1, The following equipment shall be installed in all aeroplanes when used over routes on which the aeroplane may be over water and at more than a distance corresponding to **120 minutes** at **cruising speed or 740 km (400 NM), whichever is the lesser**, away from land suitable for making an emergency landing in the case of aircraft operated in accordance with **5.2.9 (En route — one engine inoperative)** or **5.2.10 (En route — two engines inoperative)**, and **30 minutes or 185 km (100 NM)**, whichever is the lesser, for all other aeroplanes:

- a) life-saving **rafts**;
- b) equipment for making the **pyrotechnical distress signals** described in Annex 2; and
- c) at the earliest practicable date, but not later than 1 January 2018, on all aeroplanes of a maximum certificated takeoff mass of **over 27 000 kg**, a securely attached **underwater locating device** operating at a frequency of **8.8 kHz**. This automatically activated underwater locating device shall operate for a minimum of **30 days** and shall not be installed in **wings** or **empennage**.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.7 ALL AEROPLANES ON HIGH ALTITUDE FLIGHTS

Absolute pressure	Metres	Feet
700 hPa	3 000	10 000
620 hPa	4 000	13 000
376 hPa	7 600	25 000

6.7.3 **Pressurized aeroplanes** newly introduced into service on or after 1 July 1962 and intended to be operated at flight altitudes at which the atmospheric pressure is **less than 376 hPa** shall be equipped with a device to provide **positive warning** to the flight crew of any dangerous **loss of pressurization**.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.7 ALL AEROPLANES ON HIGH ALTITUDE FLIGHTS

6.7.5 An aeroplane intended to be operated at flight altitudes at which the atmospheric pressure is less than **376 hPa**, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa, cannot descend safely within **four minutes** to a flight altitude at which the atmospheric pressure is equal to **620 hPa** and for which the individual certificate of airworthiness is first issued on or after 9 November 1998, shall be provided with **automatically deployable oxygen equipment** to satisfy the requirements of 4.3.9.2.

The total number of **oxygen dispensing units** shall **exceed the number of passenger and cabin crew seats by at least 10 per cent.**



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.9 ALL AEROPLANES OPERATED IN ACCORDANCE WITH IFR [and controlled VFR]

shall be equipped with:

- a) a **magnetic compass**;
- b) an accurate **timepiece** indicating the time in **hours**, **minutes** and **seconds**;
- c) **two** sensitive pressure altimeters with **counter drum-pointer** or equivalent presentation;
- d) an **airspeed** indicating system with means of preventing malfunctioning due to either condensation or icing;
- e) a **turn and slip indicator**;
- f) an **attitude indicator** (artificial horizon);
- g) a **heading indicator** (directional gyroscope);
- h) a means of indicating whether the **power** supply to the **gyroscopic** instrument is adequate (**Suction Gauge**);
- i) a means of indicating in the flight crew compartment the **outside air temperature**;
- j) a **rate-of-climb and descent** indicator; and
- k) such **additional** instruments or equipment as may be prescribed by the appropriate authority.

CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.9.2 All aeroplanes over 5 700 kg — Emergency power supply for electrically operated attitude indicating instruments

6.9.2.1 All aeroplanes of a maximum certificated take-off mass of over 5 700 kg newly introduced into service after 1 January 1975 shall be fitted with an emergency power supply, independent of the main electrical generating system, for the purpose of operating and illuminating, for a minimum period of 30 minutes, an attitude indicating instrument (artificial horizon), clearly visible to the pilot-in-command.

The emergency power supply shall be automatically operative after the total failure of the main electrical generating system and clear indication shall be given on the instrument panel that the attitude indicator(s) is being operated by emergency power.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

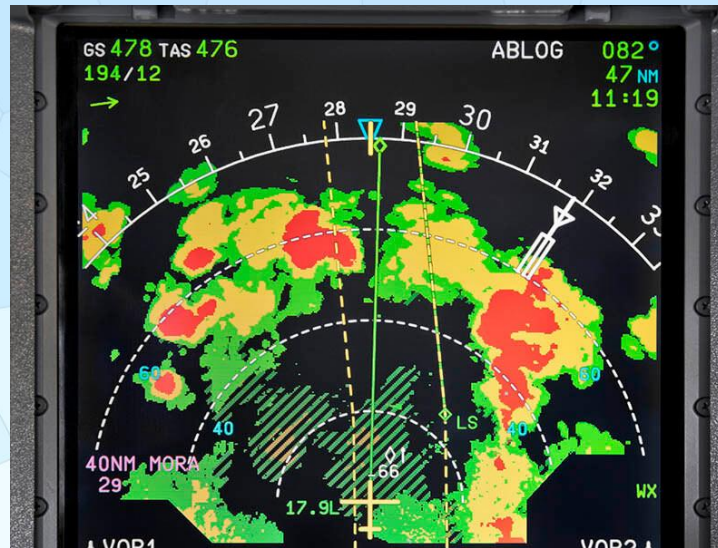
6.10 ALL AEROPLANES WHEN OPERATED AT NIGHT

All aeroplanes when operated at night shall be equipped with:

- a) all equipment specified in 6.9 [IFR and controlled VFR];
- b) the lights required by Annex 2 for aircraft in flight or operating on the movement area of an aerodrome;
- c) two landing lights;
- d) illumination for all instruments and equipment that are essential for the safe operation of the aeroplane that are used by the flight crew;
- e) lights in all passenger compartments; and
- f) an independent portable light for each crew member station.



Recommendation.— Pressurized aeroplanes when carrying passengers should be equipped with operative weather radar whenever such aeroplanes are being operated in areas where ***thunderstorms*** or other potentially ***hazardous weather conditions***, regarded as detectable with airborne weather radar, may be expected to exist along the route either at ***night*** or under ***instrument meteorological conditions***.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.13 ALL AEROPLANES COMPLYING WITH THE NOISE CERTIFICATION STANDARDS IN ANNEX 16, VOLUME I

An aeroplane shall carry a document attesting noise certification.

Note.— The attestation may be contained in any document, carried on board, approved by the **State of Registry**.

Annex 16 to the Convention on International Civil Aviation

Environmental Protection

Volume I — Aircraft Noise
Eighth Edition, July 2017



noise abatement procedure

- At **takeoff the maximum mass** of the aeroplane shall not be more than that which would enable **compliance with any noise abatement procedure**.
- **The operator** has the responsibility for establishing operating procedures for **noise abatement purposes** during instrument flight in compliance with ICAO PANS OPS 8168.
- Noise abatement procedures **do not prevent the use of thrust reverse** on landing.

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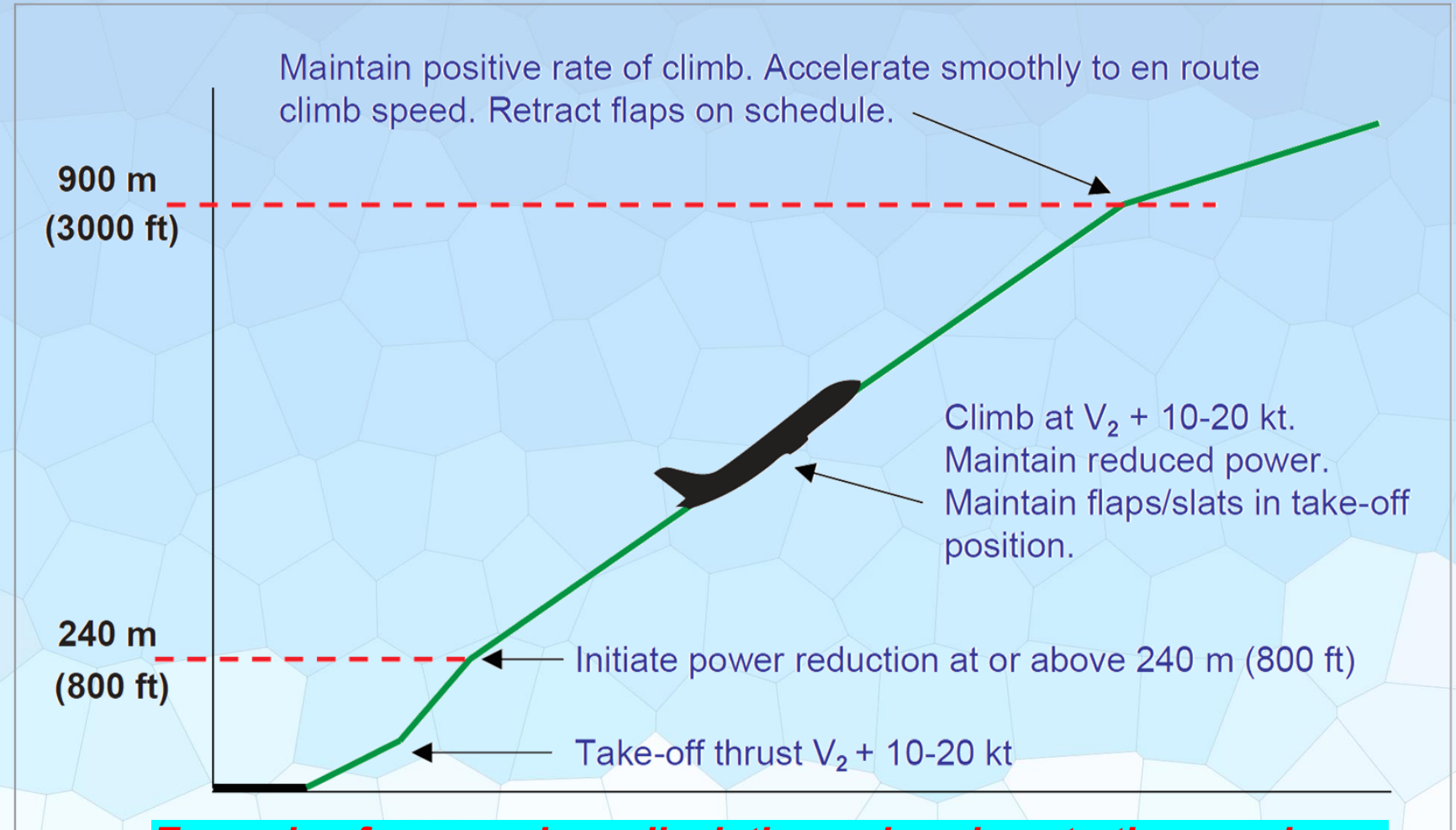
OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

The initial climbing speed to the noise abatement initiation point shall not be less than:

$$V_2 + (10 \text{ to } 20 \text{ kt})$$

The noise abatement procedure is **not to be initiated at less than 240 m (800 ft) above the aerodrome elevation.**

