Gama Aviation

Operations Manual

Part A

General/Basic

(EASA)

Issue 6
Revision Original

March 2020

Preface

This manual forms part of the Operations Manual of Gama Aviation (UK) Limited.

The Management responsibilities and supporting procedures referred to in this Manual are approved and must be adhered to.

It is accepted that Gama Aviation (UK) Limited (known as the "Operator") do not override the need to comply with International Air Navigation requirements, EASA Requirements in so far as they are endorsed by the Civil Aviation Authority (known as the "Competent Authority").

Director of Flight Operations

Gama Aviation (UK) Limited
1st Floor Templar Building
Farnborough Business Park
Hampshire
GU14 6EF

Telephone:	01252553000
Fax:	01252553001
AFTN	EGLFGMAX

Operations Radio Frequency:Not Used

E-mail: operations@gamaaviation.com

Index to Parts

Part A

A	-	General

Part B

B1	-	Beechcraft King Air B200 / B200C
B6	-	Challenger 604/5
B8	-	Hawker HS125
B10	-	Cessna 560XLS / XLS+
B14	-	Global BD700
B24	-	Cessna Citation CE510 *(Mustang)*

Part C

C	-	Route and Aerodrome Instructions

Part D

D	-	Training Manual

List of Effective Pages

Sections	Revision	Date
Header	Original	March 2020
Preface	Original	March 2020
Index	Original	March 2020
Rev List	Original	March 2020
LOEP	Original	March 2020
TOC	Original	March 2020
0	Original	March 2020
1	Original	March 2020
2	Original	March 2020
3	Original	March 2020
4	Original	March 2020
5	Original	March 2020
6	Original	March 2020
7	Revision 4	November 2017
8	Original	March 2020
9	Original	March 2020
10	Original	March 2020
11	Original	March 2020
12	Original	March 2020
13	Original	March 2020

Appendix	Revision	Date
1	Original	March 2020
2	Original	March 2020
3	Original	March 2020
4	Original	March 2020
5	Original	March 2020
6	Original	March 2020
7	Original	March 2020
8	Original	March 2020
9	Original	March 2020
10	Original	March 2020

Table of Contents

Header 1

Preface 1

Index to Parts 1

List of Effective Pages 1

Table of Contents 1

0 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL. 1

0.1 Introduction *1*

0.2 System of Amendment and Revision *11*

1.3 Approvals, Exemptions and Validations. *12*

1 SECTION 1 – Organisation and Responsibilities ORO.GEN.200 1

1.1 Organisational Structure *1*
1.1.1 The Air Operator's Certificate 1
1.1.2 Area of Operation 1
1.1.3 Area of Normal Operations 2
1.1.4 Changes (ORO.GEN.130) 2
1.1.4.1 Changes — organisations (ARO.GEN.330) 3
1.1.4.2. Continued validity ORO.GEN.135 3
1.1.5 Laws, Regulations and Procedures 3
1.1.6 CAA Operational Directives 4
1.1.7 Map of Area of Operation. 4

1.2 Nominated Persons ORO.AOC.135a *4*
1.2.2 Compliance Monitoring 4
1.2.3 Other Management Appointments 4
1.2.4 Fleet Management 4
1.2.5 Training Commanders 4
1.2.6 Security 4
1.2.7 Electronic Flight Bag (EFB) Administration 5

1.3 Personnel requirements ORO.GEN.210 .... *5*
1.3.1 Accountable Manager's Responsibilities 5
1.3.2 Director Flight Operations Responsibilities 5
1.3.3 Postholder Ground Operations Responsibilities 6
1.3.4 Head of Training 7
1.3.5 Continuing Airworthiness Manager (CAM) 7
1.3.6 Compliance Monitoring Manager (Operations) 7
1.3.7 Compliance Monitoring Manager (Airworthiness) 7
1.3.8 Safety Manager 8
1.3.9 Fleet Managers Responsibility 8
1.3.10 Training Commanders 8

1.3.11 Base Commander (ABZ, GLA & INV) 9
1.3.12 Ground Instructor SEP/CRM/SMS 9
1.3.13 Electronic Flight Bag Manager 10
1.3.13 Security Manager 10
1.3.14 Health, Safety and Environment Manager 11

1.4 Authority, Duties and Responsibilities of The Commander 11
1.4.1 General Responsibilities 11
1.4.2 Specific Responsibilities 11

1.5 Duties and Responsibilities of Crew Members Other Than The Commander 13
1.5.1 General 13
1.5.2 The First Officer 13
1.5.2.1 Function 13
1.5.2.2 General Responsibilities 14
1.5.2.3 Specific Responsibilities 14
1.5.3 Cabin Crew 14
1.5.3.1 General Responsibilities 14

2 Operational Control and Supervision (*ORO.GEN.110*) 1

2.1 Supervision Of The Operation By The Operator 1
2.1.1 The Accountable Manager will control the levekl of personnel required to operationally manage the fleet. . 1
2.1.1.1 The Head of Training will ensure that: 1
2.1.1.2 Competence of Ground Operations personnel 1
2.1.2 Document Storage Periods (*ORO.MLR.115*) 2
2.1.3 Quality Control 2
2.1.4 Flight Operations Oversight Groups 2
2.1.4.1 Operational Performance Review Meeting (OPR) 3
2.1.4.2 Compliance Monitoring Review Meetings 3
2.1.4.3 Training Commanders Meeting (TCM) 3
2.1.4.4 Safety Meetings 3

2.2 System of Promulgation of Additional Operational Instructions and Information 3

2.3 Accident Prevention and Flight Safety 3

2.4 The Competent Authority ORO.GEN.105 4

3 SECTION 3 – Safety Management System 1

4 CREW COMPOSITION 1

4.1 Operational Multi-Pilot Limitation (OML). Reg 1178/2011. AMC1 ORO.FC.100(c) 2
4.1.1 Operations IAW Oil Industry Standard 2

4.2 Designation of the pilot-in-command/commander 3
4.2.1 The planned crew duty periods and schedules will be calculated in accordance 3
4.2.2 Two-pilot Crew 3
4.2.3 ORO.FC.200 (a) CREWING OF INEXPERIENCED FLIGHT CREW MEMBERS 3
4.2.4 Allocation of Flight Crew to Aircraft type 4
4.2.5 Pilot in Command/Commander 4

4.3 Flight Crew Incapacitation (ORO.FC.230) 5

4.3.1 Assuming that two pilots are carried, the recovery from a detected incapacitation of the handling pilot shall follow the sequence below. 5
4.4 Operation on more than one type for scheduling purposes (ORO.FC.240) : 5
4.4.1 When a flight crew member operates multi-pilot aeroplane: 6
4.4.2 In the case of all other aeroplanes, a flight crew member shall not operate more than: 6
4.4.3 In the case of a combination of a SPA and MPA then para 4.4.1 (a) above shall apply. 6
4.4.4 For a combination of aeroplane and helicopter: 6
4.4.5 If a flight crew member operates more than one type or variant which are not within the same type or class rating, the following provisions shall be satisfied: 7
5 SECTION 5 - QUALIFICATION REQUIREMENTS 1
5.1 Licence, Qualification and Competency 1
5.2 Flight Crew 1
5.2.1 (a) Commanders 3
5.2.1.1 **Commanders Recency** 4
5.2.2 (b) First Officers 4
5.2.3 Initial and Renewal Requirements Commanders & First Officers *(AMC1 ORO.FC.230)* 5
5.2.3.1 The Operator Proficiency Check (OPC) 5
5.2.3.2 Line Check (AMC1 ORO.FC.230 and GM1 ORO.FC.230) 5
5.2.3.3 Emergency and Safety Equipment Training and Checking (*AMC1 ORO.FC.230)* 5
5.2.3.4 Crew Resource Management (CRM) *(AMC1 ORO.FC.115&215)* 5
5.2.3.5 Ground and Refresher Training *(AMC1 ORO.FC.230)* (See also Part D Training Manual) 5
5.2.3.6 Route and Aerodrome Competence Qualification *(AMC1 ORO.FC (b) (2);(c)* 6
5.4 Training, Checking and Supervisory Personnel 6
5.4.1 Flight Crew 6
5.4.2 Flight Crew responsible for cabin safety 6
5.5 Other Operations Personnel 6
5.6 Updating of Databases on Company Aircraft 7
6 CREW HEALTH PRECAUTIONS 1
6.1 Crew Health Precautions 1
7 SECTION 7 - FLIGHT TIME LIMITATIONS 1
7.1 Flight and Duty Time Limitations and Rest Requirements. 1
7.1.1 Purpose 1
7.1.2 Aim 1
7.1.3 Applicability 1
7.1.4 Company Responsibilities 1
7.1.5 Crew Members Responsibilities: 1
7.2 Definitions FTL Scheme 2
7.2.1 Acclimatised 2
7.2.2 Cabin Crew 2
7.2.3 Crew 2
7.2.4 Days Off 2
7.2.5 Duty 2
7.2.6 Early Start Duty 2
7.2.7 Flight Crew 2

7.2.8 Flying Duty Period (FDP) ... 2
7.2.9 Late Finish Duty ... 3
7.2.10 Local Night ... 3
7.2.11 Night Duty ... 3
7.2.12 Positioning ... 3
7.2.13 Regular ... 3
7.2.14 Reporting Time ... 3
7.2.15 Rest Period ... 3
7.2.16 Rostered/Planned Duty ... 3
7.2.17 Rostering Period ... 3
7.2.18 Scheduled Duty ... 3
7.2.19 Sector ... 3
7.2.20 Split Duty ... 4
7.2.21 Standby Duty ... 4
7.2.22 Suitable Accommodation ... 4
7.2.23 Travelling Time ... 4
7.2.24 Week ... 4

7.3. Calculation of a Flying Duty Period ... 4
7.3.1 The maximum rostered FDP, in hours and fractions of hours, shall be in ... 4
7.3.2 The standard reporting time prior to flight is 45 minutes. (The report time for the Scottish Air Ambulance operation will be 30 minutes prior to the flight.) ... 4
7.3.3 Report times must not be reduced in order for crew members to achieve their ... 5

7.4 Additional limits on Flying Duty Periods ... 5
7.4.1 Late Finishes/Early Starts ... 5
7.4.2 Regular Early Morning Starts ... 5
7.4.3 Night Duties 2 or 3 Nights ... 5
7.4.4 Mixed Duties ... 5
7.4.4.1 Mixed Simulator and Aircraft Flying ... 6
7.4.4.2 Mixed Single Pilot/Two Pilot Operations ... 6
7.4.5 Travelling Time ... 6
7.4.6 Delayed Reporting Time in a Single FDP ... 6
7.4.7 Positioning ... 6
7.4.7.1 Self-drive positioning ... 7
7.4.8 Standby Duty ... 7
7.4.9 Limits on Two Flight Crew Long Range Operations ... 8
7.4.9.1 Extension of Flying Duty Period by In-flight Relief ... 8
7.4.9.2 When in-flight relief is utilised there must be, for the crew members resting, a comfortable reclining seat, or bunk, separated and screened from the flight deck and passengers. ... 8
7.4.10 Rest Periods ... 8
7.4.11 Maximum FDP – Aeroplanes ... 10

7.5 Extension of a Flying Duty period by Split Duty. ... 11
7.5.1 When an FDP consists of two or more sectors - one of which can be a positioning journey counted as a sector - but separated by less than a minimum rest period, then the FDP may be extended by the amount indicated below. ... 11

7.6 Aircraft Commander's Discretion To Extend a Flying Duty Period. ... 11
7.6.1 An aircraft Commander may, at his discretion and after taking note of the circumstances of the other member of the crew, ... 11
7.6.2 Aircraft Commander's Discretion to Reduce a Rest Period ... 11
7.6.3 Reporting Exercise of Discretion ... 12

7.7 Days Off ... 12

7.8 Absolute Limits on Flying Hours ... 13

7.9 Cumulative Duty Hours ... 13
7.9.1 Calculation of Cumulative Duty Hours ... 13

7.11 Records to be maintained FTL ... 13

7.12 Dedicated Air Ambulance ... 14

8 SECTION 8 - OPERATING PROCEDURES ... 1

8.1 Flight Preparation Instructions ... 1
8.1.1 Establishment of Minimum Flight Altitudes CAT.OP.MPA.145 ... 2
8.1.1.1 General ... 2
8.1.1.2 Minimum Obstacle Clearance Altitude (MOCA) and Minimum Off-route Altitude (MORA) Jeppesen Formula (CAT.OP.MPA.270) ... 2
8.1.1.3 MOCA is the sum of: ... 2
8.1.1.4 In relation to a VOR station, the corridor width within which terrain/obstacles must ... 2
8.1.1.5 In relation to an NDB, the corridor width is: ... 3
8.1.1.6 Minimum Off-route Altitude (MORA) ... 3
8.1.1.7 Allowance for Wind Speed ... 4
8.1.1.8 Temperature Correction ... 4
8.1.1.9 Minimum En-route Altitude (MEAs) represent the lowest level (altitude) that ATC ... 4
8.1.1.10 Minimum Safe Altitude (MSA) provides terrain clearance of 1000 feet within 25 nm of the feature depicted in the circle. An approach chart reference is a good example of MSAs. ... 4
8.1.1.11 Multi-Engined Aeroplanes ... 4
8.1.1.12 Class A aeroplanes ... 5
8.1.1.13 Class B aeroplanes ... 6
8.1.2 Criteria and responsibilities for determining the adequacy of aerodromes ... 6
8.1.2.1 Category A aerodrome - An aerodrome which satisfies all of the following requirements: ... 7
8.1.2.2 Category B aerodrome - An aerodrome which does not satisfy the Category A requirements or which requires extra considerations such as: ... 7
8.1.2.3 Special Category B Qualification ... 8
8.1.2.4 Category C aerodrome - An aerodrome that requires additional considerations to a Category B aerodrome. ... 8
8.1.2.5 At least one destination alternate must be selected for each IFR flight unless: ... 9
8.1.2.6 Two destination alternate aerodromes must be selected when the appropriate weather reports or forecasts or any combination of these for the destination aerodrome indicate that: ... 9
8.1.2.7 All required alternate aerodromes must be specified in the operational flight ... 9
8.1.3 Methods and responsibilities for establishing aerodrome operating minima ... 9
8.1.3.1 Destination Alternate and En-Route Alternate Aerodromes. ... 10
8.1.3.2 Operating Minima ... 12
8.1.3.3 Category I, APV (APproach with barometric Vertical guidance) and Non-precision Approach Operations ... 14
8.1.3.4 Visual reference. A pilot may not continue an approach below MDA/MDH or ... 15
8.1.3.5 Criteria for establishing RVR/CMV (Ref Table 7) ... 15
8.1.3.6 Determination of RVR/CMV/Visibility minima for Cat I, APV and - non-precision approach operations16
8.1.3.7 Conversion of reported Met Visibility to RVR/CMV ... 17
8.1.3.8 Commencement and Continuation of an Approach. CAT.OP.MPA.305 ... 20
8.1.3.9 Visual Manoeuvring/Indirect Approach. ... 20
8.1.3.10 Visual Approach. ... 23

8.1.3.11 Visual Approach / circuit at Night ... 23
8.1.4 En-route Operating Minima for VFR Flights or VFR Portions of a Flight ... 23
8.1.5 Presentation and Application of Aerodrome and En route Operating Minima ... 24
8.1.5.1 Presentation ... 24
8.1.5.2 Application ... 24
8.1.5.3 Altitude Correction Chart *(UKAIP AD 1.1 Para 2.6.3)* ... 24
8.1.6 The Methods for Interpretation of Meteorological Information ... 25
8.1.6.1 Aerodrome Weather Forecasts (TAFs) ... 27
8.1.7 Determination of the Quantities of Fuel and Oil Carried ... 28
8.1.7.1 Fuel Planning ... 28
8.1.7.2 Standard Procedure. ... 29
8.1.7.3 Reduced Contingency Fuel (RCF) procedure ... 31
8.1.7.4 Pre-determined Point (PDF) Procedure. ... 31
8.1.7.5 Fuel Management Procedures ... 32
8.1.7.6 Low fuel Quantity ... 33
8.1.7.7 Landing delays ... 33
8.1.7.8 Oil ... 33
8.1.7.9 Maintenance of Fuel and Oil Carriage and Consumption Records ... 33
8.1.8 Mass and Centre of Gravity ... 33
8.1.8.1 Definitions ... 33
8.1.8.2 Standard Mass Values ... 35
8.1.8.3 Loadsheet Requirements ... 36
8.1.9 ATS Flight Plan ... 36
8.1.10 Operational Flight Plan ... 37
8.1.11 Aeroplane Technical Log ... 38
8.1.11.1 Pilot Maintenance Procedures ... 40
8.1.12 List of Documents, Forms and Additional Information to be Carried *(CAT.GEN.MPA.180)* ... 40
8.1.13 Information to be retained on the ground ... 42

8.1 Ground Handling Instructions ... 42
8.2.1 Fuelling Procedures ... 42
8.2.1.1 At Base ... 42
8.2.1.2 En Route ... 43
8.2.1.3 Passengers on Board ... 43
8.2.2 Aeroplane, Passenger and Cargo Handling Procedures Related to Safety ... 45
8.2.2.1 Passengers and Special Categories of Passengers (SCP's) CAT.OP. MPA.155 ... 45
8.2.2.2 Baggage and Freight (Permissible size and weight of hand baggage) ... 47
8.2.2.3 Ground Operations (Including positioning of ground equipment) ... 48
8.2.2.4 Taxiing of Aeroplanes. CAT.GEN.MPA.125 ... 49
8.2.3 Procedures for the Refusal of Embarkation ... 49
8.2.3.1 The aeroplane commander has the statutory authority to refuse entry to his aeroplane of anyone whose presence in flight could represent a hazard to the safety of the aeroplane or its passengers. ... 50
8.2.3.2 In order to assist the commander in the proper exercise of this authority, ... 50
8.2.3.3 If difficulty is encountered in dealing with such passengers, particularly those who may require physical restraint, the assistance of the aerodrome, or local police should be requested. ... 50
8.2.4 De-icing and Anti-icing on the Ground ... 50
8.2.4.1 Certification for Flight in Icing Conditions ... 50
8.2.4.2 De-icing ... 50
8.2.4.3 Anti-Icing ... 53
8.2.4.4 Fluid Limits and Precautions ... 54
8.2.4.5 Procedure precautions ... 55
8.2.4.6 Flight control check ... 58

8.2.4.7 Post De-icing/Anti-icing Check 58
8.2.4.8 Pre-take-off Check 59
8.2.4.9 Pre-take-off Contamination Check 59
8.2.4.10 Communication Procedures 60
8.2.4.11 Communication prior to starting De-icing/Anti-Icing treatment 60
8.2.4.12 Post De-icing/Anti-Icing Communication 60
8.2.4.13 Anti-Icing Codes 60
8.2.4.14 Holdover time. 61
8.2.4.15 Recent developments in ground de-icing techniques include the need to evaluate the prevailing weather conditions closely and adjust holdover times accordingly. Significant factors may be that: 67
8.2.4.16 Technical Log Entries 68
8.2.4.17 Snowtam Metar and Braking Action decode 70
8.2.5 Aircraft Waste 70

8.2 Flight Procedures 71
8.3.1 Flight Plan Annotation of VFR/IFR 71
8.3.1.1 Certain customers may have additional operating restrictions. The following are specific criteria, required when operating on behalf of 'NetJets'. 71
8.3.2 Navigation Procedures 72
8.3.2.1 From time to time requests maybe made to operate outside the area/region of normal operations Para 1.1.3. 73
8.3.3 Altimeter Setting Procedures 73
8.3.3.1 Serviceability Checks 73
8.3.3.2 Setting Procedures 74
8.3.3.3 Standard Altimeter Calls 77
8.3.3.4 Temperature Error (See table para 8.3.3.5) 77
8.3.3.5 QFE Operations 77
8.3.4 Altitude Alerting System Procedures 78
8.3.5 Ground Proximity Warning System Procedures 78
8.3.5.1 GPWS is intended to provide warning of unintentional closure with the ground as a result of which remedial action can be taken by the flight crew. 78
8.3.5.2 The following table illustrates the relationship between alerts, warnings and modes. 79
8.3.5.3 Basic GPWS 79
8.3.5.4 Advanced GPWS 80
8.3.5.5 Warnings – Discretionary Action by Commander 80
8.3.5.6 Limitations 80
8.3.5.7 Unwanted Warnings 80
8.3.6 Traffic Alert and Collision Avoidance System Type II 81
8.3.6.1 ACAS II 81
8.3.7 Policy and Procedures for In-Flight Fuel Management and Cross Checking 82
8.3.8 Adverse and Potentially Hazardous Atmospheric Conditions 83
8.3.8.1 Thunderstorms 83
8.3.8.2 Use of Weather Radar – Guidance to Pilots 85
8.3.8.3 Ice and other contaminants — flight procedures CAT.OP.MPA.255 86
8.3.8.4 Turbulence 86
8 3.8.5 Windshear 86
8.3.8.6 Jetstreams 87
8.3.8.7 Clear Air Turbulence 87
8.3.8.8 Rain, Snow and Other Precipitation 87
8.3.8.9 Sandstorms 88
8.3.8.10 Volcanic Ash (also refer to AOC.OP.051-Volcanic Ash Procedure) 88
8.3.8.11 Mountain Waves 88

8.3.8.12 Significant Temperature Inversions 89
8.3.9 Wake Turbulence 89
8.3.9.1 Weight parameters (maximum take-off mass in kg) 89
8.1.9.2 Wake Turbulence Spacing Minima 90
8.3.10 Crew Members at their Stations 93
8.3.10.1 Flight Crew..... 93
8.3.10.2 Sterile Cockpit..... 93
8.3.11 Use of Crew/Passenger Safety Belts/Harnesses 94
8.3.11.1 Crew 94
8.3.11.2 Passengers *(refer to 8.3.15.1)* 94
8.3.12 Admission to Flight Deck CAT.GEN.MPA.135..... 95
8.3.13 Use of Vacant Crew Seats 95
8.3.14 Incapacitation of Flight Crew Members 96
8.3.14.1 Partial or Gradual Incapacitation..... 96
8.3.14.2 Sudden or Complete Incapacitation 96
8.3.14.3 Two pilot crew..... 97
8.3.14.4 Summary..... 97
8.3.14.5 The 'Two Communication' rule 97
8.3.15 Cabin Safety Requirements - Procedures 97
8.3.15.1 Cabin Preparation..... 98
8.3.15.2 Seating Passengers to best assist and not hinder an evacuation 102
8.3.15.3 Passenger Embarkation and Disembarkation..... 103
8.3.15.4 Refuelling/defuelling with passengers embarking, on board or disembarking. 103
8.3.15.5 The carriage of Special Category Passengers (SCP's):..... 103
8.3.15.6 Smoking on Board (Refer to 8.12.20) 103
8.3.15.7 Handling of Infectious diseases. 104
8.3.16 Passenger Briefing Procedures CAT.OP.MPA.170..... 104
8.3.16.1 Expanded Passenger briefing Information..... 106
8.3.16.2 Additional Briefings 107
8.3.17 Cosmic and Solar Radiation Detection Equipment Requirements..... 108
8.3.18 Use of Auto-pilot and Auto-throttle..... 110
8.3.18.1 Use of Headsets..... 110
8.3.19 Radio Communication..... 110
8.3.20 Emergency Locator Transmitter (ELT)..... 111
8.3.21 Erroneous ELT Activation..... 111
8.3.22 Threshold Crossing Height, normal and steep approaches..... 111
8.3.22.1 Approaches using VASI..... 111
8.3.23. Mode S and Flight ID 112
8.3.24 Rates of Climb and Descent..... 112
8.3.25 Operational Procedures..... 112
8.3.25.1 Terminology 112
8.3.26 Electronic Navigation Data Management 114
8.3.27 Electronic Flight Bag (EFB) 114
8.3.28 RNAV - AREA NAVIGATION..... 114
8.3.29 Radar Approaches 121

8.4 Low Visibility Operations (SPA.LVO.100) 122
8.4.1 Operating Minima 122
8.4.1.1 Definitions: Non-precision and Category 1 Operations..... 123
8.4.1.2 Operating Procedures..... 125
8.4.2 Low Visibility Operations (CAT II / CAT III) (SPA.LVO.100)..... 132
8.4.2.1 Definitions 133

8.5 ETOPS REFER TO SPA.ETOPS.100 ETOPS 138
8.5.1 Specific Approval 138
8.6 Use of Minimum Equipment and Configuration Deviation Lists 139
8.6.1 Unserviceabilities 139
8.6.2 Minimum Equipment List (MEL) 139
8.6.3 Configuration Deviation List (CDL) 139
8.6.4 Specific MEL 139
8.7 Non-commercial Operations (Complex Aircraft) 139
8.7.1 When carrying company personnel only 139
8.7.2 Training flights. 140
8.7.3 Maintenance check flights 140
8.7.4 Delivery flights. 141
8.7.5 Ferry flights 141
8.7.6 Demonstration flights 141
8.7.7 Positioning flights 141
8.7.8 Exemptions for Part NCC operations. 141
8.7.9 Land After Hold Short Operations (LAHSO). 141
8.8 Oxygen Requirements 141
8.8.1 Supplemental oxygen Non-pressurised Aeroplanes (CAT.IDE.A.235) 141
8.8.2 Supplemental Oxygen - Pressurised Aeroplanes (CAT.IDE.A.235) 142
8.8.2.1 Flight Crew (AMC2 CAT.IDE.A.235) 142
Cabin Crew 143
8.8.2.3 Passengers 143
8.8.3 Crew Protective Breathing Equipment – Pressurised Aeroplanes 145
8.8.3.1 Protective Breathing Equipment requirements for pressurised aeroplanes are as follows: 145
8.8.4 Crew Protective Breathing Equipment, Non-pressurised Aeroplanes – Future Requirement 145
8.9 Specific Aircraft Operational Procedures 145
8.9.1 Noise Abatement Procedures aeroplanes - CAT.OP.MPA.130 146
8.9.1.1 Objectives 146
8.9.1.2 Approach Aids 146
8.9.1.3 Aircraft Operating at Airports 146
8.9.1.4 ATC Management 146
8.9.1.5 Manufacturers 146
8.9.1.6 Take-off 146
8.9.1.7 Departure Procedures for Distant Noise Abatement Objectives 147
8.9.1.8 Departure Procedures for Close in Noise Abatement Objectives 147
8.9.1.9 Approach and Landing Noise Abatement Procedures 147
8.9.1.10 Training 148
8.9.1.11 Company SOPs 148
8.9.1.12 Use of APU on the ground *(noise restrictions)* 148
8.9.2 Approach Flight Technique *(CAT.OP.MPA.115)* 148
8.9.2.1 Introduction 148
8.9.2.2 Circling Approach 149
8.9.2.3 Stabilized approach 150
8.9.2.4 Missed Approach Point 151
8.9.2.5 Training 151
8.9.2.6 Landing in the Touchdown Zone 151
8.9.3 Aircraft Pre-Flight and Post Flight Procedures 151
8.9.3.1 Post Flight Checks 152

8.9.3.2 Post Flight Checklist 152

8.10 Cabin procedures 153

8.10.1 Expanded SEP Section 153
8.10.2 Aircraft Dimensions 154
8.10.3 Cabin Configuration 154
8.10.3.1 Safety Equipment 154
8.10.3.2 Flight Crew Seating 154
8.10.3.3 Passenger Seating and Seats 154
8.10.3.4 Seat Belts 155
8.10.4 Lavatory 155
8.10.4.1 Internal Baggage Compartment 155
8.10.4.2 Curtains and Partitions 156
8.10.5 Crew Duties (Cabin) 156
8.10.5.1 Normal Responsibilities 156
8.10.5.2 Other Responsibilities 156
8.10.5.3 Responsibilities in Emergency Situations 156
8.10.6 Emergency Equipment Locations (refer to Part B type specific) 157
8.10.7 Electrical Systems 157
8.10.7.1 Normal Lighting System 157
8.10.7.2 Emergency Lighting System 157
8.10.7.3 Circuit Breakers 157
8.10.7.4 Torches 158
8.10.8 Oxygen Systems 158
8.10.8.1 Cabin Oxygen System 158
8.10.9 Oxygen Mask Compartment Arrangement 159
8.10.9.1 Flight Crew Oxygen 159
8.10.10 Communication Systems 159
8.10.10.1 Public Address 159
8.10.11 Exits 160
8.10.11.1 Location of Exits 160
8.10.11.2 Passenger Operation of Exits 160
8.10.11.3Airstair Entrance Door 160
8.10.11.4 Opening Airstair Entrance Door From Outside 161
8.10.11.5 Opening Airstair Entrance Door From Inside 161
8.10.11.6 Closing Airstair Entrance Door From Outside 161
8.10.11.7 Closing Airstair Entrance Door From Inside 161
8.10.11.8 Emergency Exit Window 161
8.10.11.9 Emergency Exit Window – Operation 162
8.10.11.10 To open the Emergency Exit Window from the inside 162
8.10.11.11 Emergency Exit Window – Locking Pin 162

8.11 Emergency Cabin Procedures 162

8.11.1 Requirements 162
8.11.2 Scope 162
8.11.3 Definition of Types of Emergencies 163
8.11.3.1 Planned 163
8.11.3.2 Planned Crash Landing or Ditching 163
8.11.3.3 Unplanned 163
8.11.4 Crew Co-Ordination 163
8.11.5 Notification of Emergencies 164
8.11.5.1 Planned Emergencies 164

8.11.5.2 Unplanned Emergencies 164
8.11.6 Assistance of Able-Bodied Persons 164
8.11.6.1 Selection 164
8.11.7 Brace Positions 165
8.11.7.1 Standard Brace Position 165
8.11.8 Crowd Control 166
8.11.8 1 Passenger Management 166
8.11.8.2 Possible Passenger Reaction 167
8.11.8.3 Passenger Management after Evacuation 167
8.11.8.4 Instructions for Evacuation 167
8.11.9 Carraige of Special Category Passengers (SCP's) 167
8.11.9.1 Quadriplegic 168
8.11.9.2 Paraplegic Passenger (Non-Ambulatory) 168
8.11.9.3 Blind Passengers 168
8.11.10 Unusable Exits 168
8.11.10.1 Definition 168
8.11.11 Land Evacuation and Ditching - General Principles 168
8.11.11.1 Personal Passenger Briefing 169
8.11.12 Land Evacuation and Ditching Procedures 170
8.11.12.1 Evacuation Procedures - No Hazard Present (Land) 170
8.11.12.2 Evacuation Procedures - Hazard Present (Land) 170
8.11.12.3 Evacuation Procedures - No Hazard Present (Ditching) 171
8.11.12.4 Evacuation Procedures - Hazard Present (Ditching) 171
8.11.13 Rejected Take-Off 171
8.11.13.1 Exercise crowd control techniques. 171
8.11.13.2 Liaison with Emergency Services 171
8.11.14 Pilot Incapacitation 172
8.11.14.1 Action 172
8.11.14.2 Assisting With Drills 172
8.11.15 Decompression 172
8.11.15.1 Introduction 172
8.11.15.2 Slow Decompression 173
8.11.15.3 Actions to be taken in case of a slow decompression 173
8.11.15.4 Rapid Decompression 173
8.11.15.5 Actions to be taken in a Rapid Decompression 173
8.11.15.6 Monitoring of Passengers 174
8.11.15.7 Check of Passengers and Cabin Security 174
8.11.15.8 Administering Oxygen 174
8.11.15.9 Administer first aid as required 174
8.11.16 Fire 174
8.11.16.1 Basic Theory of Fire and Smoke 174
8.11.16.2 Combustion 174
8.11.16.3 Extinguishing a Fire 175
8.11.16.4 Smoke Development 175
8.11.16.5 Fire Sources 176
8.11.16.6 High Risk Areas 176
8.11.16.7 Equipment to Use 176
8.11.16.8 General Procedures 177
8.11.16.9 Tactics and Techniques 177
8.11.16.10 Actions to be taken by the Fire Fighting Team 177
8.11.16.11 Fire Fighting Procedures 178

8.12 Normal Cabin Procedures ... *179*
8.12.1 Communication and Co-Ordination ... 179
8.12.2 Pre-Departure Safety Equipment Checks *(refer to 8.3.15.1)* ... 179
8.12.3 Unauthorised Carriage ... 179
8.12.4 Inadmissible Passengers and Refusal of Embarkation *(refer to 8.2.3)* ... 180
8.12.5 Passenger Seat Allocation/Restrictions ... 180
8.12.6 Multi-Occupancy of Seats ... 180
8.12.7 Carriage of Special Categories of Passengers ... 180
8.12.8 Securing of Cabin and Galleys for Take-off and Landing ... 180
8.12.9 Taxi, Take-Off, Pre- Landing, And Post-Landing ... 180
8.12.10 In-Flight ... 180
8.12.11 Cabin Preparation for Landing *(refer to 8.2.2, 8.3.15.1a) and 8.12.8)* ... 180
8.12.12 Pre-Landing ... 180
8.12.13 Post Landing and Taxi-In ... 180
8.12.13.1 Transit ... 180
8.12.13.2 Door Cover (Passengers remaining on board) ... 181
8.12.14 Refuelling With Passengers on Board ... 181
8.12.15 Passenger Disembarkation *(refer to 8.3.15.3)* ... 181
8.12.16 Flight Crew Drinks and Meals *(refer to 6.1)* ... 181
8.12.16.1 Further Precautions ... 181
8.12.17 Admission to the Flight Deck ... 181
8.12.18 Injury and Death on Board *(refer to section 11)* ... 181
8.12.19 Fire Prevention *(refer to 8.11.6 – Fire)* ... 181
8.12.20 Smoking Restrictions *(refer to 8.3.15.1 f))* ... 182
8.12.21 Live Animals in the Cabin ... 182
8.12.21.1 Carriage of Guide Dogs and Assistance Dogs ... 182
8.12.22 Portable Electronic Devices (CAT.GEN.MPA.120) ... 183
8.12.22.1 GENERAL ... 183
8.12.22.2 Definitions (GM1 CAT.GEN.MPA.140) ... 186
8.12.22.3 Portable electronic devices (GM2 CAT.GEN.MPA.140) ... 187

9 SECTION 9 DANGEROUS GOODS AND WEAPONS ... 1

9.1 Policy on the Transport of Dangerous Goods ... *1*
9.1.1 Approval for the Transport of Dangerous Goods *(CAT.GEN.MPA.200, SPA.DG.105)* ... 1
9.1.2 Forbidden Dangerous Goods (CAT.GEN.MPA.200 (c), GM1 CAT.GEN.MPA.200) ... 1
9.1.3 General Exceptions ... 2
9.1.3.1 Airworthiness and Operational Items *(CAT.GEN.MPA.200 (b)(1))* ... 2
9.1.3.2 Veterinary Aid (CAT.GEN.MPA.200 (b)(1)) ... 3
9.1.3.3 Medical Aid for a Patient *(CAT.GEN.MPA.200 (b)(1))* ... 3
9.1.3.4 Excess baggage being sent as cargo ... 4
9.1.4 Instructions on the Carriage of Employees of the Operator *(AMC2 CAT.OP.MPA.160)* ... 4
9.1.5 Items That May Be Carried by Passengers and Crew *(CAT.GEN.MPA.200 (b)(2))* ... 4
9.1.5.2 Loading of battery powered mobility aids – general requirements: ... 6
9.1.5.3 Additional requirements for non-spill able wet battery powered mobility aids: ... 6
9.1.5.4 Additional requirements for spill able battery powered mobility aids: ... 7
9.1.5.5 Additional requirements lithium ion battery powered mobility aids ... 7
9.1.5.6 The Organization for the Prohibition of Chemical Weapons (OPCW) and government agencies listed in the table below may carry specified instruments containing dangerous goods when: ... 15
9.1.6 Provision of Information to Passengers *(CAT.GEN.MPA.200 (f))* ... 16
9.1.7 Marking and Labelling of Packages ... 17

CLASS 1 – EXPLOSIVE 17

CLASS 2 – GASES 17

CLASS 3 – FLAMMABLE LIQUID 18

CLASS 4 – FLAMMABLE SOLIDS; Substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases. 18

CLASS 5 – OXIDISING SUBSTANCES AND ORGANIC PEROXIDES 18

CLASS 6 – TOXIC AND INFECTIOUS SUBSTANCES 19

CLASS 7 – RADIOACTIVE MATERIAL 19

CLASS 8 – CORROSIVE 20

CLASS 9 – MISCELLANEOUS 20

LITHIUM BATTERIES MARK 20

HANDLING LABELS 20

.... 21

EXCEPTED QUANTITIES MARK 21

LIMITED QUANTITIES MARK 22

ENVIRONMENTALLY HAZARDOUS SUBSTANCES MARK 22

9.2 Duties of all Personnel Involved *23*

9.2.1 Detailed Assignments of Responsibilities *(CAT.GEN.MPA.200 (d))* 23

9.3 Guidance on the Requirements for Acceptance, Handling and Stowage (SPA.DG.105) *25*

9.3.1 Acceptance Check 25

9.3.2 Inspections for Damage or Leakage *(SPA.DG.105)* 26

9.3.3 Prohibition on the Carriage of Dangerous Goods Within a Cabin Occupied by Passengers *(SPA.DG.105)* 26

9.3.4 Prohibition on the Carriage of Passengers with ‘Cargo Aircraft Only’ Dangerous Goods *(SPA.DG.105)* .. 26

9.3.5 Segregation, Separation and CAO Accessibility *(SPA.DG.105)* ... 26
9.3.5.1 Dangerous goods must be loaded, stowed and secured on an aircraft as required by the IATA Regulations. This includes segregating packages from each other when they contain incompatible dangerous goods, the separation of explosives of different division numbers and compatibility groups (when required), securing packages in a manner that will prevent any movement. Dangerous goods must also be protected so they cannot be damaged by the movement of baggage, mail, stores or other cargo. ... 26
9.3.5.2 With certain exceptions (see Note 1) packages and overpacks bearing the "Cargo Aircraft Only" label must be loaded for carriage by a cargo aircraft (see 9.3.4) in accordance with one of the following provisions: ... 26
9.3.5.3 Packages and overpacks containing UN 3480 — Lithium ion batteries prepared in accordance with Section IA or Section IB of Packing Instruction 965 and packages and overpacks containing UN 3090 — Lithium metal batteries prepared in accordance with Section IA or Section IB of Packing Instruction 968 must not be stowed on an aircraft next to, or in a position that would allow interaction with, packages or overpacks containing dangerous goods which bear a Class 1, other than Division 1.4S, Division 2.1, Class 3, Division 4.1 or Division 5.1 hazard label. ... 27

Hazard Label ... 27

Division and Compatibility Group ... 28

9.3.6 Loading of Dry Ice *(SPA.DG.105)* ... 29
9.3.7 Loading of Magnetised Material *(SPA.DG.105)* ... 29
9.3.8 Loading of Radioactive Material *(SPA.DG.105)* ... 29
9.3.9 Loading of UN2211, Polymeric beads, expandable or UN3314, Plastics Moulding compound ... 32
9.3.10 Notification to Captain *(NOTOC) (AMC SPA.DG.110(a))* ... 32
9.3.11 Availability of NOTOC on the Ground for the Duration of Flight *(SPA.DG.110)* ... 34
9.3.12 Retention of Documents (ORO.MLR.115 (b)(4), SPA.DG.110(f)) ... 34
9.3.13 Ad Hoc Charters *(CAT.GEN.MPA.200 (a))* ... 34