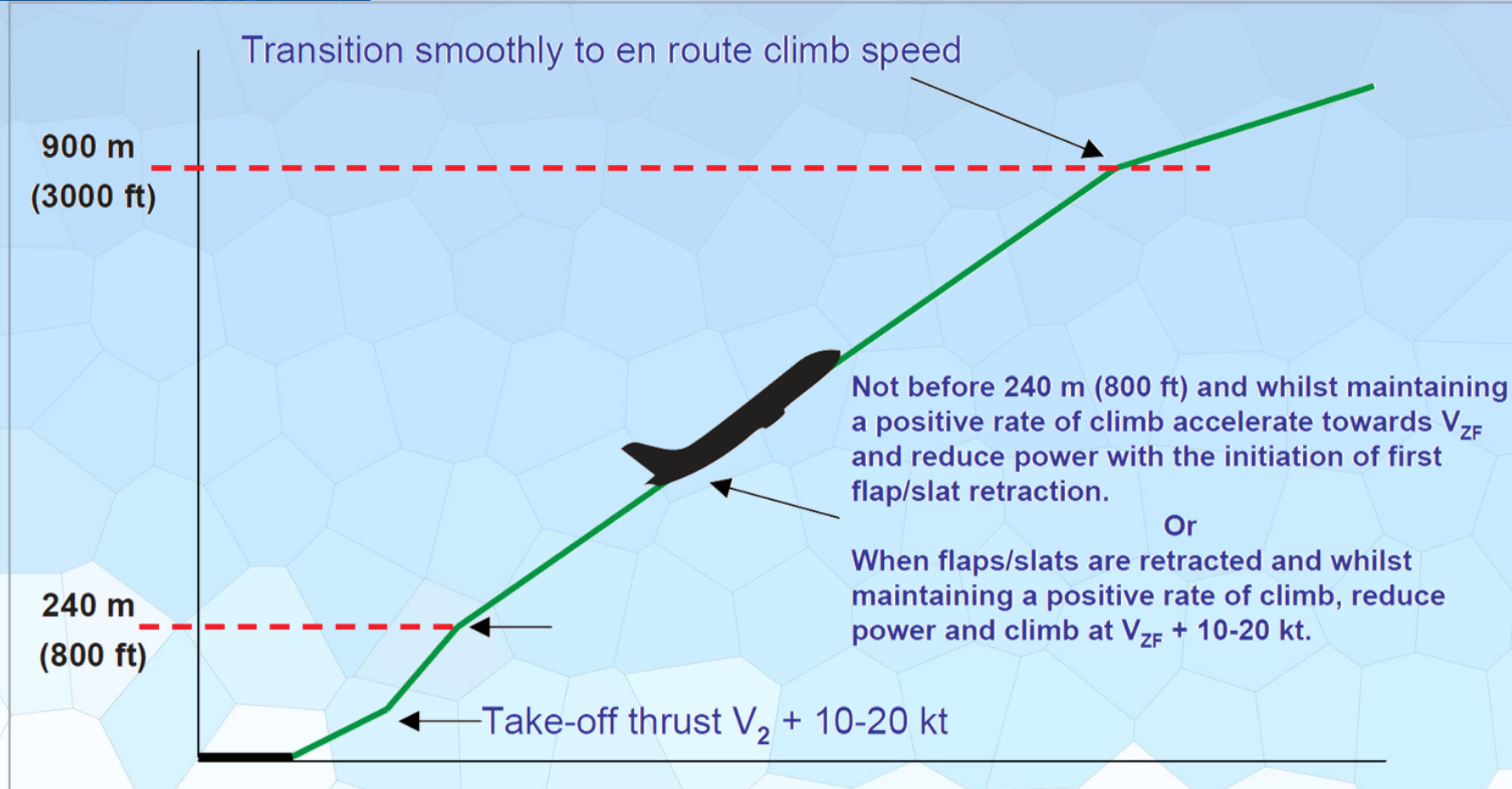
Departure Climb Guidance



Example of a procedure alleviating noise close to the aerodrome

OPERATIONAL PROCEDURES
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Departure Climb Guidance



minimum zero flaps speed

Example of a procedure alleviating noise distant from the aerodrome

Noise Preferential Runways

Noise abatement should not be the determining factor in runway nomination under the following circumstances:

- If the runway surface conditions are **adversely affected by water, snow, slush or ice** etc.
- **For landing:** when the ceiling is lower than 150 m (500 ft) above aerodrome elevation,
- **for take-off and landing:** when the horizontal visibility is less than 1.9 km (1900 m).
- When the **crosswind** component, including gusts, exceed 28 km/h (15 kt).
- When the **tailwind** component, including gusts, exceed 9 km/h (5 kt), and
- When **windshear** has been reported or forecast or when **thunderstorms** are expected to affect the approach or departure.

Runways should not normally be selected for use for landing unless they are equipped with suitable glide path guidance, e.g. ILS or VASI (in VMC).

Noise Preferential Routes

Noise preferential routes are established to ensure that departing and arriving aeroplanes **avoid over flying noise-sensitive areas** in the vicinity of the aerodrome as far as practicable. In establishing noise preferential routes, **turns during take-off and climb should not be required unless:**

- The aircraft is at **500ft** or **above** the terrain;
- The **bank angle** limited to **15°**;
- No turns should be required **coincident with a reduction of power** associated with a noise abatement procedure;
- Sufficient **navigational guidance** should be provided to permit aeroplanes to **adhere to the designated route**.

OPERATIONAL PROCEDURES
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ice build-up

- **Icing conditions** are conditions in which **humidity is visible** and air temperature is **lower than +10°C**.
- The accumulation of snow or ice on an aircraft in flight induces an increase in the **stalling speed**.
- The greatest possibility of ice build-up, while flying under icing conditions, **occurs on aircraft front areas**.
- when planning a flight with icing conditions the aircraft shall be equipped with **approved ice-protection systems**.



Holdover Time (HOT)

- The **Holdover Time (HOT)** is the estimated time during which the de-icing/anti-icing fluid will be effective.
- The aircraft must commence its take-off roll **within the HOT**, or the whole process, de-ice followed by anti-ice, must be **repeated (check again at brake release for takeoff)**.
- The HOT is dependent on the **OAT**, **temperature of the skin**, **type of precipitant**, **wind** and **type and concentration of fluid**.
- **FROST** would give the longest holdover time and **Freezing rain** the shortest.
- Holdover time can be **considerably reduced** by **strong winds** and effect of **jet blast** from other aeroplanes.

OPERATIONAL PROCEDURES
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holdover times

OAT	Approximate holdover times under various weather conditions (hours:minutes)						Other ³
	Frost ¹	Freezing fog	Snow	Freezing drizzle ²	Light freezing rain	Rain on cold-soaked wing	
above 0°C (32°F)	0:45	0:12-0:30	0:06-0:15	0:05-0:08	0:02-0:05	0:02-0:05	CAUTION: No holdover time guidelines exist
0°C to -10°C (32°F to 14°F)	0:45	0:06-0:15	0:06-0:15	0:05-0:08	0:02-0:05		
below -10°C (14°F)	0:45	0:06-0:15	0:06-0:15				

1. During conditions that apply to aircraft protection for ACTIVE FROST.

2. Use LIGHT FREEZING RAIN holdover times if positive identification of FREEZING DRIZZLE is not possible.

3. Other conditions are: heavy snow, snow pellets, ice pellets, hail, moderate freezing rain and heavy freezing rain.

Note 1.— ISO Type I Fluid/Water Mixture is selected so that the freezing point of the mixture is at least 10°C (18°F) below actual OAT.

Note 2.— ISO Type I fluids used during ground de-icing/anti-icing are not intended for and do not provide ice protection during flight.

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range. Holdover time may also be reduced when the aircraft skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-take-off check.



De-icing and anti-icing Procedures

De-icing and anti-icing on the ground can be either a **one-step** or a **two-step** procedure:

- In the case of a **one-step** procedure, de-icing and anti-icing are carried out at the same time using a combined de-icing and anti-icing fluid to both remove frozen deposits and to protect the de-iced surfaces for a limited period of time.
- The **two-step** procedure involves a process of ice removal followed by a process of anti-icing. The anti-icing holdover time begins on a two-step procedure from the start of the anti-icing procedure.

For a de-icing and anti-icing procedure, **De-icing is applied hot, but anti-icing cold.**

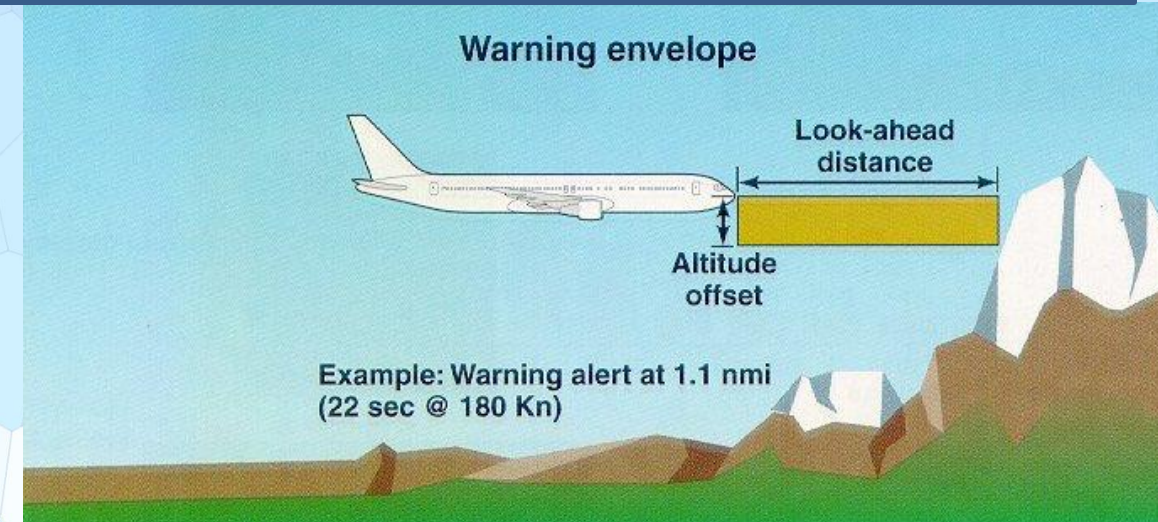
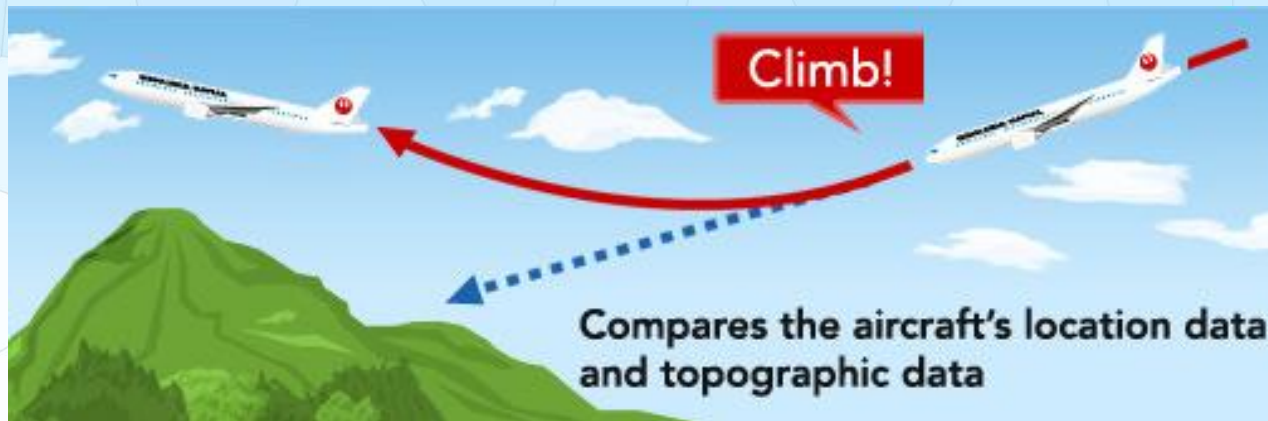
Annex 6

6.15 AEROPLANES REQUIRED TO BE EQUIPPED WITH GROUND PROXIMITY WARNING SYSTEMS (GPWS)

6.15.1 [Amend 44] All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers shall be equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.

6.15.2 All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers shall be equipped with a ground proximity warning system which has a forward looking terrain avoidance function.

6.15.4 All turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 5 700 kg or authorized to carry more than nine passengers for which the individual certificate of airworthiness is first issued on or after 1 January 2004, shall be equipped with a ground proximity warning system which has a forward-looking terrain avoidance function.