9.4 Recognition of Undeclared / Hidden Dangerous Goods (CAT.GEN.MPA.200(e)) ... 34
9.4.1 'Hidden' Dangerous Goods ... 34
9.4.1.1 Identification of Dangerous Goods Through X-Ray Screening ... 37
9.4.1.2 Safety Data Sheets ... 37
9.4.1.3 GHS Consumer Labelling (Overview) ... 38
9.4.1.4 GHS Labels ... 38

9.5 Emergency Situations (AMC1 SPA.DG.105(b)) ... 38
9.5.1 Provision of Information for Use in Responding to In-Flight Emergencies (SPA.DG.110) ... 38
9.5.2 For procedures for responding to emergency situations see section 11.10. ... 39

9.6 Conditions Under Which Weapons, Munitions of War and Sporting Weapons May Be Carried (CAT.GEN.MPA.155, CAT.GEN.MPA.160) ... 39
9.6.1 Need for Approval to Transport Munitions of War *(CAT.GEN.MPA.155)* ... 39
9.6.2 Stowage Requirements for Munitions of War *(EC Regulation 300/2008)* ... 39
9.6.3 Notifying Commander of the Carriage of Munitions of War *(CAT.GEN.MPA.155)* ... 39
9.6.4 Carriage of Sporting Weapons When Inaccessible to Passengers During Flight *(CAT.GEN.MPA.160)* ... 40
9.6.5 The passenger and operator *(or his agent)* must observe all regulations applicable to the export, import and transit of weapons and ammunition, applicable in the country of departure, transit and destination. ... 40

10 SECTION 10 - SECURITY ... 1

10.1 General ... 1

11 Section 11 - Handling of Accidents and Occurrence Reporting *ORO.GEN.160* ... 1

11.1 Accidents ... 1
11.2 Serious Injury ... 1
11.2.1 Airprox ... 1
11.2.2 Birdstrike ... 2
11.3 Pilot Post Accident Procedures ... 2
11.4 Aircraft Accident Reporting ... 2
11.5 Accident Reporting Procedures ... 2
11.6 Responsibility for Accident Reporting ORO.GEN.200(a)(3) ... 3
11.7 Informing the Company by Fax or AFTN ... 3
11.8 Follow-up Information ... 4
11.9 Reporting by Telephone ... 5
11.10 Special Notification Requirements in the Event of an Accident or Occurrence When Dangerous Goods are Being Carried or Have Been Offered for Air Transport Without Having Been Prepared and Declared in Accordance with the ICAO Technical Instructions) ... 5
11.10.1 Information to be Provided by the Pilot-In-Command in the Event of an In-Flight Emergency (AMC1 SPA.DG.105(b)) ... 5
11.10.2 Information to be Provided by the Operator in the Event of an Aircraft Accident or Serious Incident Where Dangerous Goods Carried as Cargo may be Involved ... 5
11.10.3 Information to be Provided by the Operator in the Event of an Aircraft Incident (AMC1 SPA.DG.105(b)) ... 5
11.10.4 Dangerous Goods Accident and Incident Reports (CAT.GEN.MPA.200(e)) ... 6
11.10.5 Removal of Contamination (SPA.DG.105) ... 8
11.11 Accident Report Distribution (see also paragraph 11.5) ... 9
11.12 Flying after an Accident ... 9
11.13 Incident ... 9
11.14 Serious Incidents ... 10
11.15 Incident Investigation - Refer to Safety Management Manual ... 10
11.16 Incident Reporting Procedures ... 11
11.17 Local Assessment ... 11
11.18 Supporting Information ... 11
11.19 Accident and Incident Report Distribution ... 12
11.20 Mandatory Occurrence Reporting Scheme ... 12
11.20.1 Objectives of the Scheme ... 12
11.20.2 Occurrence Reporting Analysis ... 12
11.20.3 Informing Base of Occurrences ... 14
11.21 Air Accident Report ... 14
11.21.1 General ... 14
11.22 Anonymous Reporting Procedures ... 15
11.23 Airprox, Wake Vortex and Bird strike Occurrences ... 15
11.23.1 Use of Forms ... 15

11.24 Reporting an Airprox via ATC *15*

11.25 Wake Turbulence *15*

11.26 Special Notification Requirements in the Event of an Accident or Occurrence When Dangerous Goods are Being Carried or Have Been Offered for Air Transport Without Having Been Prepared and Declared in Accordance with the ICAO Technical Instructions (CAT.GEN.MPA.200(e)) *15*

11.26.1 Information to be Provided by the Pilot-in-Command in the Event of an In-Flight Emergency *(AMC1 SPA.DG.105(b))* 16

11.26.2 Information to be Provided by the Operator in the Event of an Aircraft Accident or Serious Incident where Dangerous Goods Carried as Cargo may be involved 16

11.26.3 Information to be Provided by the Operator in the Event of an Aircraft Incident *(AMC1 SPA.DG.105 (b))* 16

11.26.4 Dangerous Goods Accident and Incident Reports *(CAT.GEN.MPA.200(e))* 16

11.27 Removal of Contamination (SPA.DG.105) *18*

11.28 Unlawful Interference *19*

11.29 Irregularities in Ground and Navigational Facilities and Hazardous Conditions *19*

11.30 Confidential Human Factors Incident Reporting Programme (CHIRP) *20*

11.31 Confidentiality *20*

12 SECTION 12 - Rules of the Air 1

12.1 Refer to the Standardised European Rules of the Air (SERA) *1*

13 Section 13 – Leasing 1

13.1 Philosophy *1*

13.2 Responsibility and Restrictions *1*

13.3 Terminology *1*

13.4 Leasing of Aeroplanes between Community Operators *1*

13.4.1 Wet lease 1

13.4.2 Dry/Wet/Damp Lease 2

Appendix 1 - Map of Area of Operation 1

Appendix 2 - Fuel Plan 1

Appendix 3 - Example Flight Plogs 1

Appendix 4 - Example Flight Brief 1

Appendix 5 - Technical Log *(FRM-MG-300)* 1

Appendix 6 - Deferred Defect Sheet 1

Appendix 7 - Example Load Sheet (type specific) 1

Appendix 8 – Example Discretion Reports 1

Appendix 9 – MOR Certificate *(SRG 1601)* 1

Appendix 10 - Operator/aircraft Certificates, Approvals and Exemptions 1

Section 0 – GENERAL / BASIC

0 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL.

ORO.MLR.100

0.1 Introduction

(a) The Company Operations Manual is produced by Gama Aviation (UK) Limited in accordance with the European Commission (EC) Basic Regulation 2018/1139 of the European Parliament, and the Council of 20 Feb 2008 common rules in the field of civil aviation establishing a European Aviation Safety Agency (EASA).

The rules and operational instructions contained herein the Gama Aviation (UK) Ltd Operations Manual are compliant with Commission Regulation 965/2012 (Implementing Rules) dated 5 October 2012 and the associated Acceptable Means of Compliance (AMC) where applicable.

A functioning Management System is a requirement of the EASA AOC, therefore, to ensure and demonstrate compliance with applicable EASA requirements, Gama Aviation (UK) Limited have established a Management System in accordance with instructions contained within the Gama Aviation (UK) Limited Safety Management manual (SMM).

The Gama Aviation (UK) Ltd Management System, the Operations Manual and its contents are acceptable to the Competent Authority (UK Civil Aviation Authority).

The Safety Management Program, EASA compliant AOC Certificate and accompanying documents may be referred to, in the Management Administration Department/ Compliance Department. These documents are available to authorised persons and to others on request.

The Operations Manual hereby complies with the terms and conditions of the 'Air Operator's Certificate' issued to Gama Aviation (UK) Ltd, referred to herein as the 'Operator'. The manual can also be reviewed electronically on the company computer systems and iPads..

(b) The manual is for the use and guidance of all company operating staff, *(ORO.MLR.101)* they are to ensure that all Commercial Air Transport flights are planned and executed in accordance with its policies and requirements. For the purpose of clarity,

'Commercial air transport (CAT) operations' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration *(*Definitions 965/2012).

(c) The manual is broadly sub-divided into the following Parts, which may be supplemented by such other publications as the aeroplane flight manual or pilot's operating handbook, and commercially produced route and airways manuals:

Applicability to each aircraft operated for Commercial Air Transport is shown.

- Part A - General/Basic Information, Requirements and Operations.

- Part B - Aeroplane Type Operating Procedures and Requirements.
- Part C - Route and Aerodrome Instructions.
- Part D - Training Manual.

Applicability:

Beechcraft King Air B200C	-	G-SASC;
Beechcraft King Air B200C	-	G-SASD;
Beechcraft King Air B200	-	G-PCOP;
Beechcraft King Air B200	-	G-GMAE;
Hawker 850XP	-	G-CERX;
Challenger 604	-	G-XONE;
Challenger 604	-	G-DAYA;
Challenger 604	-	G-FABO;
Challenger 605	-	G-DAYR;
Global BD700-1A10	-	G-OCAK;
Global BD700-1A10	-	G-MAZS;
Global BD700-1A10	-	G-CGSJ;
Cessna 560XLS	-	G-CXLS;
Cessna 560XLS+	-	G-OJER;
Cessna 560XLS+	-	G-SNJS;
Cessna 510	-	G-SCCA;

(d) **Definitions for terms used in Annexes II to V *(*Regulation 965/2012)**

For the purpose of this Regulation, and applied in this manual the following definitions shall apply:

(1) **‘accelerate-stop distance available (ASDA)’** means the length of the take-off run available plus the length of stop way, if such stop way is declared available by the State of the aerodrome and is capable of bearing the mass of the aeroplane under the prevailing operating conditions;

(2) **‘acceptable means of compliance (AMC)’** means non-binding standards adopted by the Agency to illustrate means to establish compliance with Regulation (EC) No 2018/1139 and its Implementing Rules;

(3) **‘acceptance checklist’** means a document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met with;

(4) **‘adequate aerodrome’** means an aerodrome on which the aircraft can be operated, taking account of the applicable performance requirements and runway characteristics;

(5) **For the purpose of passenger classification:**

a. ‘adult’ means a person of an age of 12 years and above;

b. ‘child/children’ means persons who are of an age of two years and above but who are less than 12 years of age;

c. ‘infant’ means a person under the age of two years;

(6) **‘aeroplane’** means an engine-driven fixed-wing aircraft heavier than air that is supported in flight by the dynamic reaction of the air against its wings;

(7) **'aided night vision imaging system (NVIS) flight'** means, in the case of NVIS operations, that portion of a visual flight rules (VFR) flight performed at night when a crew member is using night vision goggles (NVG);

(8) **'aircraft'** means a machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface;

(9) **'alternative means of compliance'** means those means that propose an alternative to an existing acceptable means of compliance or those that propose new means to establish compliance with Regulation (EC) No 2018/1139 and its Implementing Rules for which no associated AMC have been adopted by the Agency;

(10) **'anti-icing'**, in the case of ground procedures, means a procedure that provides protection against the formation of frost or ice and accumulation of snow on treated surfaces of the aircraft for a limited period of time (hold-over time);

(11) **'category I (CAT I) approach operation'** means a precision instrument approach and landing using an instrument landing system (ILS), microwave landing system (MLS), GLS (ground-based augmented global navigation satellite system (GNSS/GBAS) landing system), precision approach radar (PAR) or GNSS using a satellite-based augmentation system (SBAS) with a decision height (DH) not lower than 200 ft and with a runway visual range (RVR) not less than 550 m for aeroplanes and 500 m for helicopters;

(12) **'category II (CAT II) operation'** means a precision instrument approach and landing operation using ILS or MLS with:

a. DH below 200 ft but not lower than 100 ft; and
b. RVR of not less than 300 m;EN 25.10.2012 Official Journal of the European Union L 296/5

(13) **'category IIIA (CAT IIIA) operation'** means a precision instrument approach and landing operation using ILS or MLS with:

a. DH lower than 100 ft; and
b. RVR not less than 200 m;

(14) **'category IIIB (CAT IIIB) operation'** means a precision instrument approach and landing operation using ILS or MLS with:

a. DH lower than 100 ft, or no DH; and
b. RVR lower than 200 m but not less than 75 m;

(15) **'category A with respect to helicopters'** means a multi-engined helicopter designed with engine and system isolation features specified in the applicable airworthiness codes and capable of operations using take-off and landing data scheduled under a critical engine failure concept that assures adequate designated surface area and adequate performance capability for continued safe flight or safe rejected take-off in the event of engine failure;

(16) **'category B with respect to helicopters'** means a single-engined or multi-engined helicopter that does not meet category A standards. Category B helicopters have no guaranteed capability to continue safe flight in the event of an engine failure, and unscheduled landing is assumed;

(17) **'certification specifications'** (CS) means technical standards adopted by the Agency indicating means to show compliance with Regulation (EC) No 2018/1139 and its Implementing Rules and which can be used by an organisation for the purpose of certification;

(18) ***'circling'*** *means the visual phase of an instrument approach to bring an aircraft into* position for landing on a runway/FATO that is not suitably located for a straight-in approach;

(19) **‘clearway’** means a defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height;

(20) **‘cloud base’** means the height of the base of the lowest observed or forecast cloud element in the vicinity of an aerodrome or operating site or within a specified area of operations, normally measured above aerodrome elevation or, in the case of offshore operations, above mean sea level;

(21) **‘code share’** means an arrangement under which an operator places its designator code on a flight operated by another operator, and sells and issues tickets for that flight;

(22) ‘**congested area’** means in relation to a city, town or settlement, any area which is substantially used for residential, commercial or recreational purposes;

(23) **‘contaminated runway’** means a runway of which more than 25 % of the runway surface area within the required length and width being used is covered by the following:

a. surface water more than 3 mm (0,125 in) deep, or by slush, or loose snow, equivalent to more than 3 mm (0,125 in) of water;
b. snow which has been compressed into a solid mass which resists further compression and will hold together or break into lumps if picked up (compacted snow); or
c. ice, including wet ice;

(24) **‘contingency fuel’** means the fuel required to compensate for unforeseen factors that could have an influence on the fuel consumption to the destination aerodrome;

(25) **‘continuous descent final approach (CDFA)’** means a technique, consistent with stabilised approach procedures, for flying the final-approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare manoeuvre shall begin for the type of aircraft flown;EN L 296/6 Official Journal of the European Union 25.10.2012

(26) **‘converted meteorological visibility (CMV)**’ means a value, equivalent to an RVR, which is derived from the reported meteorological visibility;

(27) **‘crew member’** means a person assigned by an operator to perform duties on board an aircraft;

(28) **‘critical phases of flight’** in the case of aeroplanes means the take-off run, the take-off flight path, the final approach, the missed approach, the landing, including the landing roll, and any other phases of flight as determined by the pilot-in-command or commander;

(29) **‘critical phases of flight’** in the case of helicopters means taxiing, hovering, take-off, final approach, missed approach, the landing and any other phases of flight as determined by the pilot-in-command or commander;

(30) **‘damp runway’** means a runway where the surface is not dry, but when the moisture on it does not give it a shiny appearance;

(31) **‘dangerous goods (DG)’** means articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the technical instructions or which are classified according to those instructions;

(32) **‘dangerous goods accident’** means an occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property damage;

(33) **‘dangerous goods incident’** means:

a. an occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained;
b. any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants;

(34) **‘de-icing’**, in the case of ground procedures, means a procedure by which frost, ice, snow or slush is removed from an aircraft in order to provide uncontaminated surfaces;

(35) **‘defined point after take-off (DPATO)’** means the point, within the take-off and initial climb phase, before which the helicopter’s ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

(36) **‘defined point before landing (DPBL)’** means the point within the approach and landing phase, after which the helicopter’s ability to continue the flight safely, with the critical engine inoperative, is not assured and a forced landing may be required;

(37) **‘distance DR’** means the horizontal distance that the helicopter has travelled from the end of the take-off distance available;

(38) **‘dry lease agreement’** means an agreement between undertakings pursuant to which the aircraft is operated under the air operator certificate (AOC) of the lessee;

(39) **‘dry operating mass’** means the total mass of the aircraft ready for a specific type of operation, excluding usable fuel and traffic load;

(40) **‘dry runway’** means a runway which is neither wet nor contaminated, and includes those paved runways which have been specially prepared with grooves or porous pavement and maintained to retain ‘effectively dry’ braking action even when moisture is present;

(41) **‘elevated final approach and take-off area (elevated FATO)’** means a FATO that is at least 3 m above the surrounding surface;

(42) **‘en-route alternate (ERA) aerodrome’** means an adequate aerodrome along the route, which may be required at the planning stage;

(43) **‘enhanced vision system (EVS)’** means a system to display electronic real-time images of the external scene achieved through the use of imaging sensors;EN 25.10.2012 Official Journal of the European Union L 296/7

(44) **‘final approach and take-off area (FATO)’** means a defined area for helicopter operations, over which the final phase of the approach manoeuvre to hover or land is completed, and from which the take-off manoeuvre is commenced. In the case of helicopters operating in performance class 1, the defined area includes the rejected take-off area available;

(45) **‘flight data monitoring (FDM)’** means the proactive and non-punitive use of digital flight data from routine operations to improve aviation safety;

(46) **‘flight simulation training device (FSTD)’** means a training device which is:
a. in the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT), or a basic instrument training device (BITD);
b. in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT);

(47) **‘fuel ERA aerodrome’** means an ERA aerodrome selected for the purpose of reducing contingency fuel;

(48) **'GBAS landing system (GLS)'** means an approach landing system using ground based augmented global navigation satellite system (GNSS/GBAS) information to provide guidance to the aircraft based on its lateral and vertical GNSS position. It uses geometric altitude reference for its final approach slope;

(49) **'ground emergency service personnel'** means any ground emergency service personnel (such as policemen, firemen, etc.) involved with helicopter emergency medical services (HEMSs) and whose tasks are to any extent pertinent to helicopter operations;

(50) **'grounding'** means the formal prohibition of an aircraft to take-off and the taking of such steps as are necessary to detain it;

(51) **'head-up display (HUD)'** means a display system which presents flight information to the pilot's forward external field of view and which does not significantly restrict the external view;

(52) **'head-up guidance landing system (HUDLS)'** means the total airborne system that provides head-up guidance to the pilot during the approach and landing and/or missed approach procedure. It includes all sensors, computers, power supplies, indications and controls;

(53) **'helicopter'** means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes;

(54) **'helicopter hoist operation (HHO) crew member'** means a technical crew member who performs assigned duties relating to the operation of a hoist;

(55) **'helideck'** means a FATO located on a floating or fixed offshore structure;

(56) **'HEMS crew member'** means a technical crew member who is assigned to a HEMS flight for the purpose of attending to any person in need of medical assistance carried in the helicopter and assisting the pilot during the mission;

(57) **'HEMS flight'** means a flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:

a. medical personnel;

b. medical supplies (equipment, blood, organs, drugs); or

c. ill or injured persons and other persons directly involved;

(58) **'HEMS operating base'** means an aerodrome at which the HEMS crew members and the HEMS helicopter may be on stand-by for HEMS operations;

(59) **'HEMS operating site'** means a site selected by the commander during a HEMS flight for helicopter hoist operations, landing and take-off; EN L 296/8 Official Journal of the European Union 25.10.2012

(60) **'HHO flight'** means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist;

(61) **'HHO offshore'** means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist from or to a vessel or structure in a sea area or to the sea itself;

(62) **'HHO passenger'** means a person who is to be transferred by means of a helicopter hoist;

(63) **'HHO site'** means a specified area at which a helicopter performs a hoist transfer;

(64) **'hold-over time (HoT)'** means the estimated time the anti-icing fluid will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane;

(65) **'hostile environment'** means:

a. an environment in which:

(66) a safe forced landing cannot be accomplished because the surface is inadequate;

1. (ii) the helicopter occupants cannot be adequately protected from the elements;
2. (iii) search and rescue response/capability is not provided consistent with anticipated exposure; or
3. (iv) there is an unacceptable risk of endangering persons or property on the ground;

b. in any case, the following areas:

c. for overwater operations, the open sea areas north of 45N and south of 45S designated by the authority of the State concerned;

d. those parts of a congested area without adequate safe forced landing areas;

(67) '**Isolated aerodromes**
An **isolated aerodrome** is one for which the alternate and final fuel reserve required to the nearest adequate destination alternate **aerodrome** is more than: for aeroplanes with turbine engines, fuel to fly for two hours at normal cruise consumption above the destination **aerodrome**, including final reserve fuel'

(68) **'landing decision point (LDP)**' means the point used in determining landing performance from which, an engine failure having been recognised at this point, the landing may be safely continued or a balked landing initiated;

(69) **'landing distance available (LDA)'** means the length of the runway which is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane landing;

(70) **'landplane'** means a fixed wing aircraft which is designed for taking off and landing on land and includes amphibians operated as landplanes;

(71) **'local helicopter operation'** means a commercial air transport operation of helicopters with a maximum certified take-off mass (MCTOM) over 3 175 kg and a maximum operational passenger seating configuration (MOPSC) of nine or less, by day, over routes navigated by reference to visual landmarks, conducted within a local and defined geographical area specified in the operations manual;

(72) **'low visibility procedures (LVP)'** means procedures applied at an aerodrome for the purpose of ensuring safe operations during lower than standard category I, other than standard category II, category II and III approaches and low visibility take-offs;

(73) **'low visibility take-off (LVTO)'** means a take-off with an RVR lower than 400 m but not less than 75 m;

(74) **'lower than standard category I (LTS CAT I) operation'** means a category I instrument approach and landing operation using category I DH, with an RVR lower than would normally be associated with the applicable DH but not lower than 400 m;

(75) **'maximum operational passenger seating configuration (MOPSC)'** means the maximum passenger seating capacity of an individual aircraft, excluding crew seats, established for operational purposes and specified in the operations manual. Taking as a baseline the maximum passenger seating configuration established during the certification process conducted for the type certificate (TC), supplemental type certificate (STC) or change to the TC or STC as relevant to the individual aircraft, the MOPSC may establish an equal or lower number of seats, depending on the operational constraints; EN 25.10.2012 Official Journal of the European Union L 296/9

(76) **'medical passenger'** means a medical person carried in a helicopter during a HEMS flight, including but not limited to doctors, nurses and paramedics;

(77) **'night'** means the period 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, as defined by the Member State;

(78) **'night vision goggles (NVG)'** means a head-mounted, binocular, light intensification appliance that enhances the ability to maintain visual surface references at night;

(79) **'night vision imaging system (NVIS)'** means the integration of all elements required to successfully and safely use NVGs while operating a helicopter. The system includes as a minimum: NVGs, NVIS lighting, helicopter components, training and continuing airworthiness;

(80) **'non-hostile environment'** means an environment in which:

a. a safe forced landing can be accomplished;
b. the helicopter occupants can be protected from the elements; and
c. search and rescue response/capability is provided consistent with the anticipated exposure.
    i. In any case, those parts of a congested area with adequate safe forced landing areas shall be considered non-hostile;

(81) **'non-precision approach (NPA) operation'** means an instrument approach with a minimum descent height (MDH), or DH when flying a CDFA technique, not lower than 250 ft and an RVR/CMV of not less than 750 m for aeroplanes and 600 m for helicopters;

(82) **'NVIS crew member'** means a technical crew member assigned to an NVIS flight;

(83) **'NVIS flight'** means a flight under night visual meteorological conditions (VMC) with the flight crew using NVGs in a helicopter operating under an NVIS approval;

(84) **'offshore operations'** means operations which routinely have a substantial proportion of the flight conducted over sea areas to or from offshore locations;

(85) **'operating site'** means a site, other than an aerodrome, selected by the operator or pilot-in-command or commander for landing, take-off and/or external load operations;

(86) **'operation in performance class 1'** means an operation that, in the event of failure of the critical engine, the helicopter is able to land within the rejected take-off distance available or safely continue the flight to an appropriate landing area, depending on when the failure occurs;

(87) **'operation in performance class 2'** means an operation that, in the event of failure of the critical engine, performance is available to enable the helicopter to safely continue the flight, except when the failure occurs early during the take-off manoeuvre or late in the landing manoeuvre, in which cases a forced landing may be required;

(88) **'operation in performance class 3'** means an operation that, in the event of an engine failure at any time during the flight, a forced landing may be required in a multi-engined helicopter and will be required in a single-engined helicopter;

(89) **'operational control'** means the responsibility for the initiation, continuation, termination or diversion of a flight in the interest of safety;

(90) **'other than standard category II (OTS CAT II) operation'** means a precision instrument approach and landing operation using ILS or MLS where some or all of the elements of the precision approach category II light system are not available, and with:

a. DH below 200 ft but not lower than 100 ft; and
b. RVR of not less than 350 m; EN L 296/10 Official Journal of the European Union 25.10.2012

(91) **'performance class A aeroplanes'** means multi-engined aeroplanes powered by turbo-propeller engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5 700 kg, and all multi-engined turbo-jet powered aeroplanes;

(92) **'performance class B aeroplanes'** means aeroplanes powered by propeller engines with an MOPSC of nine or less and a maximum take-off mass of 5 700 kg or less;

(93) **'performance class C aeroplanes'** means aeroplanes powered by reciprocating engines with an MOPSC of more than nine or a maximum take-off mass exceeding 5 700 kg;

(94) **'pilot-in-command'** means the pilot designated as being in command and charged with the safe conduct of the flight. For the purpose of commercial air transport operations, the 'pilot-in-command' shall be termed the 'commander';

(95) **'principal place of business'** means the head office or registered office of the organisation within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;

(96) **'prioritisation of ramp inspections'** means the dedication of an appropriate portion of the total number of ramp inspections conducted by or on behalf of a competent authority on an annual basis as provided in Part-ARO;

(97) **'public interest site (PIS)'** means a site used exclusively for operations in the public interest;

(98) **'ramp inspection'** means the inspection of aircraft, of flight crew qualifications and of flight documentation in order to verify the compliance with the applicable requirements;

(99) **'rectification interval'** means a limitation on the duration of operations with inoperative equipment;

(100) **'rejected take-off distance available (RTODAH)'** means the length of the final approach and take-off area declared available and suitable for helicopters operated in performance class 1 to complete a rejected take-off;

(101) **'rejected take-off distance required (RTODRH)'** means the horizontal distance required from the start of the take-off to the point where the helicopter comes to a full stop following an engine failure and rejection of the take-off at the take-off decision point;

(102) **'runway visual range (RVR)'** means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;

(103) **'safe forced landing'** means an unavoidable landing or ditching with a reasonable expectancy of no injuries to persons in the aircraft or on the surface;

(104) **'seaplane'** means a fixed wing aircraft which is designed for taking off and landing on water and includes amphibians operated as seaplanes;

(105) **'separate runways'** means runways at the same aerodrome that are separate landing surfaces. 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;

(106) **'special VFR flight'** means a VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC;

(107) **'stabilised approach (SAp)'** means an approach that is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 ft above the threshold or the point where the flare manoeuvre is initiated if higher;

(108) **'take-off alternate aerodrome'** means an alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and if it is not possible to use the aerodrome of departure;

(109) **‘take-off decision point (TDP)’** means the point used in determining take-off performance from which, an engine failure having been recognised at this point, either a rejected take-off may be made or a take-off safely continued;

(110) **‘take-off distance available (TODA)’** in the case of aeroplanes means the length of the take-off run available plus the length of the clearway, if provided; EN 25.10.2012 Official Journal of the European Union L 296/11

(111) **‘take-off distance available (TODAH)’** in the case of helicopters means the length of the final approach and take-off area plus, if provided, the length of helicopter clearway declared available and suitable for helicopters to complete the take-off;

(112) **‘take-off distance required (TODRH)’** in the case of helicopters means the horizontal distance required from the start of the take-off to the point at which take-off safety speed (V TOSS), a selected height and a positive climb gradient are achieved, following failure of the critical engine being recognised at the TDP, the remaining engines operating within approved operating limits;

(113) **‘take-off flight path’** means the vertical and horizontal path, with the critical engine inoperative, from a specified point in the take-off for aeroplanes to 1 500 ft above the surface and for helicopters to 1 000 ft above the surface;

(114) **‘take-off mass’** means the mass including everything and everyone carried at the commencement of the take-off for helicopters and take-off run for aeroplanes;

(115) **‘take-off run available (TORA)’** means the length of runway that is declared available by the State of the aerodrome and suitable for the ground run of an aeroplane taking off;

(116) **‘technical crew member’** means a crew member in commercial air transport HEMS, HHO or NVIS operations other than a flight crew member, assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, HHO or NVIS operations, which may require the operation of specialised on-board equipment;

(117) **‘technical instructions (TI)’** means the latest effective edition of the ‘Technical instructions for the safe transport of dangerous goods by air’, including the supplement and any addenda, approved and published by the International Civil Aviation Organisation;

(118) **‘traffic load’** means the total mass of passengers, baggage, cargo and carry-on specialist equipment, including any ballast;

(119) **‘unaided NVIS flight’** means, in the case of NVIS operations, that portion of a VFR flight performed at night when a crew member is not using NVG;

(120) **‘undertaking’** means any natural or legal person, whether profit-making or not, or any official body whether having its own personality or not;

(121) **‘V 1 ’** means the maximum speed in the take-off at which the pilot must take the first action to stop the aeroplane within the accelerate-stop distance. V 1 also means the minimum speed in the take-off, following a failure of the critical engine at V EF , at which the pilot can continue the take-off and achieve the required height above the take- off surface within the take-off distance;

(122) **‘V EF ’** means the speed at which the critical engine is assumed to fail during take-off;

(123) **‘visual approach’** means an approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain;

(124) **‘wet lease agreement’** means an agreement between air carriers pursuant to which the aircraft is operated under the AOC of the lessor;

(125) **<u>'wet runway'</u>** means a runway of which the surface is covered with water, or equivalent, less than specified by the 'contaminated runway' definition or when there is sufficient moisture on the runway surface to cause it to appear reflective, but without significant areas of standing water.

EN L 296/12 Official Journal of the European Union

0.2 System of Amendment and Revision

(a) The Operations Manual is issued on the authority of the 'Operator'.

(1) Operation Manual amendments will be discussed with and approved by the Director Flight Operations who remains ultimately responsible for the manual content and compliance prior to submission in accordance with the operator established procedure.

(2) When an Acceptable Means of Compliance cannot be established, an Alternative Means of Compliance in accordance with the procedures shown in para 2 below may be considered. The procedure may require assessment in order to demonstrate compliancy with the Implementing Rules.

(3) The Responsible Persons/Owners for manuals not directly under the control of the AOC will retain ownership and responsibility for the upkeep and, where applicable, compliance of the manuals using the process defined below.

(4) Alternative Means of Compliance AMC (*Means of Compliance ORO.GEN.120*)

a. Alternative means of compliance to those adopted by the Agency may be used by an operator to establish compliance with Regulation (EC) No 2018/1139 and its Implementing Rules.

b. When an operator subject to certification wishes to use an alternative means of compliance to the acceptable means of compliance (AMC) adopted by the Agency to establish compliance with Regulation (EC) No 2018/1139 and its Implementing Rules, it shall, prior to implementing it, provide the competent authority with a full description of the alternative means of compliance. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that the Implementing Rules are met.

c. In order to demonstrate that the implementing rules are met, a risk assessment should be completed and documented. The result of this risk assessment should demonstrate that an equivalent level of safety to that established by the AMC adopted by the Agency is reached.

The operator may implement these alternative means of compliance subject to prior approval by the competent authority and upon receipt of the notification as prescribed in ARO.GEN.120(d).

(5) The CAA Authority form '*SRG 1832 - Operations Manual Notice of Proposed Amendment*' will be signed by the Director of Flight Operations or nominated deputy.

(b) Revisions will be annotated to show the date of issue and highlight the portion of the text in that section which has been revised.

(c) Each amendment will be accompanied by a revision list of effective sections, with their dates of issue.

(d) A list of effective pages or paragraphs and a revision history will be kept in the front of the Operations Manual.

(e) A revision will be indicated by a vertical marginal line adjacent to the change.

(f) Temporary revisions may be issued from time to time when deemed necessary.

(g) The Operator, will ensure that all Operations staff and Flight Crew members have access to the Operations Manuals electronically.

One Electronic copy is to be lodged with the Civil Aviation Authority.

Operations Manual Distribution is as follows:

All flight crew, nominated persons, heads of department and managers (as appropriate) will be distributed electronic copies of all relevant manuals via the content locker on the EFB iPad or via SharePoint (on-line).

Notices to Air Crew (NOTAC) will be distributed via E-mail to flight crew and uploaded to the EFB (iPad) contents locker on all aircraft.

Those of a temporary nature will be cancelled as soon as they are no longer relevant. Those of long-term application will be incorporated into the manual when it is next amended, or within one year of their effective date, whichever is the sooner.

Mandatory Notification to the Competent Authority *(ORO.MLR.100)*

(1) For Application Time Frames refer to *Part A, 1.1.4.1 Changes para (d)*

(2) When immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately, provided that any approval required has been applied for.

(3) The operator shall incorporate all amendments and revisions required by the competent authority.

(4) The operator shall ensure that information taken from approved documents, and any amendment thereof, is correctly reflected in the OM. This does not prevent the operator from publishing more conservative data and procedures in the OM.

(5) The operator shall ensure that all personnel are able to understand the language in which those parts of the OM which pertain to their duties and responsibilities are written. The content of the OM shall be presented in a form that can be used without difficulty and observes human factors principals.

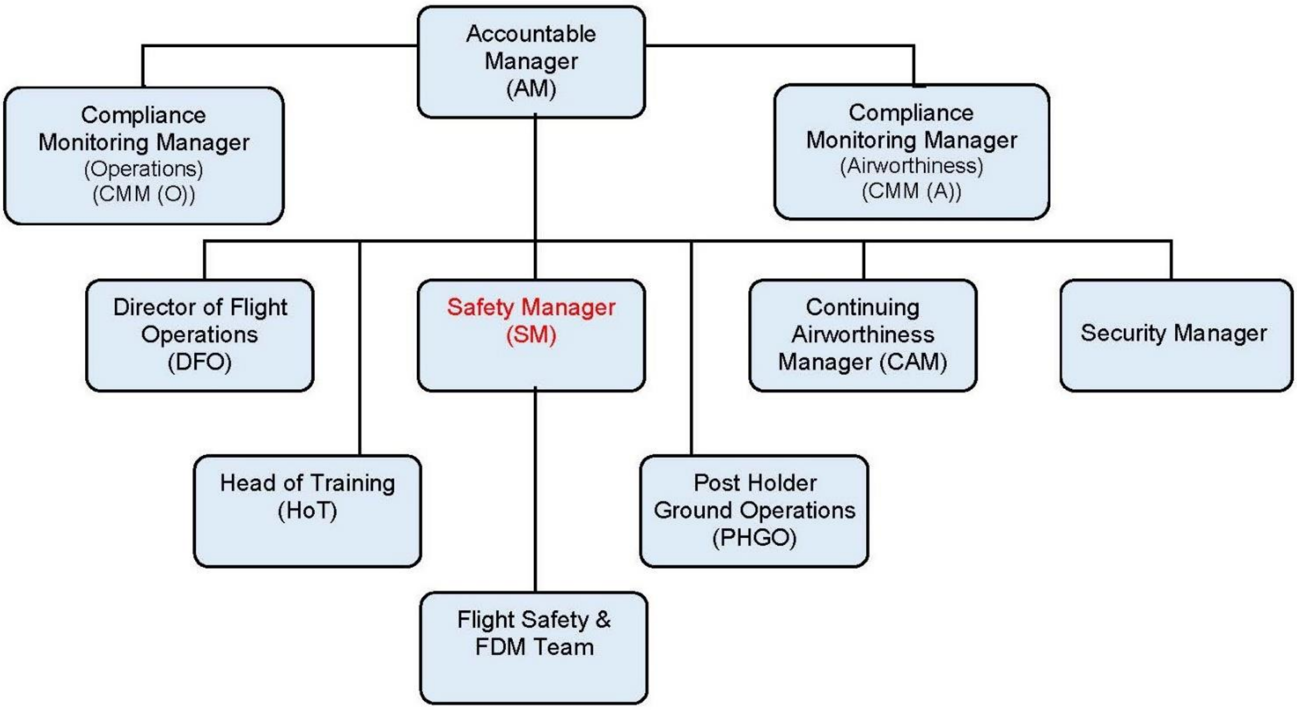
1.3 Approvals, Exemptions and Validations.

Copies of all Operational approvals, permissions, exemptions and validations are stored electronically.

This page intentionally left blank

1 SECTION 1 – Organisation and Responsibilities ORO.GEN.200

1.1 Organisational Structure



1.1.1 The Air Operator's Certificate

The Air Operator's Certificate authorises Company operations in areas as indicated within this section. The following table includes specific approvals (Ops Spec) and navigational standards.

	RVSM	RNAV-1 (P-RNAV)	RNAV-5 (B-RNAV)	RNAV-10 (RNP-10)	MNPS	Steep Approaches	EFB
Beech 200		✓	✓				✓
CL600-2B16	✓	✓	✓	✓	✓		✓
BD700-1A10	✓	✓	✓	✓	✓		✓
Hawker 850XP	✓	✓	✓	✓	✓		✓
Cessna 560	✓	✓	✓	✓	✓	✓	✓
Cessna 510	✓	✓	✓	✓	✓	✓	✓

1.1.2 Area of Operation

The Company has five UK operational bases which include Farnborough, Jersey, Aberdeen, Glasgow and Inverness. The Company's operating region is in the area enclosed by the rhumb lines joining successively the following points. This area is defined by the portion of the earth's surface between the parallels of latitude 68°00'N and 55°00'S, plus the area enclosed by rhumb lines joining successively the following points:

68°00'N 00°00'E/W	68°00'N 45°00'E
73°00'N 15°00'E	68°00'N 00°00'E/W
73°00'N 30°00'E	

1.1.3 Area of Normal Operations

The majority of Company operations take place in Europe and the Mediterranean region. This area refers to as 'Normal Company Operations'.

Flights may be made with the Beechcraft Super King Air B200/B200C aircraft only within the area enclosed by rhumb lines joining successively the following points:

60°30'N 11°00'W	66°30'N 00°00'E/W
66°30'N 39°00'E	60°30'N 39°00'E
30°00'N 39°00'E	30°00'N 11°00'W
24°00'N 11°00'W	24°00'N 23°20'W
50°00'N 11°00'W	60°30'N 11°00'W

Flights may be made with the Hawker 850XP, Canadair CL600-2B16, Bombardier BD-700-1A10, Cessna 510, Cessna 560 only within the Region GG as indicated by the map in Appendix 1.

1.1.4 Changes (ORO.GEN.130)

(a) Any change affecting;

(1) The scope of the certificate or the operations specifications of an operator; or

(2) any of the elements of the operator's management system as required in *ORO.GEN.200(a)(1)* and *(a)(2),* shall require prior approval by the competent authority.

(b) For any changes requiring prior approval in accordance with Regulation (EC) No 2018/1139 and its Implementing Rules, the operator shall apply for and obtain an approval issued by the competent authority. The application shall be submitted before any such change takes place, in order to enable the competent authority to determine continued compliance with Regulation (EC) No 2018/1139 and its Implementing Rules and to amend, if necessary, the operator's certificate and related terms of approval attached to it.

The operator shall provide the competent authority with any relevant documentation.

The change shall only be implemented upon receipt of formal approval by the competent authority in accordance with *ARO.GEN.330.*

The operator shall operate under the conditions prescribed by the competent authority during such changes, as applicable.