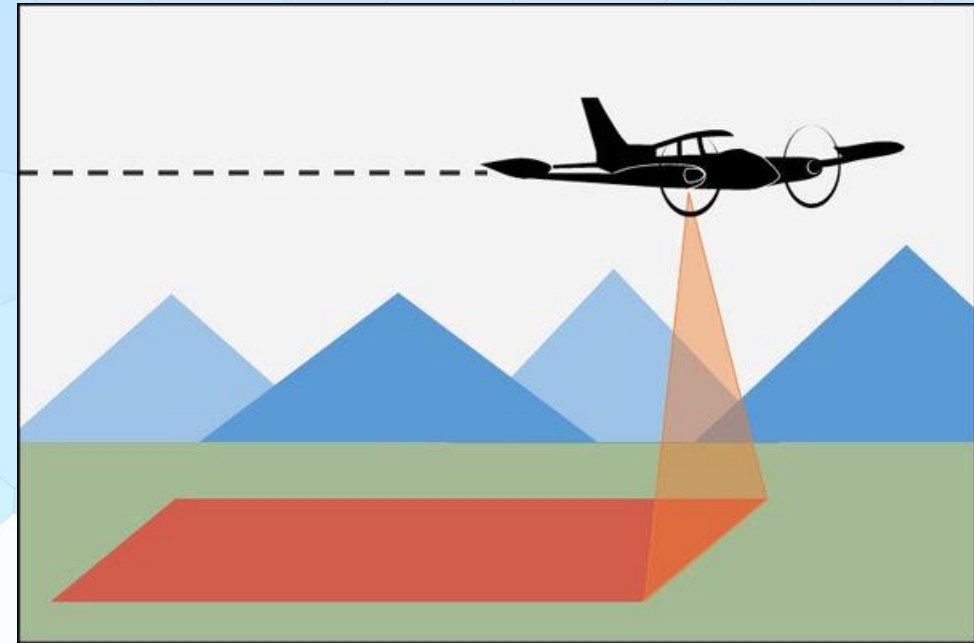


CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

6.15 AEROPLANES REQUIRED TO BE EQUIPPED WITH GROUND PROXIMITY WARNING SYSTEMS (GPWS)

6.15.6 A ground proximity warning system shall provide warnings of the following circumstances:

- a) excessive descent rate;
- b) excessive terrain closure rate;
- c) excessive altitude loss after take-off or go-around;
- d) **unsafe terrain clearance while not in landing configuration:**
 - 1) gear not locked down;
 - 2) flaps not in a landing position; and
- e) excessive descent below the instrument glide path.



CHAPTER 6. AEROPLANE INSTRUMENTS, EQUIPMENT AND FLIGHT DOCUMENTS

Amend 44, 2021

6.17 EMERGENCY LOCATOR TRANSMITTER (ELT)

6.17.2 Except as provided for in 6.17.3, all aeroplanes authorized to carry more than **19 passengers** shall be equipped with **at least one automatic ELT or two ELTs of any type**.

6.17.3 All aeroplanes authorized to carry **more than 19 passengers** for which the individual certificate of airworthiness is first issued after **1 July 2008** shall be equipped with either:

- a) at least **two** ELTs, one of which shall be **automatic**; or
- b) at least **one** ELT and a capability that meets the requirements of **6.18 (at least once every minute, when in distress)**.

6.17.4 Except as provided for in 6.17.5, all aeroplanes authorized to carry **19 passengers or less** shall be equipped with **at least one ELT of any type**.

6.17.5 All aeroplanes authorized to carry 19 passengers or less for which the individual certificate of airworthiness is first issued after **1 July 2008** shall be equipped with at least one **automatic** ELT.

Megaphones

An operator shall not operate an aeroplane with a maximum approved passenger seating configuration of **more than 60** and carrying one or more passengers unless it is equipped with **portable battery-powered** megaphones ('**bull horn**') readily accessible for use by crew members during an emergency evacuation, to the following scale for each passenger deck:

Passenger Seating Configuration	Number of Megaphones Required
61 - 99	1
100 or more	2



CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT



CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

7.1 COMMUNICATION EQUIPMENT

- 7.1.1 An aeroplane shall be provided with **radio communication equipment** capable of:
- a) conducting **two-way communication** for **aerodrome control** purposes;
 - b) receiving **meteorological information** at any time **during flight**; and
 - c) conducting two-way communication at any time during flight with **at least one aeronautical station** and with such other aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

Communications Equipment

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Provision must be made for unserviceabilities, therefore **at least 2** transceivers must be carried. Additionally it must be capable of conducting 2 way communications on the aeronautical **emergency frequency 121.5 MHz**. Practically, this means **2 VHF transceivers for domestic** airspace, and **at least 1 VHF and 1 HF for Oceanic flight**.

Annex 6

CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

7.2 NAVIGATION EQUIPMENT

7.2.1 An aeroplane shall be provided with **navigation equipment** which will enable it to proceed:

- a) in accordance with its **operational flight plan**; and
- b) in accordance with the requirements **of air traffic services**;

except when, if not so precluded by the appropriate authority, navigation for flights under **VFR** is accomplished by **visual reference to landmarks**.



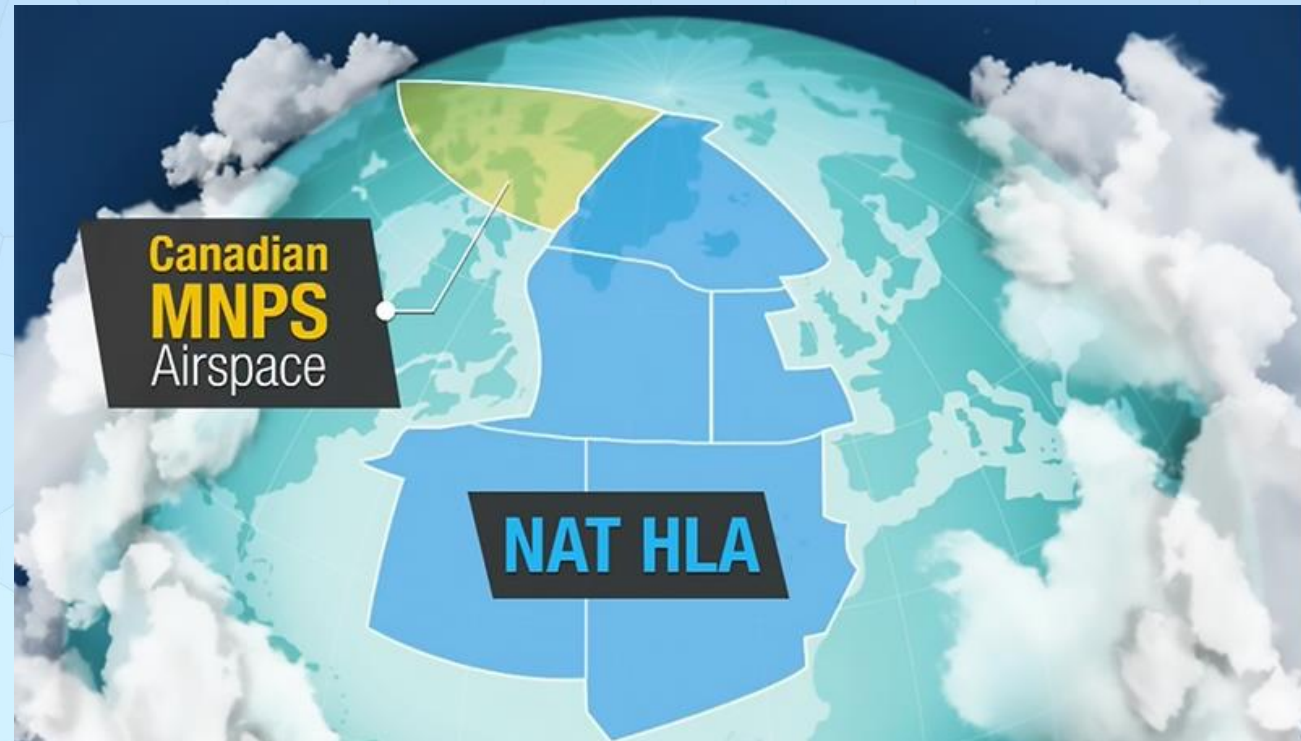
Annex 6

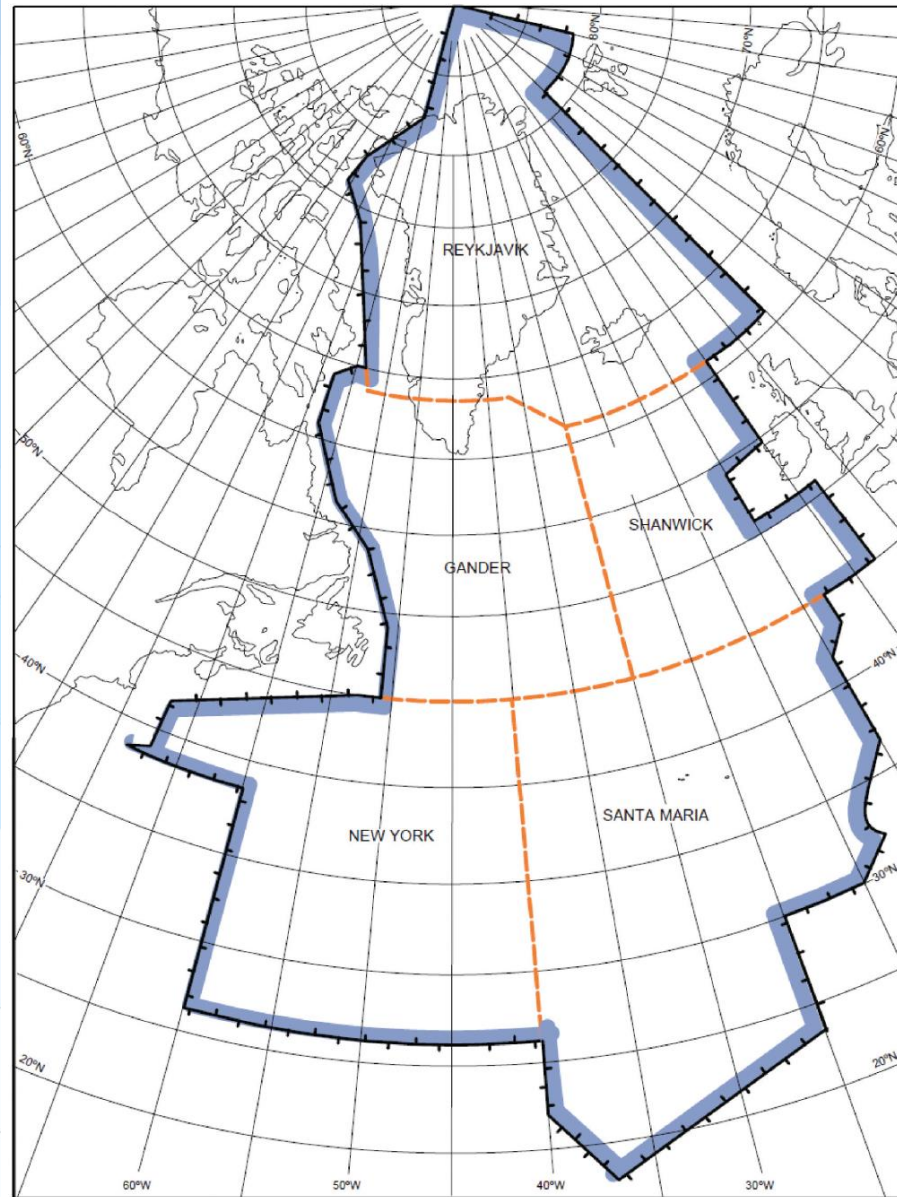
CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

7.2 NAVIGATION EQUIPMENT

7.2.5 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, **minimum navigation performance specifications (MNPS)** are prescribed, an aeroplane shall be provided with navigation equipment which:

- a) continuously provides indications to the flight crew of **adherence** to or **departure** from **track** to the required degree of accuracy at any point along that track; and
- b) has been authorized by the **State of the Operator** for the MNPS operations concerned.