(c) All changes not requiring prior approval shall be managed and notified to the competent authority as defined in the procedure approved by the competent authority in accordance with *ARO.GEN.310(c).*

1.1.4.1 Changes — organisations (ARO.GEN.330)

(a) Upon receiving an application for a change that requires prior approval, the competent authority shall verify the organisation's compliance with the applicable requirements before issuing the approval.

The competent authority shall prescribe the conditions under which the organisation may operate during the change, unless the competent authority determines that the organisation's certificate needs to be suspended.

When satisfied that the organisation is in compliance with the applicable requirements, the competent authority shall approve the change.

(b) Without prejudice to any additional enforcement measures, when the organisation implements changes requiring prior approval without having received competent authority approval as defined in (a), the competent authority shall suspend, limit or revoke the organisation's certificate.

(c) For changes not requiring prior approval, the competent authority shall assess the information provided in the notification sent by the organisation in accordance with *ORO.GEN.130* to verify compliance with the applicable requirements. In case of any non-compliance, the competent authority shall:

(1) notify the organisation about the non-compliance and request further changes;
(2) in case of level 1 or level 2 findings, act in accordance with *ARO.GEN.350.*

(d) APPLICATION TIME FRAMES *(AMC1.ORO.GEN.130)*

(1) The application for the amendment of an operator certificate should be submitted at least 30 days before the date of the intended changes.
(2) In the case of a planned change of a nominated person, the operator should inform the competent authority at least 20 days before the date of the proposed change.
(3) Unforeseen changes should be notified at the earliest opportunity, in order to enable the competent authority to determine continued compliance with the applicable requirements and to amend, if necessary, the operator certificate and related terms of approval.

1.1.4.2. Continued validity ORO.GEN.135

(a) The Air Operators Certificate shall remain valid subject to:

(1) the operator remaining in compliance with the relevant requirements of Regulation (EC) No 2018/1139 and its Implementing Rules, taking into account the provisions related to the handling of findings as specified under *ORO.GEN.150*;

(2) the competent authority being granted access to the operator as defined in *ORO.GEN.140* to determine continued compliance with the relevant requirements of Regulation (EC) No 2018/1139 and its Implementing Rules; and

(3) the certificate not being surrendered or revoked.

1.1.5 Laws, Regulations and Procedures

All employees must comply with the laws, regulations and procedures of the Country or state in which Company operations are being undertaken.

1.1.6 CAA Operational Directives

The CAA may limit operations. The reasons, applicability and duration will be stated by the authority. The Director Flight Operations or his Deputy will be responsible for any action to be carried out and advise when any such action has been resolved.

1.1.7 Map of Area of Operation.

Refer to '*Appendix 1*' for the map of area of operation.

1.2 Nominated Persons *ORO.AOC.135a*

1.2.1 Nominated Persons for the purpose of the AOC* and Management appointments.

See para sections noted for description of function and responsibilities. Contact numbers listed.

			Para.
Accountable Manager	Steve Wright	01252 553012	(1.3.1)
* Director Flight Operations	Steve Wright	01252 553053	(1.3.2)
* Continuous Airworthiness Manager	Heather Hall	01252 553079	(1.3.3)
* Postholder Ground Operations	Kirsty Willmett	01252 553051	(1.3.4)
* Head of Training Standards	Phillip Walmsley	01252 553057	(1.3.5)

1.2.2 Compliance Monitoring

			Para.
* Compliance Monitoring Manager *(Operations)*	Kathryn Doherty	01252 553055	(1.3.6)
* Compliance Monitoring Manager (*Airworthiness)*	Barney Hulme	01252 553066	(1.3.7)

1.2.3 Other Management Appointments

			Para.
* Safety Manager	James Bryant	01252 553376	(1.3.8)
Deputy Postholder Ground Operations	Tom Everitt	01252 553035	(1.3.10)
Base Commander – Aberdeen	Adrian Rose	01224 729390	(1.3.14)
Base Commander – Glasgow	Gary Baker	01413 701860	(1.3.14)

1.2.4 Fleet Management

			Para.
Challenger	Robin Looms	01252 553053	(1.3.11)
Hawker Series	Steve Wright	01252 553053	(1.3.11)
Global	Lee Roach	01252 553053	(1.3.11)
Cessna	Steve Wright	01252 553053	(1.3.11)

1.2.5 Training Commanders

Para.

Refer also to Part D – Section 2.2 for details of appointments. (1.3.12)

1.2.6 Security

Para.

Security Manager Kirsty Willmett (1.3.18)

1.2.7 Electronic Flight Bag (EFB) Administration

EFB Manager	Andrew Lister	Para. (1.3.17)

1.3 Personnel requirements ORO.GEN.210

A group of persons nominated by the Operator responsible for ensuring the Operator remains in compliance with applicable requirements.

1.3.1 Accountable Manager's Responsibilities

The Accountable Manager has the authority for ensuring that all activities can be financed and carried out in accordance with the applicable requirements. He is also responsible for the financial costs, budgets, and resources and will respond to other management positions and as outlined in the Operators Safety Management System Manual document ref: GAL/SMM

The Accountable Manager is appointed by the Operator and is acceptable to the authority. He will negotiate with the authorities and be responsible for establishing and maintaining an effective management system, in addition to the general administration of the company and determine the frequency and layout of management evaluation meetings.

The Managing Director (MD) will deputise for the Accountable Manager (AM) in his absence

1.3.2 Director Flight Operations Responsibilities

The Director Flight Operations is a nominated person and is appointed by and is responsible to the Accountable Manager for the operational running of the Company, ensuring that compliance is maintained within the applicable requirements within the specific area of responsibility.

The Director Flight Operations is a member of the senior management team.

The Head of Training (HoT) will deputise for the Director Flight Operations (DFO) in his absence.

Operational responsibilities in accordance with the AOC include:

- Overall control, security and supervision of the Company's operations;
- Controlling subcontractor's standards, legal and disciplinary matters;
- Monitoring operations for compliance with legislation.
- Delegation of responsibility via department heads;
- Ensuring the management of flight safety and technical requirements;
- Monitoring of flight operation budgets;
- Developing management teams;
- Content of Operations Manual;
- Responsible for filing occurrence reports via the Safety Manager

- Issue of flying staff instructions;
- Control of aircraft libraries;
- Liaison with the Civil Aviation Authority on all matters covering Company operations.

1.3.3 Postholder Ground Operations Responsibilities

The Ground Operations Manager is a nominated person acceptable to the Authority reporting directly to the Accountable Manager and is responsible for ensuring that compliance is maintained within the applicable requirements within the specific area of responsibility.

The Deputy Postholder Ground Operations will deputise for the Postholder Ground Operations in his absence.

The Postholder Ground Operations is principally responsible for the following:

- The efficient processing and planning of aircraft operations in accordance with the statutory requirements and Company policy as defined in the operations manual;
- Responsible for ground staff training and supervision of Flight Operations staff and other persons who may be employed in the Operations Room;
- Responsible for the co-ordination of the Emergency Response Procedures.
- Responsible for the management of the Crew Rostering Officer and the preparation of the Commanders Flight Brief;
- Maintaining a close liaison with maintenance organisations regarding aircraft checks, serviceability and requirements;
- Maintaining flight crew duty and rest records in accordance with instructions in chapter 7 and processing discretion reports;
- Investigation and action of all voyage reports and Commanders discretion reports as well as auditing paperwork (
- Investigate any complaints/deficiencies relating to the Operations department and respond accordingly. Introduce new procedures if required;
- Responsible for activating Operational Procedures for example Emergency Response Plans, Flight Watch and Overdue Aircraft Programme. These procedures form part of the Safety Management System .
- Monitoring sub-contracted activities to include ground handling as per the requirement set out in ORO.GEN.200 (a)(1)
- Maintaining documentation / audits to ensure the continuation of our Dangerous Goods approval , ensuring staff are qualified and trained accordingly
- Preparation and monitoring the validity of:
    - Commanders Flight Briefs;
    - Operational Flight Plans;
    - Flight Time Limitations (FTL) Scheme;
    - Overall responsibility for efficient operation of FTL Scheme;
    - Checking returned documentation to ensure compliance;

- Processing Commanders Discretion Reports.
- Attend regular meetings – for example: Flight Safety in their capacity as a holder of a nominated position.

1.3.4 Head of Training

The Head of training is a nominated person acceptable to the Authority and is responsible to the Accountable Manager. He is responsible for the oversight and development of all flight crew training.

He is to establish and maintain procedures that ensure the company's training and checking complies with EASA requirements.

The Director Flight Operations (DFO) will deputise for the Head of Training (HoT) in his absence.

The Head of Training responsibilities are as follows:

- Defining the training standards on all types of aircraft;
- The supervision of company training check pilots;
- Oversight of third-party training suppliers
- Supervising ground technical training;
- Acting as a member of Safety Action or Event Review Groups;
- Reviewing career structure for training pilots;
- Supervision of CRM training for all line pilots throughout the company via the nominated CRM ground instructor;
- Instigating regular meetings/workshops with all trainers;
- Reviewing and amending the relevant contents of operations training manuals applicable to the tasks required;
- Review training Budgets and audit third party training suppliers
- The Head of Training Standards will monitor the training requirements of the Ground Operations Staff in conjunction with the Ground Operations Manager.
- Maintenance of Crew training records system to be able to demonstrate compliance with EASA regulations and Company policy.

1.3.5 Continuing Airworthiness Manager (CAM)

Refer to CAME

1.3.6 Compliance Monitoring Manager (Operations)

Refer to Compliance Monitoring Manual (CMM)

1.3.7 Compliance Monitoring Manager (Airworthiness)

Refer to CAME for details of the Compliance Monitoring Programme and CMM(A) responsibilities.

1.3.8 Safety Manager

Refer to Safety Management Manual

Please see GAL/SMM – Safety Management Manual *(Section 4)* for the duties and responsibilities.

1.3.9 Fleet Managers Responsibility

The Fleet Manager reports directly to the Director of Flight Operations and is responsible for the leadership and efficient operation of their fleet. Principle responsibilities are as follows:

- Oversight of Company policy regarding standards on their specific fleet. This is in conjunction with the Director of Flight Operations, Head of Training and Line Training Captains.
- To be aware of current training and operational standards so as to ensure crew compliance with Company Standard Operating Procedures.
- To ensure that the Accountable Manager and Director of Flight Operations are adequately briefed on all issues and concerns that fall within the Fleet managers' responsibilities.
- Management of parts of the Company Operations Manual suite pertinent to their fleet.
- Effectively manage the fleet in order to meet operational requirements.
- Participation in matter of strategic safety and safety meetings.
- The oversight and effective management of fleet specific audits.
- To carry out annual performance reviews, appraisals, on all crew operating under the Fleet managers remit.
- To liaise with senior management and HR on any issues of a disciplinary nature and effectively manage low level industrial issues with the aim of minimising conflict or disruption of service.

1.3.10 Training Commanders

Training Commanders are appointed by and answerable to the Head of Training Standards (HoT). The position holds the responsibility for setting, maintaining and enhancing training standards within the pilot community in line with the requirements of Operations Manual Part D to ensure regulatory compliance.

The principle responsibilities are as follows:

- All respective fleet specific training requirements including the use of sub contracted flight crew;
- Assisting with selection of fleet training Commanders;

- Liaison with Training and Operations Departments in matters relating to training courses;
- Determining training requirements or modification to training plans to adapt to pilot performance during training;
- Liaison with Safety department in issues effecting operational procedures;
- For the content, amendment status and correct distribution of the OMD;
- Ensuring that all airborne training is conducted to the highest standard;
- Supervising/overseeing content of command training;
- Ensuring the ground Technical Training is conducted to the standard required by the Company.

1.3.11 Base Commander (ABZ, GLA & INV)

The principle responsibilities are as follows:

- Monitoring of Company flight operations at the designated base with regard to KPI's i.e., aircraft serviceability, weather and other disruptions.
- Liaising with the Service Delivery Manager Scotland and acting as first point of contact for all Scottish based flight crew in Company related issues. Liaising with the Fleet Manager on Flight Standards and Flight Operational procedures.
- Processing initial investigations raised through Commanders reports.
- Ensuring that the provision of flight documentation and equipment is available and up to date.
- Periodic checking of on-board emergency equipment including aircraft library and to ensure all documentation is valid and in date.
- Ensuring that all Flight operations documentation in the base crew rooms is valid and up-to date.
- Maintaining local notice / electronic information;
- Periodic auditing of returned flight paperwork (RFP) and ensuring that the procedure of returning RFP to Head Office is completed in a timely manner.
- Ensuring company aircraft presentations are complied with, i.e., cleanliness internal and external.
- Attending Flight Crew Management meetings at FAB in person or telephone/Video conference when required by the Director Flight Operations.

1.3.12 Ground Instructor SEP/CRM/SMS

The Ground Instructor is appointed by and directly responsible to the Head of Training for the performance of his duties.

The principle responsibilities are as follows:

- Ensuring that Flight Crew responsible for cabin safety are in possession of accurate up-to-date information via notices, manuals and newsletters in all areas of safety, security and first aid;.
- Ensure that Flight Crew responsible for cabin safety perform their duties in the interest of passenger comfort and safety.
- Maintain a high level of customer service awareness for all Flight Crew;
- Liaise with relevant Fleet Managers in respect of SEP procedures on each fleet;
- Maintain a regular dialogue with the Quality Department concerning audits to ensure that all aircraft cabin safety equipment, content and location is correctly reflected in the company's operations manuals;
- Update relevant aircraft and training procedures and equipment for first aid, safety and Security practices on board company aircraft;
- Deliver Company CRM courses;
- Deliver initial/recurrent SMS training.

1.3.13 Electronic Flight Bag Manager

- Liaise with IT to Purchase, configure & set up aircraft EFB devices.
- Managed service agreements and contracts with 3rd party suppliers and application vendors.
- Managing the company EFB system and device subscriptions.
- Evaluation of new hardware and future apps for use on company EFB devices.

1.3.13 Security Manager

The Security Manager is responsible to the Accountable Manager for the following:

- Primary responsibility for aviation security policy development
- Responsibility for ensuring all security related risks are identified and managed
- Ensure sufficient personnel are trained, working closely with Training & Flight Operations to ensure company personnel are trained in security risk management procedures
- Produce, amend and promulgate the ACSP
- Carry out audits of security compliance procedures/collaborate with Compliance on Security audits
- Management of security related incidences/occurrences and management of security incident plans
- Provide guidance and risk management advice on security risks
- Direct access to the Accountable Manager and must be able to act independently
- Lead the Security Advisory Committee

Some of the tasks listed above will be delegated to competent staff, the Nominated Person Ground Operations will be the qualified person to take on the responsibilities and accountability associated with the Security Manager role.

1.3.14 Health, Safety and Environment Manager

Please see GAL/SMM – Safety Management Manual (Section 4) for the duties and responsibilities.

1.4 Authority, Duties and Responsibilities of The Commander

CAT.GEN.MPA.105 and 110

The Director Flight Operations or the Ground Operations Manager will nominate one of the pilots to be the aeroplane commander for each flight or series of flights.

1.4.1 General Responsibilities

It is the operators Policy for the Commander to be solely responsible for the dispatch of his aircraft and to comply with the specific responsibilities identified in Para 1.4.2 below

The commander must take all reasonable steps to:

(a) maintain familiarity with relevant United Kingdom and International air legislation and agreed aviation practices and procedures;

(b) Maintain familiarity with such provisions of the Company Operations Manual as are necessary to fulfil his function.

1.4.2 Specific Responsibilities

The commander shall:

(a) be responsible for the safe operation of the aeroplane and safety of its occupants and cargo during flight time;

(b) have authority to give all commands he deems necessary for the purpose of securing the safety of the aeroplane and of persons or property carried therein, and all persons carried in the aeroplane shall obey such commands;

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

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

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

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

(g) ensure that all operational procedures and checklists are complied with, in accordance with the Operations Manual;

(h) ensure that the weather forecast and reports for the proposed operating area and flight duration indicate that the flight may be conducted without infringing Company operating minima;

(i) take all reasonable steps to ensure that the aeroplane, and any required equipment is serviceable;

(j) in the absence of a qualified Company engineer, ensure that aeroplane refuelling is supervised with particular attention being paid to:

- the correct grade and amount of fuel;
- fuel water checks;
- fire safety precautions;
- checking filler caps for security and correct replacement after refuelling;

(k) take all reasonable steps to ensure that the aeroplane mass and balance is within the calculated limits for the operating conditions;

(l) confirm that the aeroplane's performance will enable it to complete safely the proposed flight taking due account of the aircraft configuration, environmental conditions and the operation of systems which may have an adverse effect on performance;

(m) not permit any Flight Crew Member to perform any activity during take-off, initial climb, final approach and landing except those duties required for the safe operation of the aeroplane;

(n) take all reasonable steps to ensure that before take-off and before landing the flight and cabin crew are properly secured in their allocated seats;

(o) take all reasonable steps to ensure that whenever the aeroplane is taxying, taking off or landing, or whenever he considers it advisable (e.g. in turbulent conditions), all passengers are properly secured in their seats, and all cabin baggage is stowed in the approved stowage's;

(p) ensure that the documents and manuals in Para 8.1.12 are carried and will remain valid throughout the flight or series of flights and be produced, when requested, to a person authorised by the Authority;

(q) ensure that the pre-flight inspection has been carried out;

(r) With respect to regulation CAT.GEN.MPA.105 ensure that flight recorders:

- are not disabled or switched off during flight; and,
- In the event of an accident or incident that is subject to mandatory reporting, (a) are not intentionally erased, (b) are deactivated immediately after the flight is completed; and (c) are reactivated only with the agreement of the investigating authority.

(s) ensure that both Crew Members and passengers observe the restrictions on smoking detailed in para 8.3.16 In addition ensure that no person smokes in cargo compartments and/or other areas where cargo is carried which is not stored in flame resistant containers or covered by flame resistant canvas.

(t) Ensure that a flight will not be commenced if a flight crew member is incapacitated and unable to perform his or her duties through sickness, injury, fatigue or the effects of any psychoactive drug or alcohol.

(u) Ensure that any suspected communicable disease is reported to ATC and the relevant authorities at the earliest possible opportunity. It is important that the

Aircraft Commander communicates this as a responsibility that sits with the whole crew and that any suspicion of illness or disease on board be discussed with him in a timely manner.

The Commander shall, in an emergency situation that requires immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures, and methods in the interest of safety.

The Commander has the authority to apply greater safety margins, including aerodrome operating minima, if he deems it necessary.

The Commander must ensure that, in the event of third party maintenance being required whilst away from base, the procedures referred to in para 8.1.11 'Tech Log Procedures' are followed.

The Commander should inform operations as soon as possible on telephone number +44 1252 55 3000.

The Commander must ensure that a continuous listening watch is maintained on the appropriate radio communication frequencies at all times whenever the flight crew is manning the aeroplane for the purpose of commencing and/or conducting a flight and when taxying.

The commander must ensure that abnormal or emergency situations, system malfunctions and IMC conditions are not simulated for any purpose on Commercial Air Transport flights.

1.5 Duties and Responsibilities of Crew Members Other Than The Commander

CAT.GEN.MPA.100

1.5.1 General

Individuals joining the Company will be issued with Terms and Conditions of Employment.

All Flight Crewmembers are responsible for the proper execution of their duties that are:

(a) Related to the safety of the aeroplane and its occupants;

(b) Specified in the instructions and procedures laid down in the company's operations manuals.

Any Flight Crew member, or other crew member must:

(a) Report to the commander any incident that has endangered, or may have endangered safety;

(b) Make use of the company's incident reporting schemes as detailed in section 11. In all such cases a copy of the report(s) must be given to the Commander concerned.

1.5.2 The First Officer

1.5.2.1 Function

(a) The First Officer is responsible to the Commander to assist in the safe and efficient conduct of the flight. In the event of the incapacitation of the Commander, the First Officer will assume command;

(b) The First Officer is responsible when not reporting directly to a Commander, to his Fleet Commander

1.5.2.2 General Responsibilities

The First Officer must take all reasonable steps to:

(a) maintain familiarity with relevant United Kingdom and International air legislation and agreed aviation practices and procedures;

(b) maintain familiarity with such provisions of the Company Operations Manual as are necessary to fulfil his function;

(c) assist the Commander as requested, concerning administrative duties in relation to the flight; and

(d) support the Commander in the maintenance of a proper standard of crew discipline, conduct and personal appearance.

1.5.2.3 Specific Responsibilities

It is the specific responsibility of the First Officer:

(a) to carry out such duties concerning the flight, in accordance with Company Standard Operating Procedures, including procedures, limitations and performance relating to the specific aircraft Type, as are allocated to him by the Commander;

(b) to confirm the safe navigation of the aircraft, maintaining a continuous and independent check upon both the geographical position of the aircraft and its safe terrain clearance;

(c) to volunteer such advice, information and assistance to the Commander, as may contribute favourably towards the safe and efficient conduct of the flight;

(d) to seek and receive such information and/or explanation from the Commander, as may be necessary to enable the First Officer to fulfil his function;

(e) to maintain a high personal standard of discipline, conduct and appearance as a representative of the Company;

(f) to support the Commander, by active example, in the development and maintenance of a high standard of professional expertise and morale amongst the crew;

1.5.3 Cabin Crew

Not utilised by Gama Aviation

1.5.3.1 General Responsibilities

Other Crew members must take all reasonable steps to:

(a) maintain familiarity with relevant United Kingdom and/or International air legislation, aviation practices and procedures;
(b) maintain familiarity with such provisions of the company Operations Manual as are necessary to fulfil his function;
(c) assist the Commander as requested, concerning administrative duties in relation to the flight;
(d) support the Commander in the maintenance of a proper standard of crew discipline, conduct and personal appearance.

This page intentionally left blank

2 Operational Control and Supervision (*ORO.GEN.110*)

2.1 Supervision Of The Operation By The Operator (*ORO.GEN.110(c)*)

2.1.1 The Accountable Manager will control the level of personnel required to operationally manage the fleet. .

2.1.1.1 <u>The Head of Training</u> will ensure that:

(a) Flight Crew licences and qualifications are valid for the periods throughout which Flight Crewmembers are scheduled to fly;

(b) Flight Crewmembers' proficiency has been checked and found satisfactory at the specified intervals;

(c) the requisite flight, personnel and maintenance records are being kept, analysed and stored for the statutory periods in order that the company's established quality control procedures may be effectively implemented.

2.1.1.2 Competence of Ground Operations personnel (ORO.GEN.110(e))

The Post Holder Ground Operations will ensure that all operations personnel are competent to perform their duties and that levels of competence are monitored and that sufficient controls are in place to maintain standards i.e. aircraft, equipment and resources for the area of operations.

The Post Holder Ground Operations is responsible to the Accountable Manager for reviewing changes in regulations, crewing and the flying programme and making recommendations as to staffing levels in order to maintain a safe operation.

Subcontractors will be monitored by departmental heads and will be discussed regarding performance at Safety Meetings.

The validity of licences and Qualifications will also be monitored by the Operator. Individual responsibility remains with the licence holder to ensure that the validity of any licence and /or qualification held is maintained. This includes the validity of a flight crew member's medical certificate.

Managers are required to motivate individuals and continue to develop skills and knowledge. They must set good examples and maintain an atmosphere that generates good team work and high morale. A system of staff appraisals will be conducted in order to maintain the required standards.

The Operator will provide the regulatory authority access within a reasonable time to any documents and records related to Flight Operations.

2.1.2 Document Storage Periods (*ORO.MLR.115*)

The following documents must be stored and accessible to the Authority and Quality Audit teams:

- Flight Plog – 3 months;
- ATC FPL/Notams/AIS/MET briefing documents – 3 months;
- Mass and Balance Sheets – 3 months;
- Flight Reports – 3 months;
- Reports of Extended/Reduced Duty Periods – 6 months;
- Tech Log – 36 months after the date of the last entry;
- Duty, Flight, Rest reports –12 months (CAP371)
- Flight Crew Licence – Whilst crewmember exercising the privileges of his licence;
- Conversion Training – 3 years;
- Command Course – 3 years;
- Recurrent Training and Checking – 3 years;
- Training and checking to operate in either seat – 3 years;
- Recent Experience – 15 months;
- Route and Aerodrome Competency – 3 years;
- Training for specific operations – 3 years;
- Dangerous Goods – 3 years;
- Occurrence Reports – 5 Years
- Management System Records – 5 years.
- Cosmic Radiation Continuous *(until reached the age of 75)*
- Training and Qualification for specific operations when required by Ops i.e. Cat II/III ETOPS - 3 Years

Note: Any such documentation will be retained for the required period even if Gama Aviation ceases to operate the aircraft or employ the crewmember concerned. Flight duty and rest period records for a crewmember that becomes a crewmember for another operator will be made available to that new operator upon request.

2.1.3 Quality Control

Nominated Persons, Fleet Managers and Departmental Manager will oversee aircraft operations in order to maintain regulatory compliance and Company Standard Operating Procedures, including but not limited to;

- Flight Crew Documentation
- Aircraft Documents
- Airfield Briefs
- Aircraft Performance.

2.1.4 Flight Operations Oversight Groups

Flight Operations requires a management structure capable of exercising adequate oversight. The following structure is designed to ensure that appropriate policy is formed, and that essential operational information is disseminated to all relevant departments.

2.1.4.1 Operational Performance Review Meeting (OPR)

The Management meeting purpose is to review business strategy, contractual requirements and provide an opportunity for individuals to review their progress against departmental KPI's and objectives.

Mandatory attendees are:

- Director of Flight Operations
- Ground Operations Manager
- Compliance Monitoring Managers
- Safety Manager
- Head of Training
- Continued Airworthiness Manager

2.1.4.2 Compliance Monitoring Review Meetings

Refer to Compliance Monitoring Manual (CMM) & CAME.

2.1.4.3 Training Commanders Meeting (TCM)

As required and as directed by the Hot or DFO including oversight of third party training suppliers.

2.1.4.4 Safety Meetings

Refer to SMM

2.2 System of Promulgation of Additional Operational Instructions and Information

As stated in Section 0.2, additional operational instructions and information will be made the subject of Operational Instructions. These will be incorporated into the Operations Manual and notified to all flight Crew, and copies will be distributed to all departments on a 'need to know' basis.

Where internal publicity is required on matters which are not of an operational nature, Administrative Notices will be circulated as required.

The Company operational and general documentation is stored on Q Pulse through the company IT system. This is available to all members of Staff with unique log in. It is also available worldwide and includes remote internet access. All incident reporting to the Company is also electronically controlled through Q Pulse.

A Commander's Flight Brief will be prepared and issued to the commander where additional relevant operational information exists for a particular flight/series of flights and is not to be found in the operations manual carried on the aeroplane.

2.3 Accident Prevention and Flight Safety

Refer to SMM

2.4 The Competent Authority ORO.GEN.105

For the purpose of Annex III, (Organisation Requirements for Air Operations Part-ORO) the competent authority exercising oversight over operators subject to a certification obligation shall be for operators having their principal place of business in a Member State, the authority designated by that Member State. The competent authority for this operator is the UK Civil Aviation Authority hereafter referred to as the competent authority.

Access

ORO.GEN.140 Access

(a) For the purpose of determining compliance with the relevant requirements of Regulation (EU) No 2018/1139 and its Implementing Rules, the operator shall grant access at any time to any facility, aircraft, document, records, data, procedures or any other material relevant to its activity subject to certification, whether it is contracted or not, to any person authorised by one of the following authorities:

(1) the competent authority defined in ORO.GEN.105 and CAT.GEN.100, the Authority of the State;

(2) the authority acting under the provisions of ARO.GEN.300 and ARO.RAMP

(3) Access to the aircraft mentioned under (a) shall include the possibility to enter and remain in the aircraft during flight operations unless otherwise decided by the commander for the flight crew compartment in accordance with CAT.GEN.MPA.135 in the interest of safety. See also section 8 para 8.3.12

Findings

ORO.GEN.150

After receipt of notification of findings, the operator will:

(a) identify the root cause of the non-compliance;

(b) define a corrective action plan; and

(c) demonstrate corrective action implementation to the satisfaction of the competent authority within a period agreed with that authority as defined in ARO.GEN.350(d). See the Compliance Monitoring Manual for further information on procedures to be followed.

Reaction to a safety problem

ORO.GEN.155

The operator shall implement:

(a) any safety measures mandated by the competent authority in accordance with ARO.GEN.135 and

(b) any relevant mandatory safety information issued by the Agency, including airworthiness directives.

3 SECTION 3 – Safety Management System

Refer to GAL/SMS

4 CREW COMPOSITION

(a) Types of Aeroplanes Operated

For the purpose of Commercial Air Transport Gama Aviation (UK) Ltd operates a range of multi-powered Turbo-jet and turbo-propeller aeroplanes. These are listed in section 0.1 (c) of this manual.

(b) The Area and Type of Operation being undertaken

The Operator, Gama Aviation (UK) Ltd**,** maintains a worldwide Air Operators Certificate and therefore operates Ad-hoc Commercial Air Transport flights as its principal business. Specific information regarding the approved operation area is available in section1 Organisation & Responsibilities, *para's, 1.1.2, 1.1.3 and Appendix 1 of this manual.*

(c) The Phase of Flight

Flight Crew will be at their designated stations during the take-off and landing phases.

(d) Composition of flight crew ORO.FC.100

(a) The composition of the flight crew and the number of flight crew members at designated crew stations shall be not less than the minimum specified in the aircraft flight manual or operating limitations prescribed for the aircraft.

(b) The flight crew shall include additional flight crew members when required by the type of operation and shall not be reduced below the number specified in the operations manual.

(c) All flight crew members shall hold a licence and ratings issued or accepted in accordance with Commission Regulation (EU) No 1178/2011 and appropriate to the duties assigned to them.

(d) The flight crew member may be relieved in flight of his/her duties at the controls by another suitably qualified flight crew member.

(e) When engaging the services of flight crew members who are working on a freelance or part-time basis, the flight crew concerned will comply with all flight and duty time limitations and rest requirements according to their activities in accordance with CAT.GEN.MPA.100 Crew responsibilities. They will advise the operator and the operator shall verify that all applicable requirements of this Subpart and the relevant elements of Annex I (Part-FCL) to Regulation (EU) No 1178/2011, including the requirements on recent experience, are complied with, taking into account all services rendered by the flight crew member to other operator(s) to determine in particular:

(1) the total number of aircraft types or variants operated; and

(2) the applicable flight and duty time limitations and rest requirements.(FTL Section 7)

(e) Experience (total and on type, recency and qualification of crew members Specific Company Experience Requirements

Commanders

	Jet	Turbine
Licence	ATPL/IR	CPL/IR
Total Hours	3000	1700
PIC Hours	1000	600
Jet Hours	500	-

In addition to having the particular aircraft type annotated in their EASA Flight Crew Licence (form 141) issued by a competent Authority.

Co-pilots

	Jet	Turbine
Licence	CPL/IR	CPL/IR
Total Hours	250	250
PIC Hours	-	-

In addition to having the particular aircraft type annotated in their EASA Flight Crew Licence (form 141) issued by a competent Authority.

Training Commanders

	Jet	Turbine
Licence	ATPL/IR	ATPL/IR
Total Hours	3000	3000
PIC Hours	2000	2000
Jet Hours	500	-
M/E Hours	1000	1000
Hours on Type	100	50

In addition to having the particular aircraft type annotated in their EASA Flight Crew Licence (form 141) issued by a competent Authority.

(f) Medical Certificate
A valid Medical Certificate (EASA for 147) form issued in accordance with Part-MED and pertaining to a valid Part FCL licence.

(g) Recency
For Commanders & First Officers (Pilot In Command & Co-Pilots)
See 5.2.1.1. for recency requirements.

(h) Cabin Crew Statement
Currently, Cabin Crew are not carried. See Para 4.4 (b1)

4.1 Operational Multi-Pilot Limitation (OML). Reg 1178/2011. *AMC1 ORO.FC.100(c)*

The Operator will ensure that pilots with an OML on their medical certificate only operate aircraft in multi-role operations when the other pilot is fully qualified on the relevant type of aircraft, is not subject to an OML and has not attained the age of 60 years.

4.1.1 Operations IAW Oil Industry Standard

When operating to Oil Industry Standards on CAT the Operator will ensure that no pilot over the age of 60 is rostered to operate with another pilot over 60 years of age.

4.2 Designation of the pilot-in-command/commander

ORO.FC.200 Composition of flight crew

(a) There shall not be more than one inexperienced flight crew member in any flight crew. (see para 4.2.3 below)

(b) The commander may delegate the conduct of the flight to another pilot suitably qualified in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011 provided that the requirements of ORO.FC.105(b)(1), (b)(2) and (c) are complied with.

(c) Specific requirements for aeroplane operations under instrument flight rules (IFR) or at night.

(1) The minimum flight crew shall be two pilots for all turbo-propeller aeroplanes with a maximum operational passenger seating configuration (MOPSC) of more than nine, and all turbojet aeroplanes.

(2) Aeroplanes other than those covered by (c)(1) shall be operated with a minimum crew of two pilots, unless the requirements of ORO.FC.202 are complied with, in which case they may be operated by a single pilot.

4.2.1 The planned crew duty periods and schedules will be calculated in accordance

with the approved Flight Time Limitations as detailed in section 7 of this manual.

4.2.2 Two-pilot Crew

For IFR or night operations, a two-pilot crew is to be carried on the following classes of aeroplanes:

(a) all turbo-jet aeroplanes;

(b) all turbo-propeller aeroplanes with a maximum approved passenger seating configuration of more than nine;

(c) all other aeroplanes not covered by sub-paras (a) and (b) above.

4.2.3 ORO.FC.200 (a) CREWING OF INEXPERIENCED FLIGHT CREW MEMBERS

The operator should establish procedures in the operations manual taking into account the following elements:

Aeroplanes

(a) The operator will consider that a flight crew member is inexperienced, following completion of a type rating or command course, and the associated line flying under supervision, until he/she has achieved on the type either:

(1) 100 flight hours and flown 10 sectors within a consolidation period of 120 consecutive days; or

(2) 150 flight hours and flown 20 sectors (no time limit).

(b) A lesser number of flight hours or sectors, subject to any other conditions that the competent authority may impose, may be acceptable to the competent authority when one of the following applies:

(1) a new operator is commencing operations;

(2) an operator introduces a new aeroplane type;

(3) flight crew members have previously completed a type conversion course with the same operator;

(4) credits are defined in the data established in accordance with Regulation (EU) No 748/2012

(5) the aeroplane has a maximum take-off mass of less than 10 tonnes or a maximum operational passenger seating configuration (MOPSC) of less than 20.

(c) For operations on aircraft with a MOPSC of less than 20 or for a crew member that has previously completed a type conversion course with Gama, a crew member shall be considered experienced on completion of a minimum of 25 sectors operated post successful completion of a two sector line check.

(d) Operational restrictions for inexperienced crew are listed in *FRM-TR-1060*

4.2.4 Allocation of Flight Crew to Aircraft type

Operations Department will assign the Commander to the flight. The Commander's duties will begin on arrival at the aircraft and when he leaves the aircraft on the final sector of the day. If a change of Commander is required then this must be annotated on the flight report and Operations Department informed.

4.2.5 Pilot in Command/Commander

4.2.5.1 Line Flights

Where two Commanders fly together, one pilot will be nominated as pilot in command when conducting non commercial air transport operations (NCAT) or Commander when operating for the purpose of Commercial Air Transport (CAT) and will occupy the left-hand seat.

4.2.5.2 Recurrent training and checking (AMC1 ORO.FC.230)

The Training Commander will be the Commander under all circumstances.

4.2.5.3 Line Check Flights

Gama policy - Line Check Commanders are required to be holders of a CRMI (L) approval enabling them to assess CRM skills and satisfy the following seating criteria:

- Commanders Line Check:

The Line Check Commander will normally occupy the right-hand seat and operate as First Officer and may assume command should circumstances warrant it.

The legal commander of the aircraft will be the pilot who signs the aircraft acceptance in the aircraft Technical Log.

- First Officers Line Check:

The Line Check Commander will occupy the left-hand seat and act as commander.

If the aircraft is fitted with a flight deck 'observer seat' then the Line Check Commander will complete the line check using this facility and observe the crewmember that is requiring a check conducting his duties in accordance with normal operations.

4.3 Flight Crew Incapacitation (ORO.FC.230)

4.3.1 Assuming that two pilots are carried, the recovery from a detected incapacitation of the handling pilot shall follow the sequence below.

(a) The fit pilot must assume control and return the aeroplane to a safe flight path.

(b) The fit pilot must take whatever steps are possible to ensure that the incapacitated pilot cannot interfere with the handling of the aeroplane. These steps may include involving cabin crew and/or passengers to restrain the incapacitated pilot.

(c) The fit pilot must land the aeroplane as soon as practicable to ensure safety of the occupants.

The 'Two Communication' rule of thumb should be invoked to assist in detecting incapacitation. This states that if a flight Crew Member should suspect the onset of incapacitation any time when a pilot does not respond appropriately to a second verbal communication associated with a significant deviation from a standard operating procedure or flight profile.

An Occurrence Report must be completed. For further information see para 8.3.14

4.4 Operation on more than one type for scheduling purposes (*ORO.FC.240*) :

(a) Flight Crew
For the purpose of flight crew scheduling all flight crew members employed by Gama Aviation (UK) Ltd operating more than one type or variant must comply with the provisions set out in sections 5.2(g) and 4.4.5 of this manual.

(b) Cabin Crew
The Operator at present does not offer qualified cabin crewmembers. The Operator has staff in the cabin that are solely there for the passenger's comfort and passenger needs i.e. the provision of catering facilities etc.

All safety matters must remain the responsibility of the Commander/pilot in Command. The Commander/Pilot in Command is responsible for the Safety brief (this maybe delegated to another authorised flight crew member) and he/she must announce to the passengers that any safety issues must be referred to the Commander/Pilot in Command.

Where there are crew members, other than cabin crew members, who carry out their duties in the passenger compartment of an aeroplane, the Operator shall ensure that these:

1. Are not confused by the passengers with the cabin crewmembers;
2. Do not occupy required cabin crew assigned stations;
3. Do not impede the cabin crewmembers in their duties.

(c) Supernumerary Crew

You are only classified as a supernumerary crewmember when you are assigned to a specific duty. Duty times will be recorded to reflect this requirement. Any other crewmembers travelling will be included in the passenger manifest.

4.4.1 When a flight crew member operates multi-pilot aeroplane:

(a) The flight crew member shall not operate more than two aeroplane types or variants for which a separate type rating is required;

(b) Before exercising the privileges of two license endorsements.

(i) Flight crew members must have completed two consecutive OPCs and must have 500 hours in the relevant crew position with the same operator.

(ii) In the case of a pilot having experience with an operator and exercising the privileges of two licence endorsements and then being promoted to command with the same operator on those types, the required minimum experience as commander is six months and 300 hours, and the pilot must have completed two OPCs before again being eligible to exercise the privileges of two licence endorsements.

(c) a minimum of three months and 150 hours experience within the first type rating shall be achieved before the flight crew member commences the conversion course for the second type rating; and

(d) twenty sectors or 50 hours flying shall then be achieved exclusively on aeroplanes of the second type rating.

4.4.1.1 A flight crew member may be rostered to operate a second type in the same duty period provided a 90 minute break is scheduled between operations to ensure adequate time for the crew member to prepare. This 90 minutes commences 15 minutes after engine shutdown on the first type to 45 minutes prior to scheduled departure on the second type to be operated allowing 90 minutes totally free of duty.

4.4.2 In the case of all other aeroplanes, a flight crew member shall not operate more than:

(a) Three piston engine aeroplane types or variants; or

(b) Three turbo-prop aeroplane types or variants; or

(c) One turbo-prop or turbojet aeroplane and one piston engine aeroplane type or variant.