OPERATIONAL PROCEDURES ATPL GROUND TRAINING SERIES

Minimum Navigation Performance Specification Airspace MNPSA

Annex 6

CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

7.2 NAVIGATION EQUIPMENT

7.2.6 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a **reduced vertical separation minimum (RVSM)** of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, an aeroplane:

a) shall be provided with equipment which is capable of:

- 1) **indicating** to the flight crew the **flight level** being flown;
- 2) **automatically maintaining** a selected flight **level**;
- 3) providing an **alert** to the flight crew when a **deviation** occurs from the selected flight level.

The threshold for the alert shall not exceed ± 90 m (300 ft); and

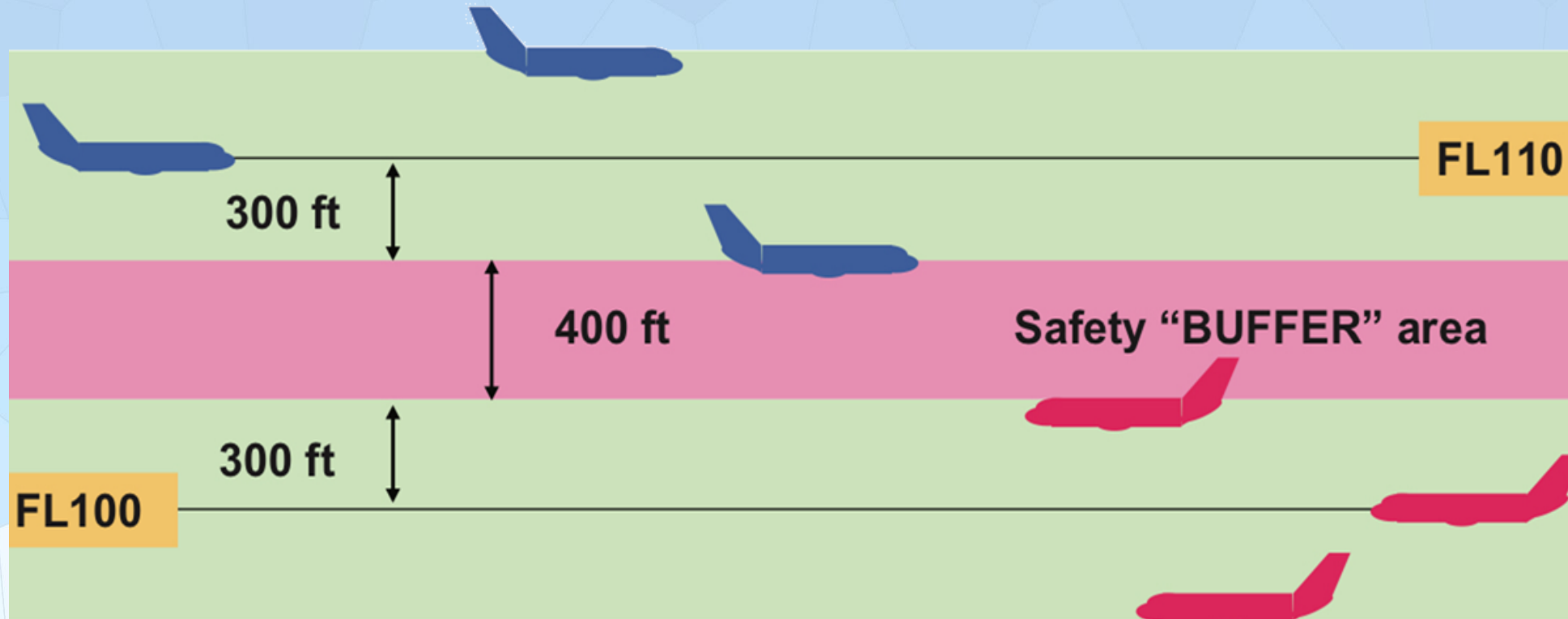
- 4) **automatically** reporting **pressure-altitude**;

b) shall be authorized by the **State of the Operator** for operation in the airspace concerned; and

c) shall demonstrate a vertical navigation performance in accordance with Appendix 4.



The threshold for the alert shall not exceed ± 90 m (300 ft)



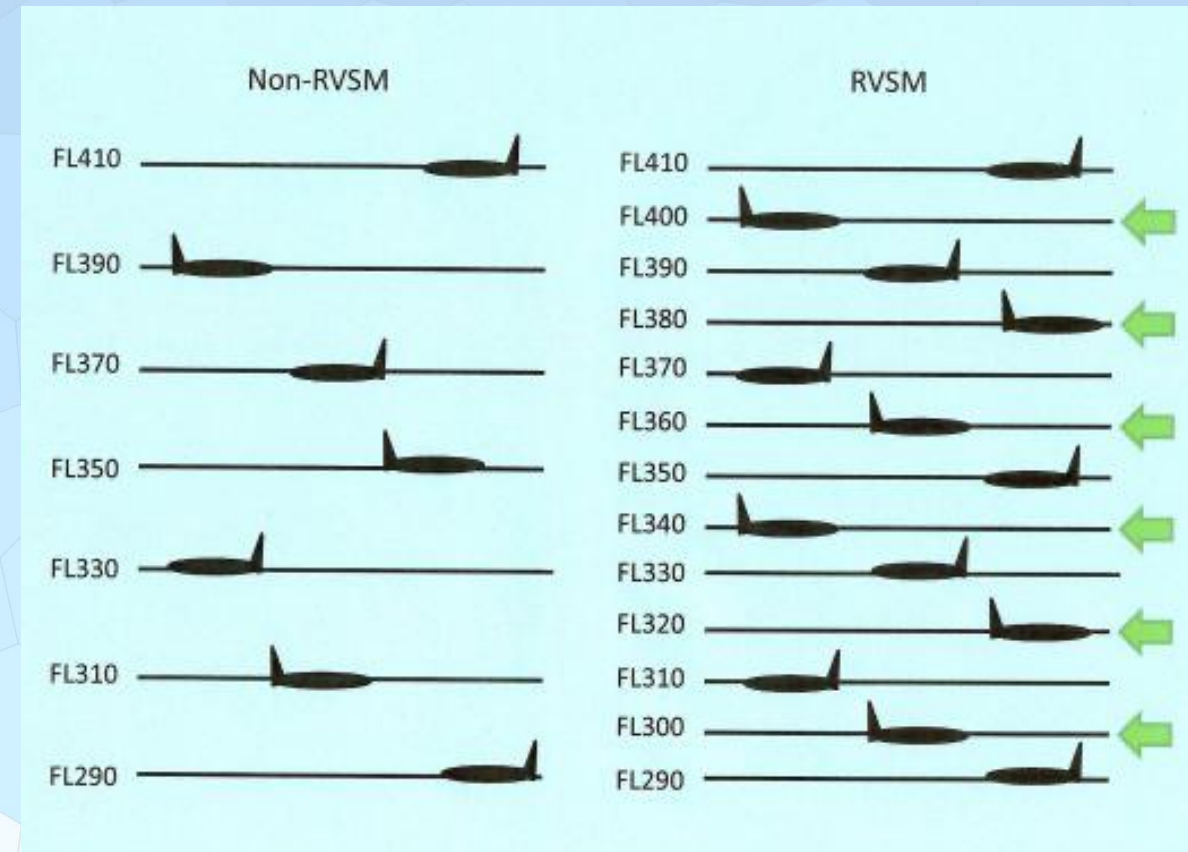
ICAO LEVEL OCCUPANCY STANDARD = ± 300 ft

RVSM Operations

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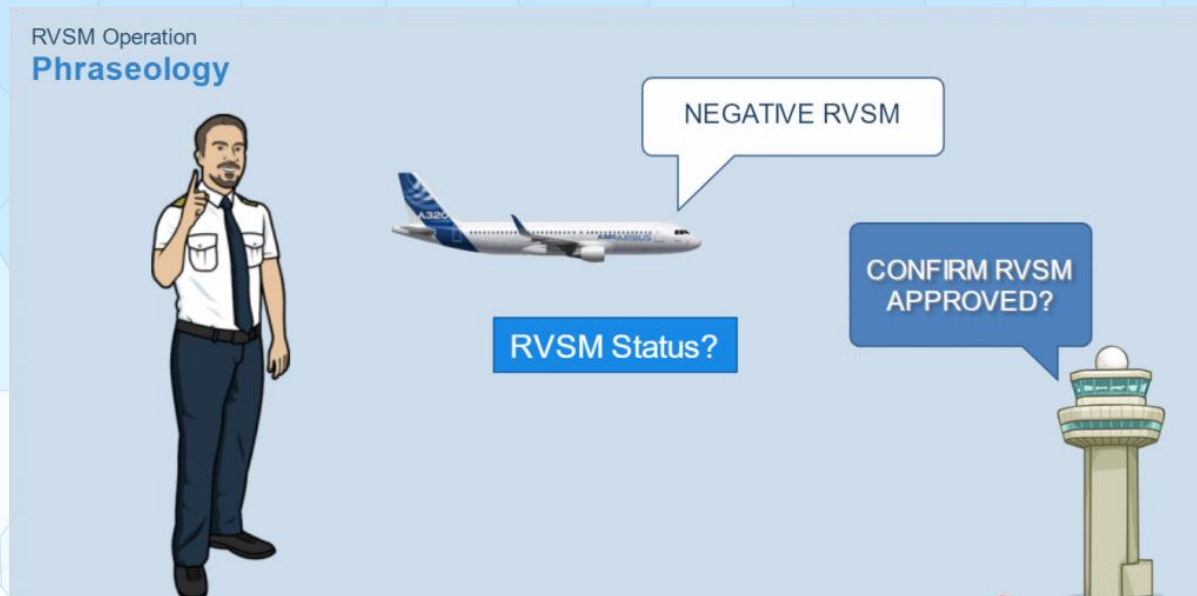
Before an operator can operate over routes at flight levels where RVSM is applied:

1. **approval** must be granted by the Authority and such approval noted in the **AOC**.
2. the crew must be **trained** in RVSM and
3. the aircraft equipped with A/**TCAS**, an altitude reporting **SSR** system, and have an **autopilot** 'height lock' with an altitude **deviation alerting system** (audio or visual).



RVSM Pre-Flight procedure

The flight crew shall verify the altimeter accuracy by setting the QNH or QFE. The reading should then agree with the altitude of the apron or the zero height indication within **75 ft**.



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RVSM Operations

The minimum equipment requirement for RVSM flight is as follows;

- Two independent barometric altimeters agreeing to within +/- 200 ft
- Autopilot with height hold capability
- Altitude deviation alerting system (minimum of an aural alert if the aircraft deviates by +/- 300 ft)
- SSR with altitude alerting mode (mode C)
- ATC: CONFIRM RVSM APPROVRD?
- Pilot: **AFFIRM RVSM** or **NEGATIVE RVSM**.

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



Annex 6

CHAPTER 7. AEROPLANE COMMUNICATION, NAVIGATION AND SURVEILLANCE EQUIPMENT

7.5 ELECTRONIC NAVIGATION DATA MANAGEMENT

7.5.1 The operator **shall not** employ **electronic navigation data products** that have been processed for application in the air and on the ground unless the **State of the Operator** has approved the operator's procedures for ensuring that the **process** applied and the **products** delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the existing equipment. The State of the Operator shall ensure that the operator continues to monitor both the **process** and **products**.



7.3 SURVEILLANCE EQUIPMENT

7.3.1 An aeroplane shall be provided with surveillance equipment which will enable it to operate in accordance with the requirements of **air traffic services**.

AIP ENR 1.6:

2.1.1 All aircraft flying within Tehran FIR are required to be equipped with SSR transponder having a combined Mode A/3, 4096 Codes capability and a Mode C automated altitude reporting capability.

CHAPTER 8. AEROPLANE MAINTENANCE



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CHAPTER 8. AEROPLANE MAINTENANCE

8.1 OPERATOR'S MAINTENANCE RESPONSIBILITIES

8.1.1 **Operators** shall ensure that, in accordance with procedures **acceptable to the State of Registry**:

- a) each aeroplane they operate is maintained in an **airworthy condition**;
- b) the **operational and emergency equipment** necessary for an intended flight is serviceable;
- c) the **certificate of airworthiness** of each aeroplane they operate remains valid.

8.1.3 The person signing the **maintenance release** shall be licensed in accordance with **Annex 1**.

8.1.4 The operator shall employ a person or group of persons to ensure that all maintenance is carried out in accordance with the **maintenance control manual**.

8.1.5 The operator shall ensure that the maintenance of its aeroplanes is performed in accordance with the **maintenance programme**.



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CHAPTER 8. AEROPLANE MAINTENANCE

8.4 MAINTENANCE RECORDS

8.4.1 The **operator** shall ensure that **the following records are kept** for the periods mentioned in 8.4.2:

- a) the **total time in service** of the aeroplane and all **life-limited components**;
- b) the current **status of compliance** with all mandatory continuing **airworthiness information**;
- c) appropriate details of **modifications and repairs**;
- d) the time in service since the last **overhaul** of the aeroplane or its components subject to a mandatory **overhaul** life;
- e) the current status of the aeroplane's **compliance** with the **maintenance programme**; and
- f) the detailed **maintenance records** to show that all requirements for the signing of a maintenance release have been met.

8.4.2 The records in **8.4.1 a) to e)** shall be kept for a minimum period of **90 days** after the unit to which they refer has been permanently withdrawn from service, and the records in 8.4.1 **f)** for a minimum period of **one year** after the signing of the maintenance release.



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CHAPTER 9.

AEROPLANE FLIGHT CREW

CHAPTER 9. AEROPLANE FLIGHT CREW

9.1 COMPOSITION OF THE FLIGHT CREW

9.1.1 The number and **composition of the flight crew** shall not be less than that specified in the **operations manual**.

9.1.2 Radio operator

The flight crew shall include at least one member who holds a valid licence, issued or rendered valid by the **State of Registry**, authorizing operation of the type of radio transmitting equipment to be used.

9.1.3 Flight engineer

When a separate flight engineer's station is incorporated in the design of an aeroplane, the flight crew shall include at least one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight crew member, holding a flight engineer licence, without interference with regular duties.

9.1.4 Flight navigator

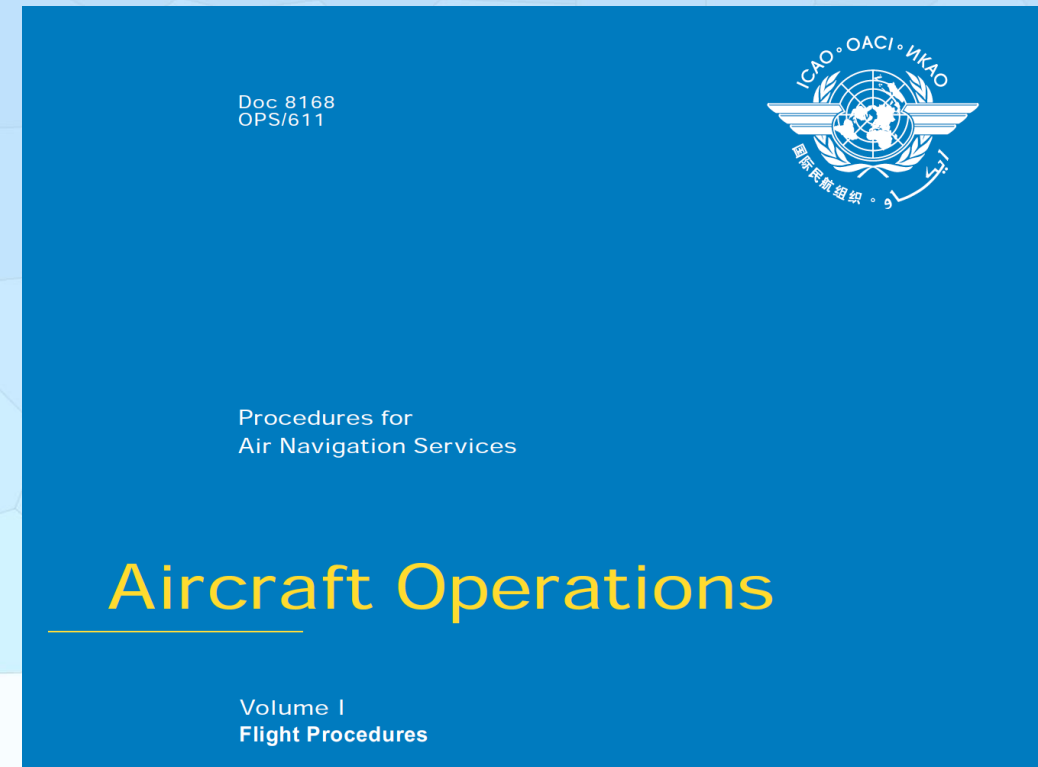
The flight crew shall include at least one member who holds a flight navigator licence in all operations where, as determined by the **State of the Operator**, navigation necessary for the safe conduct of the flight **cannot be adequately accomplished by the pilots** from the pilot station.

CHAPTER 9. AEROPLANE FLIGHT CREW

9.3 FLIGHT CREW MEMBER TRAINING PROGRAMMES

9.3.1 The **operator** shall establish and maintain a **ground and flight training programme**, approved by the **State of the Operator**, which ensures that all flight crew members are adequately trained to perform their assigned duties.

Note.— Information for pilots and flight operations personnel on **flight procedure parameters** [e.g. IAPs] and **operational procedures** [e.g. TCAS] is contained in **PANS-OPS (Doc 8168), Volume I**. Criteria for the construction of visual and instrument flight procedures are contained in PANS-OPS (Doc 8168), Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.



CHAPTER 9. AEROPLANE FLIGHT CREW

9.4 QUALIFICATIONS

9.4.1 Recent experience — pilot-in-command and co-pilot

9.4.1.1 The operator shall not assign a pilot-in-command or a co-pilot to operate at the flight controls of a type or variant of a type of aeroplane **during take-off and landing** unless that pilot has operated the flight controls during **at least three take-offs and landings within the preceding 90 days** on the same type of aeroplane or in a flight simulator approved for the purpose.



CHAPTER 9. AEROPLANE FLIGHT CREW

9.4.2 Recent experience — cruise relief pilot

9.4.2.1 The operator shall not assign a pilot to act in the capacity of **cruise relief pilot** in a type or variant of a type of aeroplane unless, within the **preceding 90 days** that pilot has either:

- a) operated as a **pilot-in-command, co-pilot or cruise relief pilot** on the same type of aeroplane; or
- b) carried out flying skill **refresher training** including **normal**, **abnormal** and **emergency** procedures specific to **cruise flight** on the **same type** of aeroplane or in a **flight simulator** approved for the purpose, and has practised approach and landing procedures, where the approach and landing procedure practice may be performed as the pilot who is not flying the aeroplane.



Cruise relief pilot. A flight crew member who is assigned to perform pilot tasks **during cruise flight**, to allow the pilot-in command or a co-pilot to obtain planned rest.

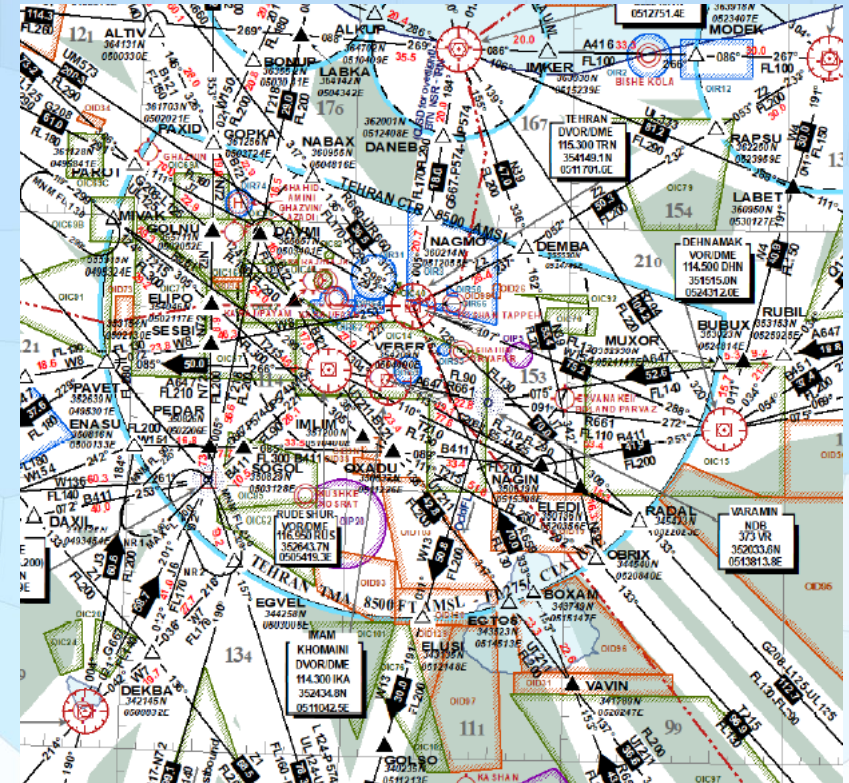
Annex 6

CHAPTER 9. AEROPLANE FLIGHT CREW

9.4.3 Pilot-in-command area, route and aerodrome qualification

9.4.3.5 The operator shall not continue to **utilize a pilot as a pilot-in-command** on a route or within an area specified by the operator and approved by the State of the Operator unless, **within the preceding 12 months**, that pilot has made at least one trip as a **pilot** member of the flight crew, or as a **check pilot**, or as an **observer** in the flight crew compartment:

- a) within that specified area; and
- b) if appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for take-off or landing require the application of special skills or knowledge.



CHAPTER 9. AEROPLANE FLIGHT CREW

9.4.4 Pilot proficiency checks

9.4.4.1 The **operator** shall ensure that piloting technique and the ability to execute **emergency** procedures is **checked** in such a way as to demonstrate the pilot's competence on each type or variant of a type of aeroplane.

Where the operation may be conducted under **instrument flight rules**, the operator shall ensure that the pilot's competence to comply with such rules is demonstrated to either a **check pilot** of the operator or to a **representative of the State of the Operator**.

Such checks shall be performed **twice within any period of one year**. Any two such checks which are similar and which occur within a period of **four** consecutive months shall not alone satisfy this requirement.

CHAPTER 9. AEROPLANE FLIGHT CREW

9.5 FLIGHT CREW EQUIPMENT

A flight crew member assessed as fit to exercise the privileges of a licence, subject to the use of suitable **correcting lenses (glasses or contact lenses)** , shall have a **spare set** of the correcting lenses readily available when exercising those privileges.



CHAPTER 10.

FLIGHT OPERATIONS OFFICER/ FLIGHT DISPATCHER



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CHAPTER 10. FLIGHT OPERATIONS OFFICER/ FLIGHT DISPATCHER

10.1 When the **State of the Operator** requires that a flight operations officer/flight dispatcher, employed in conjunction with an approved **method of control and supervision of flight operations**, be licensed, that flight operations officer/flight dispatcher shall be licensed in accordance with the provisions of **Annex 1**.

Annex 1 to the Convention on International Civil Aviation

Personnel Licensing

Twelfth Edition, July 2018



CHAPTER 11. **MANUALS, LOGS AND RECORDS**



CHAPTER 11. MANUALS, LOGS AND RECORDS

11.1 FLIGHT MANUAL

Note.— The **flight manual** contains the information specified in **Annex 8**. The flight manual shall be **updated** by implementing changes made mandatory by the **State of Registry**.

11.4 JOURNEY LOG BOOK

11.4.3 **Recommendation**.— **Completed journey log book** should be retained to provide a continuous record of the last **six months'** operations.