4.4.3 In the case of a combination of a SPA and MPA then para 4.4.1 (a) above shall apply.

4.4.4 For a combination of aeroplane and helicopter:

(a) A flight crew member may fly one aeroplane type or variant within the same type or class rating and one helicopter type allowed in EASA-OPS.

(b) If the aeroplane type is covered by para 4.4.1 above then para 4.4.1(a) and (b) shall also apply in this case.

4.4.5 If a flight crew member operates more than one type or variant which are not within the same type or class rating, the following provisions shall be satisfied:

(a) The recent experience requirements given in *OMD para 1.1.13* are satisfied and confirmed prior to Commercial Air Transport operations on any type;

(b) The minimum number of flights on each type (operator to specify) within a three month period have been completed;

(c) The requirements of *OMD para 2.1.7.3* recurrent checking, are maintained for each type;

(d) A flight crew member may be rostered to operate a second type in the same duty period provided a 90 minute break is scheduled between operations to ensure adequate time for the crew member to prepare.

This page intentionally left blank

5 SECTION 5 - QUALIFICATION REQUIREMENTS

(Also see Part D, Training)

5.1 Licence, Qualification and Competency

English is the common language. The operator (The Company) will ensure that all flight crew members and operations personnel can communicate in English.

All flight crew members must hold valid type ratings and licence proficiency checks (LPC and OPC) in order to carry out their assigned duties. The LPC is valid for 12 months and runs date-to-date. The LPC can be re-validated in the three (3) months prior to expiry and will run for 12 months from the original expiry date.

Flight crew licences and Medical examinations will be the responsibility of the holder to ensure renewal and those persons will make arrangements to have these renewed in adequate time in order to avoid any operational disruption. It is illegal to operate without the stated documents highlighted in this manual and therefore liable to prosecution from the regulatory authorities. Dates and limitations are stated on the Licence and Medical Certificates.

Passports and Visas are the responsibility of the individual holders and like the licences etc. must be maintained and remain valid in order not to cause disruption to the flying programme.

The Operator will keep records and assist in the maintenance of these documents and will advise the due dates as applicable.

Flight Crew Competency Checks are required by the Operator in order to meet regulatory and legal requirements.

Operator's Proficiency Check (OPC) is required every six months and is valid to the end of the month. These checks can be taken up to 3 months early. Statutory CRM training, Area/Aerodrome Qualifications and other checks i.e. Line Checks and Safety Equipment and Emergency Procedures (SEP) are detailed (Part D) of the operations manual. All tests will be recorded by the Company as Operator.

The specification of Aerodrome of categories can be found in 8.1.2.
Aerodrome Categorisation, recording procedures and listing for flight crew competence qualifications is shown in Part C, Section 10, Aerodrome Categorisation for Flight Crew Competence Qualification.

A high standard is required by the Company and the Company will make every effort to maintain these standards. If an individual fails to meet the required standard further training will be completed. If the individual has problems with non-technical abilities then further training will also be required.

5.2 Flight Crew

(a) **Pilot-in command/Commander (**ORO.FC.105 Designation as pilot-in-command/commander)

(a) One pilot amongst the flight crew, qualified as pilot-in-command in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011, shall be designated by the operator as pilot-in-command/commander.

(b) The operator shall only designate a flight crew member to act as pilot-in-command/commander if he/she has:

(1) minimum level of experience specified in the operations manual; Para 5.2.1(a).

(2) adequate knowledge of the route or area to be flown and of the aerodromes, including alternate aerodromes, facilities and procedures to be used;

(3) in the case of multi-crew operations, completed an operator's command course if upgrading from co-pilot to pilot-in-command/commander.

(c) The pilot-in-command/commander or the pilot, to whom the conduct of the flight may be delegated, shall have had initial familiarisation training of the route or area to be flown and of the aerodromes, facilities and procedures to be used. This route/area and aerodrome knowledge shall be maintained by operating at least once on the route or area or to the aerodrome within a 12-month period.

(d) In the case of performance class B aeroplanes involved in commercial air transport operations under VFR by day, (c) shall not apply.

(b) **Pilot Relieving the Pilot-in-Command/Commander** *(ORO.FC.A.201)*

(a) The commander may delegate the conduct of the flight to:

(1) another qualified commander; or

(2) for operations only above flight level (FL) 200, a pilot who complies with the minimum qualifications:

(i) ATPL;

(ii) conversion training and checking, including type rating training, in accordance with *ORO.FC.220*;

(iii) all recurrent training and checking in accordance with *ORO.FC.230* and *ORO.FC.240*;

(iv) route/area and aerodrome competence in accordance with *ORO.FC.105*

(c) The First Officer (Co-pilot when operating for Non Commercial Air Transport).

(a) an Airline Transport Pilots Licence or a Commercial Pilots Licence;
(b) a valid Instrument Rating when operating under IFR;
(c) valid recurrent checks;

(d) The Operator does not employ relief First Officers.

(e) Pilot Under Supervision

***ORO.FC.235* Pilot qualification to operate in either pilot's seat**

(a) Commanders whose duties require them to operate in either pilot seat and carry out the duties of a co-pilot, or commanders required to conduct training or checking duties, shall complete additional training and checking as specified in the operations manual. The check may be conducted together with the operator proficiency check prescribed in *ORO.FC.230(b).*

(b) The additional training and checking shall include at least the following:

(1) an engine failure during take-off;

(2) a one-engine-inoperative approach and go-around; and

(3) a one-engine-inoperative landing.

(f) System panel operator

(a) Not applicable

(g) Operation on more than one type or variant *(ORO.FC.240)*

(a) The procedures or operational restrictions for operation on more than one type or variant established in the operations manual and approved by the competent authority shall cover:

(1) the flight crew members' minimum experience level;

(2) the minimum experience level on one type or variant before beginning training for and operation of another type or variant;

(3) the process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and

(4) all applicable recent experience requirements for each type or variant.

(b) When a flight crew member operates both helicopters and aeroplanes, that flight crew member shall be limited to operations on only one type of aeroplane and one type of helicopter.

(c) Point (a) shall not apply to operations of performance class B aeroplane if they are limited to single-pilot classes of reciprocating engine aeroplanes under VFR by day. Point (b) shall not apply to operations of performance class B aeroplane if they are limited to single-pilot classes of reciprocating engine aeroplanes.

(d) All flight crew members must have completed;

(1) The appropriate type rating course required by Part-FCL at an approved Type Rating Training Organisation; and

(2) The operator's conversion course before commencing unsupervised line flying:

(i) When converting to an aeroplane for which a new type or class rating is required; and

(ii) when changing operator.

5.2.1 (a) Commanders

The minimum qualification requirements for pilots to act as Commander of a Commercial Air Transport flight are:

(a) successful completion of the command course if conducting multi-crew operations;

(b) an Airline Transport Pilot's Licence; or a Commercial Pilot's Licence and:

(i) 500 hrs total flight time on aeroplanes, or a valid Instrument Rating, when conducting passenger carrying operations under VFR outside a radius of 50 nm from an aerodrome of departure; or

(ii) When operating on a multi-engined aeroplane under IFR:

a) 700 hours total flight time on aeroplanes; including

b) 400 hours as pilot-in-command; including

c) 100 hours under IFR of which 40 hours must have been on a multi-engined aeroplane;

Note: The 400 hours in B above may be substituted by hours operating as a co-pilot on the basis that two hours co-pilot is equivalent to one hour as pilot in command provided those hours were gained within an established multi-crew system.

(a) valid Instrument Rating when operating under IFR;

(b) valid recurrent checks.

5.2.1.1 **Commanders Recency**

A minimum of 3 take-offs and 3 landings, as pilot flying in the preceding 90 days. These may be carried out in a approved flight simulator.

The 90 day period prescribed may be extended up to a maximum of 120 days by line flying under the supervision of a Type Rating Instructor or Examiner.

For pilots qualified on more than one type the above requirement applies to each specific type for recency purposes.

For Example: A pilot qualified on the King Air 200 must complete a minimum of 3 take-offs and 3 landings as pilot flying in the preceding 90 days on both aircraft.

5.2.1.2 In addition and prior to operating Commercial Air Transport operations, the operator will ensure that Commanders meet the requirements relating to route and aerodrome competency. *AMC1 ORO.FC.105(b)(2); 2,*

5.2.1.3 For aeroplanes being operated in performance Class B and when operated under visual flight rules by night or instrument flight rules (IFR), the operator will ensure that the Commander meets the requirements of *AMC2 ORO.FC.FC(c)* and take into account *GM1 ORO.FC.105 (d)* relating to specific requirements that may be stipulated in specific cases by the State of the aerodrome.

5.2.2 (b) First Officers

(a) an Airline Transport Pilots Licence or a Commercial Pilots Licence;

(b) valid Instrument Rating when operating under IFR;

(c) valid recurrent checks;

5.2.2.1 **First Officers** Handling Limits

Refer to FRM-TR-1060 for limitations imposed on inexperienced First Officers.

5.2.2.2 First Officers Recency

A minimum of 3 take-offs and 3 landings, as pilot flying in the preceding 90 days. These may be carried out in a approved flight simulator.

The 90 day period prescribed may be extended up to a maximum of 120 days by line flying under the supervision of a Type Rating Instructor or Examiner.

For pilots qualified on more than one type the above requirement applies to each specific type for recency purposes.

For Example: A pilot qualified on the King Air 200 must complete a minimum of 3 take-offs and 3 landings as pilot flying in the preceding
90 days on both aircraft.

5.2.3 Initial and Renewal Requirements Commanders & First Officers *(AMC1 ORO.FC.230)*

5.2.3.1 The Operator Proficiency Check (OPC)

The period of validity shall be 6 calendar months in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of the previous OPC, the period of validity shall extend from the date of issue until 6 calendar months from the expiry date of the previous OPC.

In addition to the OPC described above, the requirements of the Part-FCL for a Licence Proficiency Check (LPC) must be completed every 12 months and may be combined with an OPC.

5.2.3.2 Line Check (AMC1 ORO.FC.230 and GM1 ORO.FC.230)

The period of validity shall be 12 calendar months, in addition to the month of issue. If issued within 3 calendar months of validity of a previous line check the period of validity shall extend from the date of issue until 12 calendar months from the expiry date of that previous line check.

5.2.3.3 Emergency and Safety Equipment Training and Checking (*AMC1 ORO.FC.230)*

The period of validity is 12 months in addition to the remainder of the month of issue. If issued within the final 3 calendar months of validity of the previous check, the period of shall extend from the date of issue until 12 calendar months from the expiry date of the previous emergency and safety check.

5.2.3.4 Crew Resource Management (CRM) *(AMC1 ORO.FC.115&215)*

The company will ensure that each Flight crewmember undergoes CRM training as part of recurrent training. See Part D Training Manual.

5.2.3.5 Ground and Refresher Training *(AMC1 ORO.FC.230)* (See also Part D Training Manual)

Subject:	Validity Period
ESEP	12 Months
Evacuation	3 Yearly
Fire & Smoke	3 Yearly
Dangerous Goods	24 Months
Security	12 Months
Winter Ops	12 Months
MNPS/RVSM	24 Months
Water Training/First Aid	Initial only.

Will be completed prior to initially operating on the line and then renewed in accordance with the periods shown. The operator will require Flight Crew to complete refresher training online to demonstrate his/her technical ability.

5.2.3.6 Route and Aerodrome Competence Qualification *(AMC1 ORO.FC (b) (2);(c)*

The period of validity of the route and aerodrome competence qualification shall be 12 calendar months in addition to:

(a) The remainder of the month of qualification; or

(b) The latest operation on the route or to the aerodrome.

Route and aerodrome competence qualification shall be re-validated by the operating on the route or to the aerodrome within the period of validity described above.

If revalidated within the final three calendar months of validity of a previous route and aerodrome competence qualification, the period of validity shall extend from the previous route and aerodrome competence qualification.

Revalidation is by a briefing.

5.4 Training, Checking and Supervisory Personnel

The following personnel have a training, checking and supervisory function with respect to operational staff. Their duties are detailed in Part D (Training Manual) for other operations personnel:

5.4.1 Flight Crew

- Head of Training
- Director Flight Operations
- TRE/TRI/SFI/SFE;
- Line Training Commanders;
- TRTO.

5.4.2 Flight Crew responsible for cabin safety

- Director Flight Operations;

5.5 Other Operations Personnel

The Operator will ensure that all personnel assigned to, or directly involved in, ground and flight operations are properly instructed, and have demonstrated their abilities in their particular duties, are aware of their responsibilities and the relationship of such duties to the operation as a whole.

They must possess excellent communications skills and show competence at those computer operations essential to the successful completion of their tasks.

Flight crew training records are maintained by the training department and the Ground Operations staff training records are maintained by the Deputy Ground Operations Manager.

5.6 Updating of Databases on Company Aircraft

The updating of databases in installed avionics meeting the conditions of this paragraph are not considered maintenance procedures and may be performed by pilots provided:

1. The database upload is:
    a. Initiated from the flight deck.
    b. Performed without disassembling the avionics unit, and
    c. Performed without the use of tools and/or special equipment

2. The pilot must comply with the certificate holder's procedures or manufacturer's
    a. instructions.

3. The holder of the operating certificates must make available written procedures
    a. consistent with manufacturer's instructions to the pilot that describe how to:
    b. Perform the database update, and
    c. Determine the status of the data upload.

This page intentionally left blank

6 CREW HEALTH PRECAUTIONS

6.1 Crew Health Precautions

Alcohol and other intoxicating liquids *AMC1 CAT.GEN.MPA.100.(c) (1)*
Although alcohol consumption may be socially acceptable, it is a psychoactive substance and has a detrimental effect on human skills and efficiency, which is particularly noted in relation to flying duties. The effects of alcohol are primarily related to levels in the blood, which vary individually according to the quantity and rate of consumption and may be significant long after the last alcoholic intake.

Flight crew members shall not consume alcohol for a minimum period of 12 hours before standby or reporting for duty.

Flight crew members shall not consume alcohol while on standby or during the flight duty period.

The Railways &Transport Safety Act 2003 provides exact limits for breath, blood and urine samples. . This level is one quarter of the United Kingdom legal driving limit.

Testing under the act – Section 96 provides the Police with powers to require a person to co-operate with a preliminary test where:

- A constable in uniform reasonably suspects that the person is over the prescribed limit, or his/her aviation function is impaired through either drink or drugs;
- A constable in uniform reasonably suspects that the person has been over the prescribed limit or impaired through drink or drugs, and still has alcohol or a drug in his/her body or is still under the influence of a drug;
- An aircraft is involved in an accident and a constable reasonably suspects that the person was undertaking an aviation function, or an activity ancillary to an aviation function, in relation to the aircraft.

A person who, without reasonable excuse, fails to provide a specimen when required to do so in pursuance of this section commits an offence.

Notes: EASA state min 8 hrs prior to flight (Gama 12 hrs)
The blood alcohol level should not exceed the lower limit of the national requirements or 0.2 per thousand at the start of the flying duty.

Further Information is detailed in the Company 'Drug and Alcohol Policy' document (Ref. LPO-HSE-039)

Narcotics
The use of narcotics which have not been prescribed by a medical practitioner is expressly forbidden at any time. The above guidance also applies to sleep inducing drugs. As in para (c) below aero-medical advice shall be sought before commencing or continuing with flying duties whenever any narcotics have been prescribed.

Further Information is detailed in the Company 'Drug and Alcohol Policy' document (Ref. LPO-HSE-039)

Drugs

The use of drugs which have not been prescribed by a medical practitioner is expressly forbidden at any time, further more aero-medical advice shall be sought before commencing or continuing with flying duties whenever drugs have been prescribed.

Further Information is detailed in the Company 'Drug and Alcohol Policy' document (Ref. LPO-HSE-039)

Medication can have side effects which may impair flying performance. Symptoms of colds, sore throats, diarrhoea and other abdominal upsets may cause little or no problem whilst on the ground but can distract and affect performance whilst on flying. The in-flight environment may also increase the severity of symptoms which may only be minor whilst on the ground. Consider the underlying condition and that symptoms may be compounded by the side effects of the medication. Ensure the medical practitioner or pharmacist advising you about medication or prescribing medication is aware that you are a pilot. It's the responsibility of the license holder to declare medication to their AME.

Immunisation
Medical advice is to be sought concerning the period to be observed before returning to flying duties following immunisation.

Deep Sea Diving (GM1 CAT.GEN.MPA.100 (c) (2)
Flight crew members whose sporting activities include deep sea diving to a depth exceeding 10 metres shall not fly within 48 hours of completing such diving activity.

Note that the company requirement in this event is more stringent than required in GM1 CAT.GEN.MPA.100 (C)(2) Elapsed time before returning to flying duty, however, it is noted that the statement in the GM1 refers specifically to normal recreational sport diving.

Blood/Bone Marrow Donor
Flight Crew Members should not normally act as blood or Bone Marrow donors.

If, for any reason, they have done so, they are to advise the Company immediately following each donation, and shall not undertake flying duties for at least 24 hours after they have given blood .

In the event that a Bone Marrow donation has been undertaken then aero medical advice is required prior to further flying duties.

Meal precautions prior to and during flight
To reduce the risk of incapacitation of flight crew members due to food poisoning, a choice of meals is provided.

The following arrangements shall be made:

- The Operations Department will ensure a meal or refreshments are provided from an approved Catering supplier;
- Hot meals should normally be consumed within three hours of departure from the station where the meals were uplifted;
- The Commander and the First Officer will be supplied with separate meals and where sandwiches are supplied ensure they contain different ingredients.

- When flight crew members have to choose from the passenger menu then it is the responsibility of the Commander to ensure that he chooses different items from the First Officer.

  The same policy/rule, as stated above, will be applied when the status of a flight operation requires the allocation of a Pilot in Command together with a second flight crew member.

Sleep and Rest
Although the controls on flight and duty periods are intended to ensure that adequate opportunities are provided for flight crew members to obtain rest and sleep, individuals should ensure that proper advantage is taken of such opportunities.

A flight crew member shall not perform duties on an aeroplane if he knows or suspects that he is suffering from fatigue, or feels unfit to the extent that the flight may be endangered.

Surgical Procedures
Aero-medical advice should be sought prior to returning to flying duties following any surgical procedure.

Fitness to Fly
No individual shall act as a member of the flight crew of a Company aeroplane if the applicable medical requirements are not fulfilled or, for any reason, his physical or mental condition is such that it could prevent him/her from carrying out his assigned duties or endanger the safety of the aeroplane or its occupants.

Additional Information for flight crew members

Further information on the effects of medication, drugs, other treatments and alcohol can be found in Annex 1V (Part-Med) to regulation (EU) 1178/2011

It should be noted that in some cases the company requirements may be more stringent than required by the regulations or guidance material.

This page intentionally left blank

7 SECTION 7 - FLIGHT TIME LIMITATIONS

7.1 Flight and Duty Time Limitations and Rest Requirements.

7.1.1 Purpose

The purpose of this flight and duty time limitations scheme is to interpret the requirements of the relevant articles of the Air Navigation Order and CAP371, Fourth Edition, as they apply to the regulation of flight times and the avoidance of fatigue in crew members.

7.1.2 Aim

The aim of this document is to express the intent behind the published, relevant documents, thereby taking all reasonable precautions to ensure that crew members are adequately rested at the beginning of each flying duty period. To meet this aim, due note will be taken of length of duty cycles, periods of time-off and cumulative duty hours.

7.1.3 Applicability

The scheme shall apply in relation to any duty carried out at the behest of the company by flight crew.

7.1.4 Company Responsibilities

The Company will publish rosters in advance so that operating crews can plan adequate pre-flight rest. Where crews request specific days off, 7 days or more in advance, this will normally be granted.

Should such allocated days off subsequently need to be worked, this will be entirely at the discretion of the crewmember concerned. Rosters will provide details of flying duty periods, stand-by duty and rest periods. The Company will be satisfied that crew members employed on an irregular basis are not in breach of this FTL scheme before offering a flying duty.