4.5.5 The **pilot-in-command** shall be responsible for the **journey log book** or the general declaration containing the information listed in 11.4.1.

Captain's Signature	Next Check	Defects	Rectification
		NIL	
		NIL	
		NIL	
		NIL	
		SDHR SERVICE DONE 23-9	
		NIL	
		NIL	

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CHAPTER 12. CABIN CREW

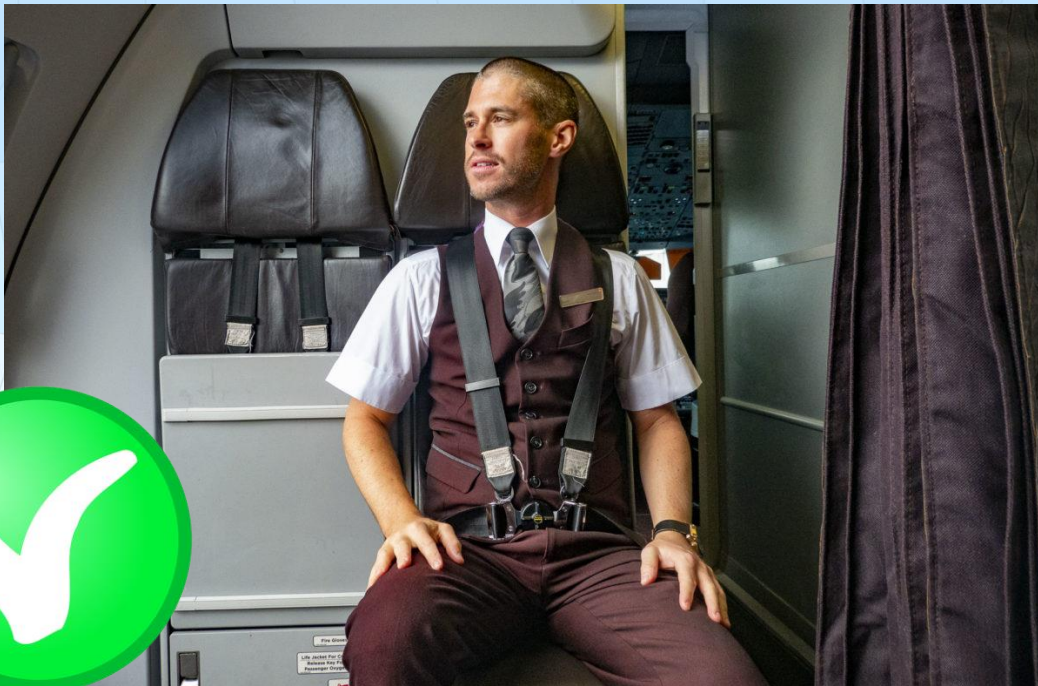
12.1 ASSIGNMENT OF EMERGENCY DUTIES

The operator shall establish, to the satisfaction of the State of the Operator, the **minimum number of cabin crew required for each type of aeroplane**, based on seating capacity or the number of passengers carried, in order to effect a safe and **expeditious evacuation of the aeroplane**, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The operator shall assign these functions for each type of aeroplane.

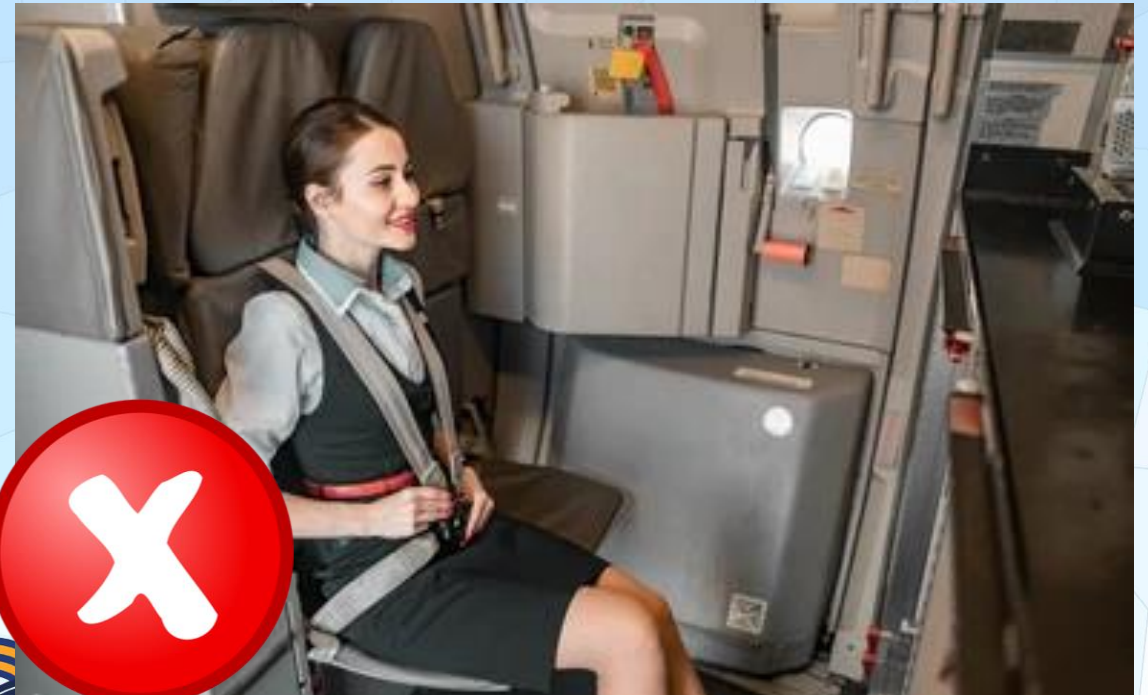


12.2 CABIN CREW AT EMERGENCY EVACUATION STATIONS

Each cabin crew member assigned to emergency evacuation duties shall occupy a seat provided in accordance with 6.16 during take-off and landing and whenever the pilot-in-command so directs.

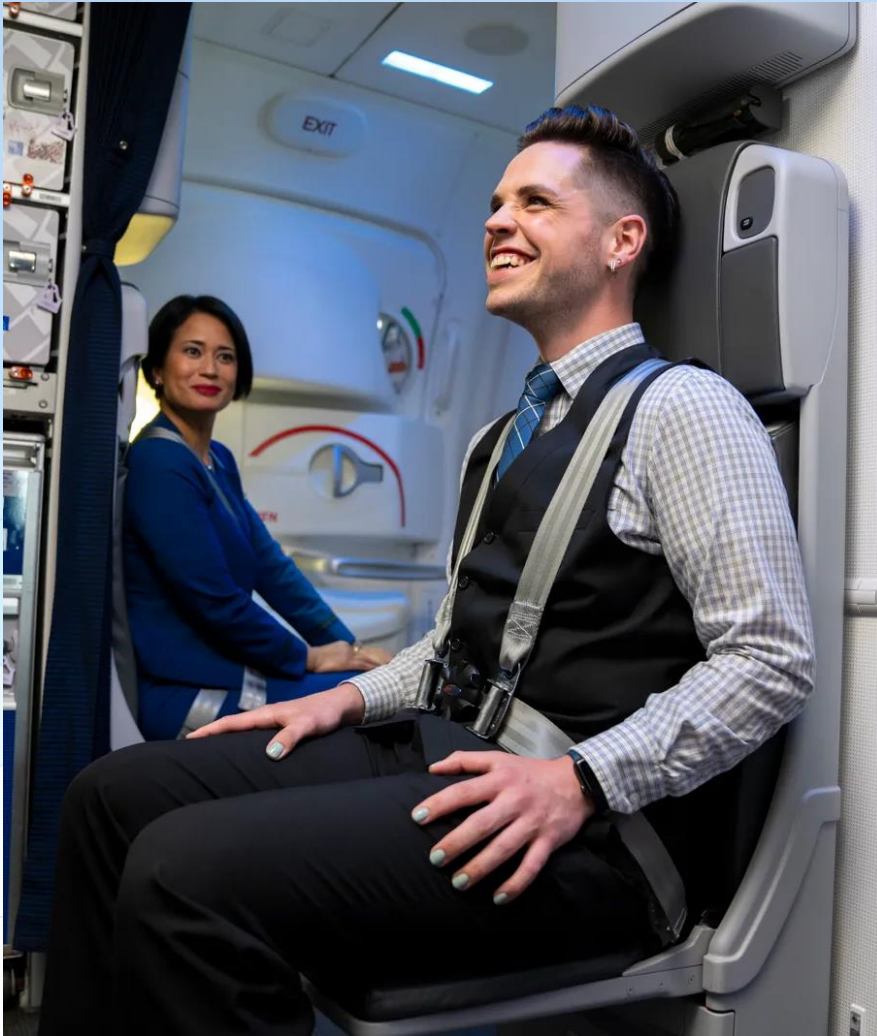


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12.3 PROTECTION OF CABIN CREW DURING FLIGHT



Each cabin crew member shall be seated with **seat belt** or, when provided, **safety harness** fastened during **take-off** and **landing** and whenever the pilot-in-command so directs.

Note.— The foregoing does not preclude the pilot-in-command from directing the fastening of the seat belt only, at times other than during take-off and landing.

12.4 TRAINING

The **operator** shall establish and maintain a training programme, approved by the **State of the Operator**, to be completed by all persons **before** being assigned as a cabin crew member. Cabin crew members shall complete a **recurrent** training programme **annually**.



12.4 TRAINING

These training programmes shall ensure that each person is:

- a) competent to **execute those safety duties** and functions which the cabin crew member is assigned to perform in the event of an **emergency** or in a situation requiring emergency evacuation;
- b) drilled and capable in the use of emergency and life-saving equipment required to be carried, such as **life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment, first-aid and universal precaution kits, and automated external defibrillators;**



First Aid Kits



Passengers	First Aid Kits
0 - 99	1
100 - 199	2
200 - 299	3
300 or more	4



12.4 TRAINING

These training programmes shall ensure that each person is:

- c) when serving on aeroplanes operated **above 3 000 m (10 000 ft)**, knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized aeroplanes, as regards physiological phenomena accompanying a **loss of pressurization**;
- d) aware of **other crew members'** assignments and functions in the event of an emergency so far as is necessary for the fulfilment of the cabin crew member's **own duties**;



12.4 TRAINING

These training programmes shall ensure that each person is:

e) aware of the types of **dangerous goods** which may, and may not, be carried in a passenger cabin; and

f) knowledgeable about human performance as related to passenger cabin safety duties including flight **crew-cabin crew coordination**.



. Carriage of **Persons with Reduced Mobility (PRMs)**

- Operators are required to establish procedures for the carriage of PRMs such that they are not allocated or occupy seats where their presence would:
- Impede the **crew in their duties**.
- Obstruct access to **emergency equipment**.
- Impeded the **emergency evacuation** of the aeroplane.
- The **commander is to be notified** when PRMs are to be carried on board.
- Generally, PRMs should not occupy seats adjacent to **emergency exits**.
- The number of PRMs should not exceed the number of able bodied persons capable of assisting with an emergency evacuation.



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

CHAPTER 13. SECURITY



CHAPTER 13. SECURITY

13.2 SECURITY OF THE FLIGHT CREW COMPARTMENT

13.2.1 In all aeroplanes which are equipped with a **flight crew compartment door**, this door shall be capable of being **locked**, and means shall be provided by which cabin crew can **discreetly notify the flight crew** in the event of suspicious activity or security breaches in the cabin.

13.2.2 All passenger-carrying aeroplanes of a maximum certificated take-off mass **in excess of 45 500 kg** or with a passenger seating **capacity greater than 60** shall be equipped with an approved flight crew compartment **door** that is designed to resist penetration by **small arms fire** and **grenade shrapnel**, and to resist forcible intrusions by unauthorized persons. This door shall be capable of being locked and unlocked from **either pilot's station**.



CHAPTER 13. SECURITY

13.2.3 In all aeroplanes which are equipped with a **flight crew compartment door** in accordance with 13.2.2:

- a) this door shall be closed and locked from the time **all external doors are closed** following embarkation **until any such door is opened for disembarkation**, except when necessary to permit access and egress (=exit) by authorized persons; and
- b) means shall be provided for monitoring from either pilot's station **the entire door area** outside the flight crew compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat.



CHAPTER 13. SECURITY

13.4 TRAINING PROGRAMMES

13.4.1 The **operator** shall establish and maintain an approved security **training programme** which ensures crew members act in the most appropriate manner to minimize the consequences of acts of **unlawful interference**.

13.5 REPORTING ACTS OF UNLAWFUL INTERFERENCE

Following an act of unlawful interference, the pilot-in-command shall submit, **without delay**, a **report** of such an act to the **designated local authority**.



Chapter 15 Security

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



Unlawful Interference

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

- Following an act of unlawful interference on board his aeroplane, the **commander**, or, if for any reason he is unable to do so, the operator, is to submit a report without delay to the **designated local authority** and the Authority in the **state of the operator**.
- In the event of unlawful interference in flight, the pilot in command shall endeavor to set the transponder to **A-7500** unless the situation warrants the code **A-7700**.
- If ATC requests confirmation of code A-7500 the PIC, if able, should **confirm verbally** the situation. If this is not a viable option, **the PIC should say nothing**. ATC will take this as confirmation of the code, and initiate appropriate action in accordance with state procedures.
- Proceed at a level which differs from normal IFR cruising levels by **500 ft**, if vertical separation minima is **1000 ft** or **1000 ft** in areas where vertical separation minima is **2000 ft**.



Unlawful Interference

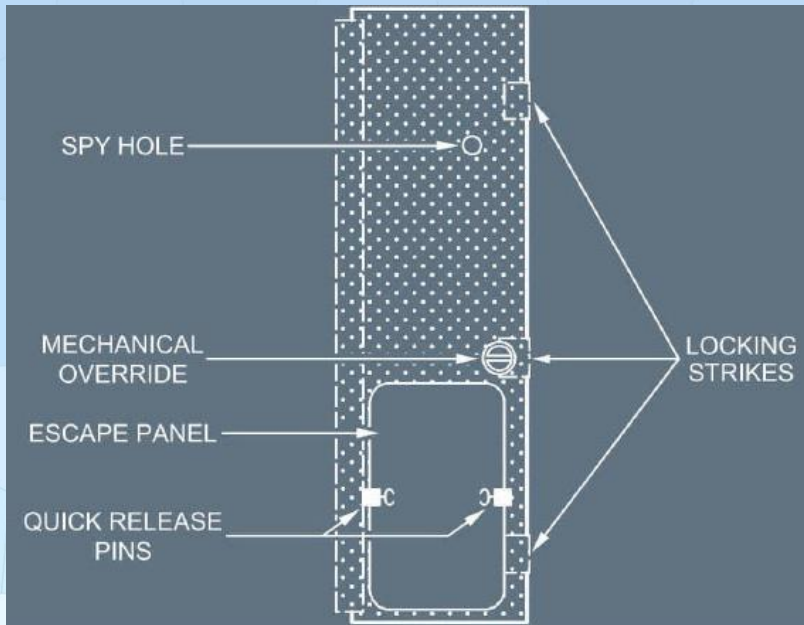
OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

- In addition to informing **each State**, whose **citizens** are known to be on board an aircraft, **the State of the country in which an aircraft has landed** after an act of unlawful interference must immediately notify the **State of Registry** of the aircraft, the **State of the Operator** and **ICAO**.
- When a bomb alert is received at **cruise altitude** and fuel is not a problem that needs to be considered, descend to cabin pressure altitude or safety altitude, whichever is the **higher**, and go to landing configuration as a safety measure.



Cockpit Door

OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES



On aeroplanes with **more than 60 passenger seats**, or with a MTOM **over 45 500 kg**, the door must be capable of being remotely locked/unlocked from **either pilot station**, and a means to **monitor** the area immediately outside the door available to both pilots.



The door is to be **closed prior to engine start**, and, other than for authorized access, to **remain so until after engine shutdown**.

The **door**, and the surrounding **bulkhead**, must be **bullet proof**, and resistant to penetration by **shrapnel**.

Admission to the Flight Deck

The only personnel permitted to enter the flight deck are:

- The flight crew
- A representative of the Authority in the performance of his/her official duty
- Persons permitted to do so in accordance with instruction in the Operations Manual

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Note:

The final decision concerning admittance to the flight deck rests with the Commander.



Unauthorized Carriage

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The Operator is to ensure that no persons hides him or herself (**stowaways**), or hides any cargo on board an aeroplane.



Annex 6

APPENDIX 8. FLIGHT RECORDERS



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APPENDIX 8. FLIGHT RECORDERS

1. GENERAL REQUIREMENTS

1.1 Non-deployable flight recorder containers shall:

a) be painted a distinctive orange or yellow colour;

Am.44: Non-deployable flight recorder containers shall be painted a distinctive orange colour.

1.2 Non-deployable crash-protected flight recorder containers shall:

a) carry reflective material to facilitate their location; and

b) have securely attached an automatically activated underwater locating device operating at a frequency of 37.5 kHz. At the earliest practicable date, but not later than 1 January 2018, this device shall operate for a minimum of 90 days.



APPENDIX 8.

FLIGHT RECORDERS

1. GENERAL REQUIREMENTS

1.3 Automatic deployable flight recorder containers shall:

- a) be painted a distinctive **orange** colour, however the surface visible from outside the aircraft may be of another colour;
- b) carry reflective material to facilitate their location; and
- c) have an integrated automatically activated ELT.



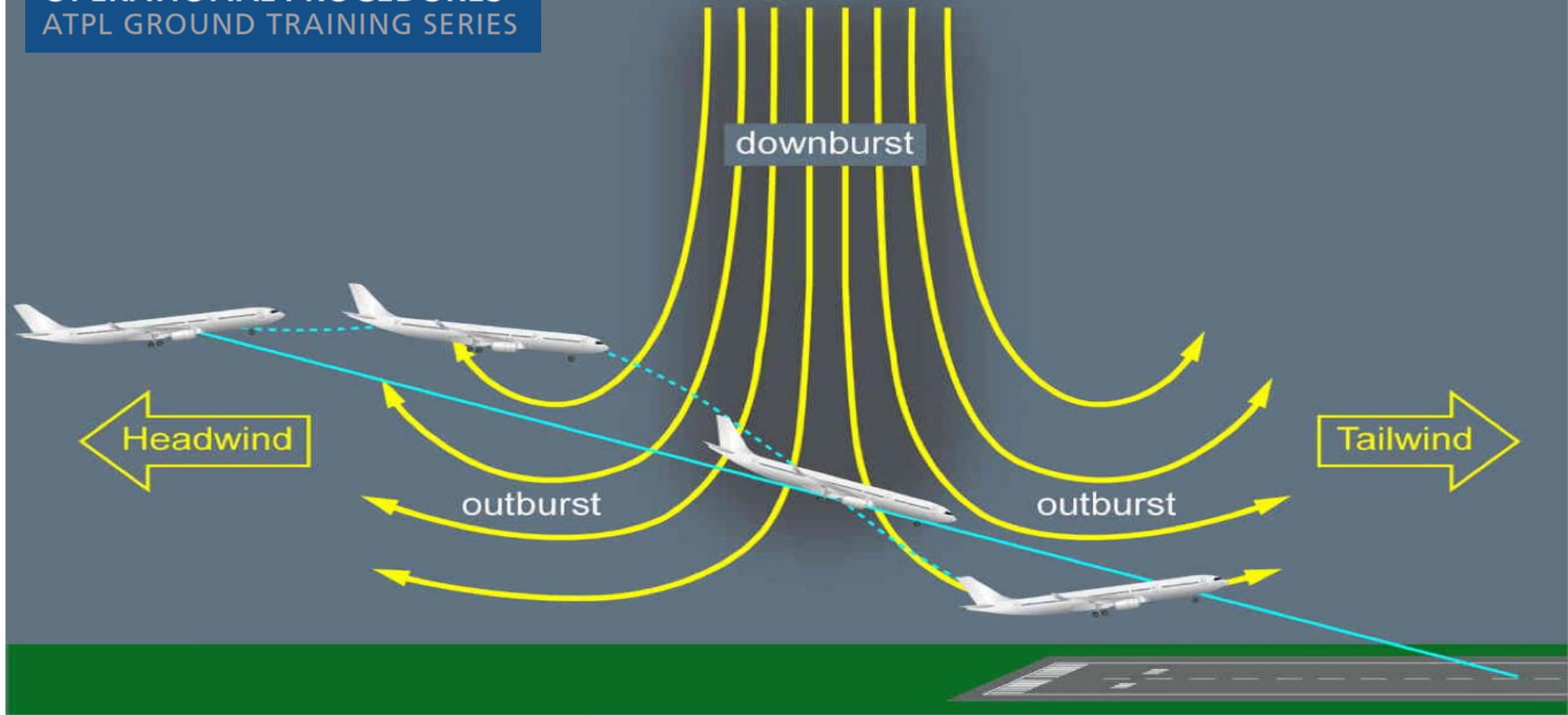
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Chapter

13

Windshear and Microburst



Windshear Phenomenon**OPERATIONAL PROCEDURES**
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Windshear and Microburst

- **The wind shear is:** A vertical or horizontal wind velocity and/or wind direction variation over a short distance.
- Low altitude windshear is a **sudden change of wind velocity** along the final approach path or along the runway and along the take-off and initial climb-out path.
- **Vertical** windshear is the change of wind vector with height.
- **Horizontal** windshear is the change of wind vector with horizontal distance.
- While approaching to land, the tower informs you about the presence of a **microburst**. You will expect to encounter wind shears (vertical and horizontal).
- When an aircraft flies into a wind shear, where a **horizontal tailwind gust** is experienced, the aircraft tends to **descend**.
- On the approach if you encounter a wind shear with a change to a **horizontal tailwind**, it will cause **descent** or **climb** depending upon the strength and type of the gust.

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Windshear and Microburst

- If during a landing approach, the aircraft is subjected to **wind shear** with an **increasing tailwind**, in the absence of a pilot action, the aircraft will fly **below** the glide path and will have a **decreasing** true airspeed.
- If during a landing approach, the aircraft is subjected to **wind shear** with an **decreasing tailwind**, in the absence of a pilot action, the aircraft will fly **above** the glide path and will have a **increasing** true airspeed.
- If during a landing approach, the aircraft is subjected to **wind shear** with an **increasing headwind**, in the absence of a pilot action, the aircraft will fly **above** the glide path and will have a **increasing** true airspeed.
- If during a landing approach, the aircraft is subjected to **wind shear** with an **decreasing headwind**, in the absence of a pilot action, the aircraft will fly **below** the glide path and will have a **decreasing** true airspeed.



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Windshear and Microburst

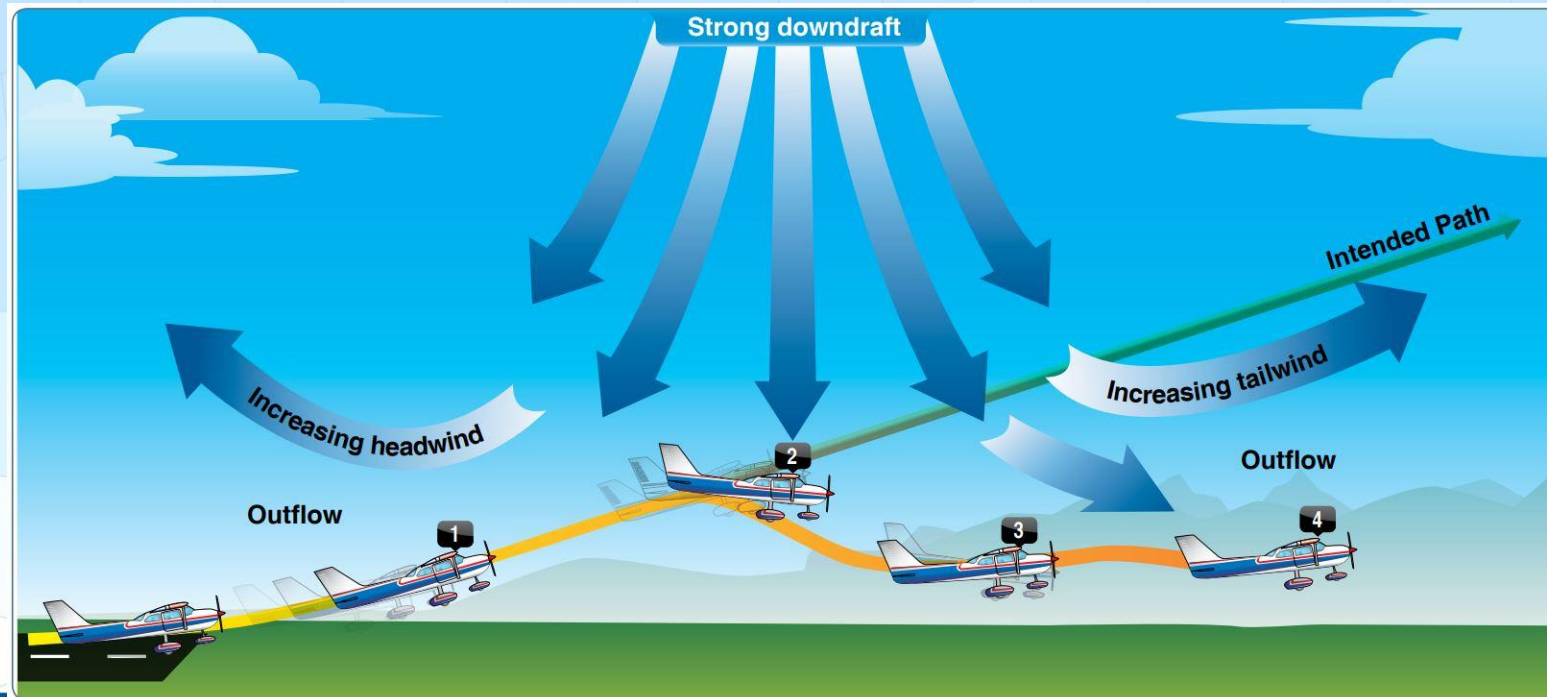
- In a **mountainous region** when you encounter **wind shear** during the approach to land and see an **increase in airspeed**, you should allow speed to increase while staying on the glide path and monitoring speed.
- **Indicated Air Speed** will be the first to change its value when penetrating a wind shear.
- On **passing through a shear line**, the inertia of the aircraft will initially keep it at its original speed in relation to the ground and that is why the IAS change.
- **Under a microburst**, air is diverging and **local pressure increases**.
- On encountering wind shear you should apply takeoff power and pull to the **stick shaker**.



Action on encountering microburst

- 1) Apply engine power.
- 2) Retract speed brakes.
- 3) Pitch up to stick shaker.

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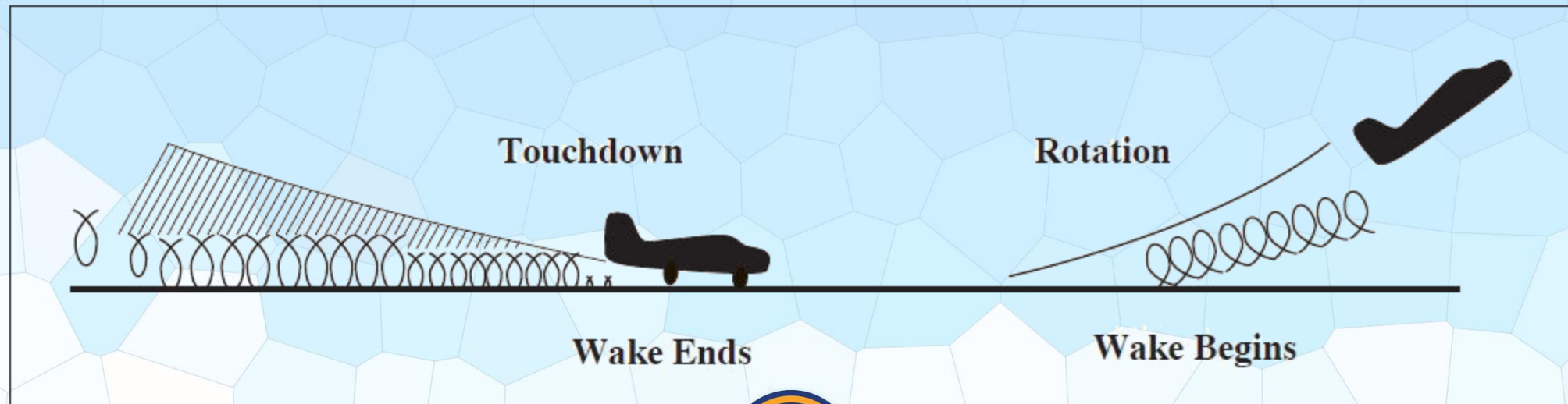
Chapter
14
Wake Turbulence



OPERATIONAL PROCEDURES
ATPL GROUND TRAINING SERIES

Wake Turbulence

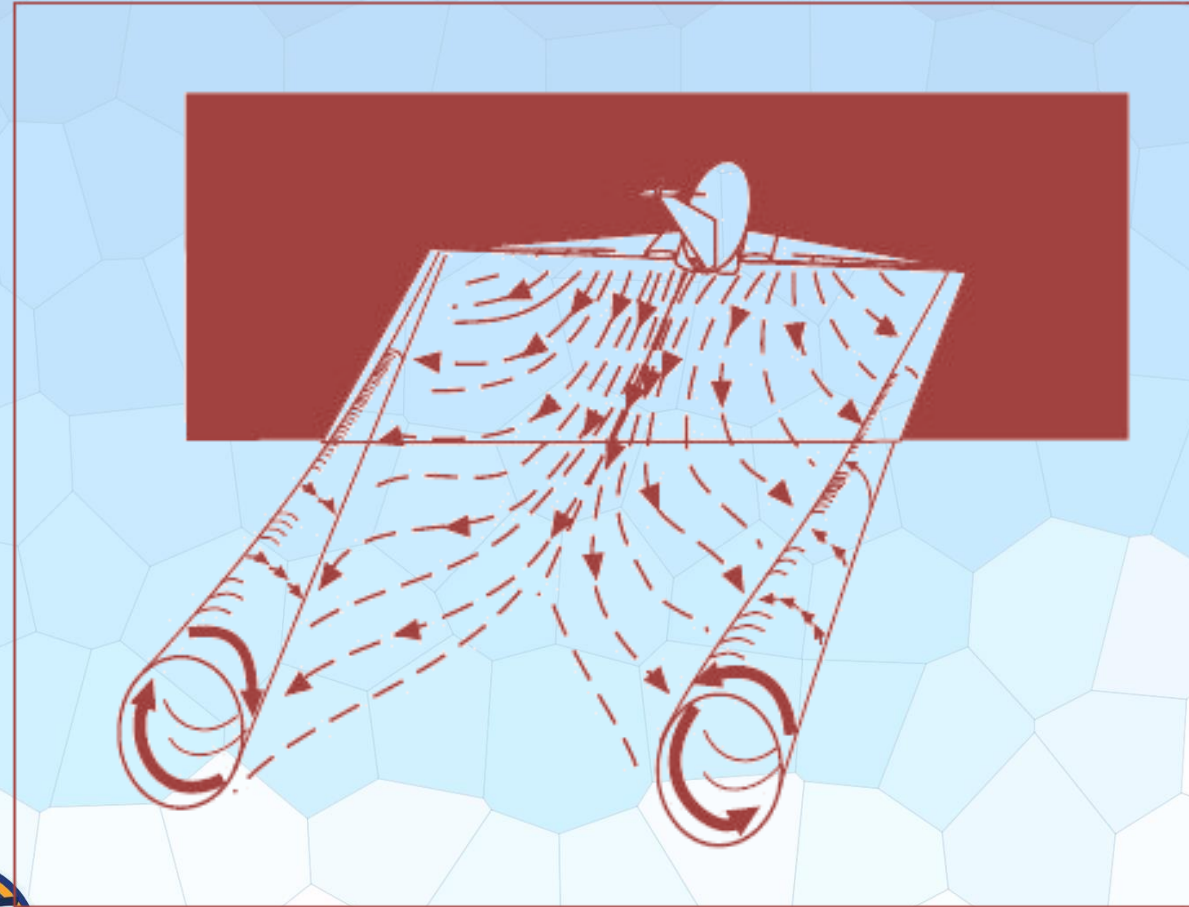
- **Wake vortex** generation begins when the nose wheel lifts off the runway on take-off and ceases when the nose wheel touches down again.
- The major factor causing wake turbulence is **wing tip vortices**.
- Tip vortices which are responsible for wake turbulence appear as soon as the **lift** is established.



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Wake Turbulence

- **To avoid wake turbulence**, when departing behind a larger aircraft, the pilot should maneuver **above** and **upwind** from the larger aircraft.
- The **wake turbulence** starts during the rotation and stops as soon as the airplanes wheels touch the ground.
- The wake turbulence caused by an aircraft is mainly the result of an **aerodynamic effect (wing tip vortices)**.



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Wake Turbulence

- The greatest wake turbulence occurs when the generating aircraft is:
 - Large,
 - heavy,
 - at low speed
 - in clean configuration
- When **taking off** after a wide body aircraft which **has just landed**, you should takeoff beyond the point where the aircraft's wheels have touched down.
- When **taking off** behind a wide-body aircraft, with **wind coming from the left side**, you adopt a path whenever possible distinct from the preceding airplane, by **remaining at the left** of and **above** its path.



Wake turbulence categories (ICAO)

Category	Max Take-off Mass
Heavy	Equal to or greater than 136 000 kg
Medium	Less than 136 000 kg but more than 7000 kg
Light	7000 kg or less

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ICAO wake turbulence separation standard for landing

Leading Aircraft	Following	Distance (NM)	Time Equivalent
Heavy	Heavy	4	-
Heavy	Medium	5	2 min
Heavy	Light	6	3 min
Medium	Heavy	3	-
Medium	Medium	3	-
Medium	Light	5	3 min

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ICAO wake turbulence separation standard for take-off

Departure			
Leading Aircraft	Following Aircraft		Spacing
Heavy	Medium or Light	Departing from the same position	2 minutes
Medium	Light		
Heavy	Medium or Light	Departing from an intermediate point on the runway	3 minutes
Medium	Light		

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Chapter 19

Contaminated Runways



Braking Action

Measured Coefficient	Estimated Braking Action	Code
0.40 and above	Good	5
0.39 - 0.36	Medium to good	4
0.35 - 0.30	Medium	3
0.29 - 0.26	Medium to poor	2
0.25 and below	Poor	1
unreliable	UNRELIABLE	9

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Contaminated Runways

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- The maximum validity of a SNOWTAM is 24 hours.
- GRF: 8 hours.
- **wet runway:** 25% contamination of the runway with water depth less than 3 mm.
- 25% or more is the criterion for considering a runway contaminated.
- **When you are landing on a flooded runway in heavy rain:**
 - 1) Make a positive touchdown on the main gear and lower the nose gear as soon as practicable.
 - 2) Increase the approach speed.
 - 3) Apply reverse thrust as soon as possible.





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