7.1.5 Crew Members Responsibilities:

Responsibility for the proper control of flight and duty time cannot rest wholly with the Company. Crew members have a responsibility to make optimum use of the opportunities and facilities for rest provided.

They are also responsible for planning and using their rest periods properly in order to minimise incurring fatigue. The ANO places a further responsibility on crew members. Simply put, crew members shall not act as operating crew if they know, or suspect, that their physical or mental condition renders them unfit to operate.

Furthermore, they must not fly if they know that they are in breach of the Company's FTL scheme. Crew members not in regular employ of the Company must provide details of their previous 28 days total flying hours/duty periods to the Company before undertaking a flying duty.

A flight crew member is required to inform anyone who employs his services as a flight crew member of all flight times and flying duty periods undertaken, whether professionally or privately, except for flying in aircraft not exceeding 1,600 kg Maximum weight and not flying for the purpose of public transport or aerial work.

Aerial work includes flying instruction for which the pilot is remunerated. It is also aerial work where valuable consideration is given specifically for flying instruction, even if the pilot receives no reward.

7.2 Definitions FTL Scheme

7.2.1 Acclimatised

When a crew has spent 3 consecutive local nights on the ground within a time zone which is 2 hours wide, and is able to take uninterrupted nights sleep. The crewmember will remain acclimatised thereafter until a duty period finishes at a place where local time differs by more than 2 hours from that at the point of departure.

7.2.2 Cabin Crew

A person employed to facilitate the safety of passengers, whose duties are detailed by the Company or the aircraft Commander. Such persons will not act as a member of the flight crew.

7.2.3 Crew

A member of the flight crew or cabin crew.

7.2.4 Days Off

Periods available for leisure and relaxation free from all duties. A single day off will include two local nights. Consecutive days off will include a further local night for each additional consecutive day off. A rest period may be included as part of a day off.

7.2.5 Duty

Any continuous period during which a crew member is required to carry out any task associated with the business of the Company.

7.2.6 Early Start Duty

A duty is an Early Start Duty if it commences in the period 0500 to 0659 hours local time.

7.2.7 Flight Crew

Flight crew is any member of the crew of an aircraft who performs the duties of a pilot.

7.2.8 Flying Duty Period (FDP)

Any time during which a person operates in an aircraft as a member of its crew. It starts when the crewmember is required by an operator to report for a flight, and finishes at on-chocks or engine-off, at the end of the final sector.

7.2.9 Late Finish Duty

A duty is a Late Finish when the duty finishes in the period 0100 to 0159 hours local time.

7.2.10 Local Night

A period of 8 hours falling between 2200 and 0800 hours local time.

7.2.11 Night Duty

A duty is a Night Duty if any part of that duty falls within the period 0200 to 0459 hours local time.

7.2.12 Positioning

The practice of transferring crews from place to place as passengers in surface or air transport, at the behest of the Company.

7.2.13 Regular

Regular, when applied to duties that are Late Finishes, Night or Early Starts, means a run of 4 or 5 consecutive duties, not broken by a period of 34 hours free from such duties, contained in a single 7 consecutive day period.

7.2.14 Reporting Time

The time at which a crew member is required by the Company to report for any duty.

7.2.15 Rest Period

A period of time before starting a flying duty period which is designed to give crew members adequate opportunity to rest before a flight.

7.2.16 Rostered/Planned Duty

A duty period, or series of duty periods, with stipulated start and finish times, notified to crews in advance, by the Company.

7.2.17 Rostering Period

A period of 2 consecutive weeks

7.2.18 Scheduled Duty

The allocation of a specific flight or flights or other duties to a crew member within the pre-notified rostered/planned series of duty periods.

7.2.19 Sector

The time between an aircraft first moving under its own power until it next comes to rest after landing, on the designated parking position.

7.2.20 Split Duty

A flying duty period which consists of two or more sectors, separated by less than a minimum rest period.

7.2.21 Standby Duty

A period during which the Company places restraints on a crew member who would otherwise be off duty. However, it shall not include any time during which the crew member is contactable for the purpose of giving notification of a duty which is due to start 10 hours or more ahead.

7.2.22 Suitable Accommodation

A well furnished bedroom which is subject to minimum noise, is well ventilated and has the facility to control the levels of light and temperature.

7.2.23 Travelling Time

Time spent by a crew member transiting between the place of rest and the place of reporting for a duty.

7.2.24 Week

A period of 7 consecutive days starting at 0001 local on a Monday.

7.3. Calculation of a Flying Duty Period

7.3.1 The maximum rostered FDP, in hours and fractions of hours, shall be in accordance with paragraph 7.3.2. Rostering limits in the tables may be extended by split duty. On the day, the aircraft Commander may, at his discretion and after taking note of the circumstances of other members of the operating crew, if carried, about their fitness, further extend the FDP actually worked as outlined in Paragraph 7.6 "Aircraft Commander's Discretion To Extend a Flying Duty Period".

7.3.2 The standard reporting time prior to flight is 45 minutes. (The report time for the Scottish Air Ambulance operation will be 30 minutes prior to the flight.)
A sector of 7 hours or over the standard report time prior to the flight is 1 hour 15 minutes.

Pre-flight duties are part of the FDP; 15 minutes duty will be allowed for post-flight activities. The time spent between reporting for a flight and the completion of post-flight tasks determines the length of the subsequent rest period.
See Tables A, B, and C in Section 7.4.11

A non-standard reporting time designed to take advantage of an increased FDP from a more favourable time band, will not be used.

7.3.3 Report times must not be reduced in order for crew members to achieve their required rest prior to an FDP.

7.4 Additional limits on Flying Duty Periods

7.4.1 Late Finishes/Early Starts

This paragraph only applies to crew members who are acclimatised.

Sleep deprivation, leading to the onset of fatigue, can arise if a crew member is required to report early for duty, or finishes a duty late, on a number of consecutive days. Therefore, not more than 3 consecutive duties that occur in any part of the period 0100 to 0659 local time will be undertaken, nor may there be more than 4 such duties in any 7 consecutive days. Any run of consecutive duties (late finishes or nights or early starts) can only be broken by a period of not less than 34 consecutive hours free from such duties. This 34 consecutive hours may include a duty that is not an early, late or night duty.

7.4.2 Regular Early Morning Starts

Crew members who are employed on a regular early morning duty for a maximum of 5 consecutive duties will work to the following:

a) The minimum rest period before the start of such a series of duties will be 24 hours;

b) The duty will not exceed 9 hours, irrespective of the sectors flown.

c) At the finish of such a series of duties, crew members will have a minimum of 63 hours free of all duties;

d) To ensure that cumulative fatigue will not become a problem for crew members employed on regular early morning duties. These duties will be limited to 2 in any 28 day period.

e) For 5 consecutive Early Duties a maximum of 1 hour discretion per day and a total of 2 hours discretion in the 5 day cycle is permitted.

7.4.3 Night Duties 2 or 3 Nights

Should any duties be scheduled to be carried out in any part of the period between 0200 to 0459 local time, for a minimum of 2 and a maximum of 3 consecutive nights, then crew members must be free from all duties by 2100 hours local time before covering the block of consecutive night duties, such that crew members can take a rest period during a local night.

The operator may roster crew members for either 2 or 3 consecutive night duties, but must ensure that the duty preceding this series of duties finishes by 2359 hours local time (2 nights) or 2100 hours local time (3 nights).

7.4.4 Mixed Duties

When a crewmember is required to report for duty in advance of the stipulated report time for a scheduled flight, to carry out a task at the behest of the Company, then the time spent on that task shall be part of the subsequent FDP.

7.4.4.1 Mixed Simulator and Aircraft Flying

When a crew member flies in the simulator, either on a check or training flight, or as a training Captain or Instructor, and then within the same duty period flies as a crew member on a Commercial Air Transport flight, all the time spent in the simulator is counted in full towards the subsequent FDP. Simulator flying does not count as a sector, but the FDP allowable is calculated from the report time of the simulator detail

7.4.4.2 Mixed Single Pilot/Two Pilot Operations

In one duty period a pilot may fly as single flight crew up to the point where the total duty hours reach the single flight crew FDP limit.

The pilot may then continue beyond the single flight crew FDP limit in a two pilot operation up to the two flight crew FDP maxima, but may only fly as a co-pilot.

7.4.5 Travelling Time

Travelling time, other than that spent on positioning, shall not be counted as duty.

7.4.5.1 Travelling time, from home to departure aerodrome, if long distances are involved, is a factor influencing any subsequent onset of fatigue. If the journey time from home to normal departure airfield is usually in excess of one and a half hours, a crew member should make arrangements for temporary accommodation nearer to base.

7.4.5.2 When crew members are required to travel from their home to an aerodrome other than the one from which they normally operate, any travelling time over and above the time taken for the journey from home to the usual operating aerodrome shall be classed as positioning. Notional times for any additional travelling shall be agreed between the Company and the CAA.

7.4.6 Delayed Reporting Time in a Single FDP

When a crew member is informed of a delay to the reporting time before leaving the place of rest, the FDP shall be calculated as follows: When the delay is less than 4 hours the maximum FDP allowed will be based on the original report time and the FDP will start at the actual report time. When the delay is 4 hours or more then the more limiting time band associated with the planned and actual reporting time will be used and the FDP will start 4 hours after the original report time.

When the Company informs a crew member before leaving the place of rest of a delay in reporting time of 10 hours or more ahead and that crew member is not further disturbed by the Company until a mutual agreed time, then that period is classed as rest. If, upon the resumption of duty, further delays occur then the appropriate criteria in this sub-paragraph and the sub-paragraph above will be applied to the re-arranged reporting time.

7.4.7 Positioning

Time spent on positioning at the behest of the Company prior to consecutively operating as a crew member counts as part of the FDP. In these circumstances the FDP commences at the time the crewmember reports for the positioning journey or positions in accordance with Para 7.4.5 Travelling Time The subsequent rest period must account for the FDP, Post-Flight Duties, and any positioning.

If, after positioning journey, the crewmember spends less than a minimum rest period at suitable accommodation provided by the Company and then carries out an FDP, the positioning will be counted as a sector if a split duty is claimed when calculating the allowable FDP. If it is not, then a split duty FDP will not be used.

On occasion, and when agreed by the CAA, an operator may recover a crew member from an overseas airfield on a positioning flight on the eighth consecutive day of duty.

7.4.7.1 Self-drive positioning

The Company will allow crew members to self drive using Company or Car Hire facilities as a matter of convenience under the following conditions:

- A maximum driving period of 2 hours 30 minutes shall be allowed within a FDP and will constitute a sector when calculating the maximum FDP for any crew member driving;
- Driving as part of a non-FDP or subsequent to a FDP shall be allowed.

7.4.8 Standby Duty

The time of start, end and nature of the standby duty will be defined and notified to crew members. The time a standby duty starts determines the allowable FDP, except that when the actual FDP starts in a more limiting time band, then that FDP limit will apply. However, when a standby duty is undertaken at home or in suitable accommodation provided by the Company during the period 2200 to 0800 hours local time, and the crew member is given 2 hours or less notice of a report time, then the allowable FDP starts at the report time at the designated reporting place.

When a crew member is on standby duty on immediate readiness at an airport, then the allowable FDP is calculated using the start time of the standby duty. If a crew member is called out from standby, the standby duty will cease when the crew member reports at the designated reporting point.

The following limits apply:

DUTY	MAX DURATION
Standby Duty (all cases)	12 hours
Standby followed by an FDP	As in cases A and B below

- Case A

If a crew member is called out from standby to conduct an FDP before completing 6 hours of standby duty, then the allowable FDP is that obtained from paragraph 7.4.11

- Case B

If a crew member is called out from standby to conduct an FDP after completing 6 or more hours standby duty, then the allowable FDP is that obtained from the more limiting time band of either the Standby Duty start time or Reporting Time, from paragraph 7.4.11 reduced by the amount of standby worked in excess of 6 hours.

7.4.9 Limits on Two Flight Crew Long Range Operations

When an aeroplane flight crew is only two pilots, the allowable FDP shall be calculated as follows. A sector scheduled for more than 7 hours considered as a multi-sector flight, as in the table below:

Scheduled Sector Times	Acclimatised	Not-Acclimatised
	Sectors	
Sector Length over 7 hrs but not more than 9 hrs	2	4
Sector Length over 9 hrs but not more than 11 hrs	3	4
Sector Length over 11 hours	4	Not Applicable

The appropriate table in paragraph 7.4.11 is then entered with the start time of the duty period and the 'modified' number of sectors, to determine the allowable FDP.

When an additional, current, type rated pilot is carried then these limits do not apply and the permissible FDP is determined by entering the appropriate table in paragraph 7.4.11 with time of start and the actual sectors planned.

7.4.9.1 Extension of Flying Duty Period by In-flight Relief

When any additional crew member is carried to provide in-flight relief with the intent of extending an FDP, that individual shall hold qualifications which are equal or superior to those held by the crew member who is to be rested. To take advantage of this facility the division of duty and rest between crew members must be kept in balance. It is unnecessary for the relieving crew member to rest in between the times relief is provided for other crew members.

7.4.9.2 When in-flight relief is utilised there must be, for the crew members resting, a comfortable reclining seat, or bunk, separated and screened from the flight deck and passengers.

A total in-flight rest of less than three hours per crew member to be rested does not allow for the extension of an FDP, but where the total in-flight rest, which need not be consecutive, is three hours or more, then the permitted FDP may be extended as follows:

If rest is taken in a bunk	If rest is taken in a seat
A period equal to one half of the total rest taken, provided that the maximum FDP permissible shall be 18 hours; 19 hours in the case of cabin crew	A period equal to one third of the total rest taken, provided that the maximum FDP permissible shall be 15 hours; 16 hours in the case of cabin crew.

7.4.10 Rest Periods

The Company will notify all crew members in good time of a flying duty period so that sufficient and uninterrupted pre-flight rest can be obtained. When away from base the Company will provide the crew with the opportunity and the facilities for adequate pre-flight rest. The Company will provide suitable accommodation. When flights are carried out at such short notice that it is impracticable for the Company to arrange suitable accommodation, then this responsibility devolves to the aircraft Commander.

The minimum rest period which will be provided before under-taking a flying duty period shall be:

- At least as long as the preceding duty period, or
- 12 hours, Whichever is the greater.

When away from base in the case when the rest period earned by a crew member is 12 hours and suitable accommodation is provided by the Company, then the Company may assign a rest period of 11 hours. In such circumstances, if travelling time between the aerodrome and the accommodation is more than 30 minutes each way then the rest period will be increased by the amount the total time spent travelling exceeds one hour. The accommodation allocated to the crew member must be available for occupation for a minimum of 10 hours. (This sub-paragraph does not apply to rest periods that exceed 12 hours).

Exceptionally, at home base, individual crew members may be asked to exercise their discretion to reduce rest by up to a maximum of one hour but only to a minimum of 12 hours.

If discretion is used it is the responsibility of the operator and the crew member to inform the Commander of the flight immediately following the rest period that a reduced rest has been taken.

If a duty period, which includes any time spent on positioning, exceeds 18 hours, then the ensuing rest period will include a local night.

Following a sequence of reduced rest and an extended FDP the subsequent rest period cannot be reduced.

When any period of standby finishes, during which a call-out has not occurred, at least 12 hours rest must follow prior to the next duty period.

After being called out from a standby duty the length of the minimum rest period will be determined by the length of standby duty, plus any time spent on positioning, and any FDP completed plus post flight duties.

Crew members who are having difficulty in achieving adequate pre-flight rest must inform the Company, who will arrange for the individual to be given the opportunity to consult an aviation medical specialist.

7.4.11 Maximum FDP – Aeroplanes

TABLE 'A' Two or more Flight Crew FDP (Acclimatised)

Table A: Two or more Flight Crew FDP – Acclimatised								
	Sectors							
Local time of start	1	2	3	4	5	6	7	8 or more
0600-0759	13:00	12:15	11:30	10:45	10:00	9:30	9:00	9:00
0800-1259	14:00	13:15	12:30	11:45	11:00	10:30	10:00	9:30
1300-1759	13:00	12:15	11:30	10:45	10:00	9:30	9:00	9:00
1800-2159	12:00	11:15	10:30	9:45	9:00	9:00	9:00	9:00
2200-0559	11:00	10:15	9:30	9:00	9:00	9:00	9:00	9:00

TABLE 'B' Two or more Flight Crew FDP (Not Acclimatised)

Table B: Two or more Flight Crew FDP – Not Acclimatised							
Hours of Preceding rest	Sectors						
	1	2	3	4	5	6	7 >
Up to 18 or over 30	13:00	12:15	11:30	10:45	10:00	9:15	9:00
Between 18 and 30	11:30	11:00	10:30	9:45	9:00	9:00	9:00

Note:- The practice of inserting a short duty into a rest period of between 18 and 30 hours in order to produce a rest period of less than 18 hours, thereby taking advantage of the longer FDP contained in Table B, is not permitted.

TABLE 'C' Single Flight Crew FDP

Table C: Single Flight Crew FDP					
Local time of start	Sectors				
	Up to 4	5	6	7	8 or more
0600-0659	10:00	9:15	8:30	8:00	8:00
0700-1259	11:00	10:15	9:30	8:45	8:00
1300-1759	10:00	9:15	8:30	8:00	8:00
1800-2159	9:00	8:15	8:00	8:00	8:00
2200-0559	8:00	8:00	8:00	8:00	8:00

Note:- Table C applies to flights confined to an area within which the local time does not vary by more than 2 hours.

7.5 Extension of a Flying Duty period by Split Duty.

7.5.1 When an FDP consists of two or more sectors **-** one of which can be a positioning journey counted as a sector - but separated by less than a minimum rest period, then the FDP may be extended by the amount indicated below.

CONSECUTIVE HOURS OF REST	MAXIMUM EXTENTION OF THE FDP
Less than 3	Nil
3-10	A period equal to half the consecutive hours rest taken

The rest period shall not include the time allowed for immediate post-flight and pre-flight duties, a minimum total of 30 minutes. When the rest period is 6 hours or less it will suffice if a quiet and comfortable place, not open to the public, is available. Rest may be taken in the aircraft on the ground only when the crew has adequate control of the temperature and ventilation within the aircraft and the passengers are not on board. If the rest period is more than 6 consecutive hours, suitable accommodation will be provided.

7.6 **Aircraft Commander's Discretion To Extend a Flying Duty Period.**

7.6.1 An aircraft Commander may, at his discretion and after taking note of the circumstances of the other member of the crew,

if carried, extend an FDP beyond that permitted in Section 7.3 provided he is satisfied that the flight can be made safely. The extension shall be calculated according to what actually happens, not on what was planned to happen. An extension of 3 hours is the maximum permitted, except in cases of emergency (see Note 1).

A Commander may exercise his discretion to extend an FDP involving 2 or more sectors up to a maximum of 2 hours prior to the first and subsequent sectors but this may be up to 3 hours prior to the start of a single sector flight, or immediately prior to the last sector on a multi-sector flight.

A Commander may exercise discretion to extend an FDP following a reduced rest period, only exceptionally and then only to the extent necessary to allow for unforeseen circumstances that become apparent during the last sector.

Note1: In respect of an extension of a flying duty period, an emergency is a situation, which in the judgement of the Commander presents a serious risk to health or safety of crew and passengers, or endangers the lives of others.

7.6.2 Aircraft Commander's Discretion to Reduce a Rest Period

An aircraft Commander may, at his discretion and after taking note of the circumstances of other members of the crew, if carried, reduce a rest period but only insofar as the accommodation allocated to the crew member must be available for occupation for a minimum of 10 hours. The exercise of such discretion, must be considered exceptional and must not be used to reduce successive rest periods. If the preceding FDP was extended, the rest period may be reduced, provided that the subsequent allowable FDP is also reduced by the same amount. In no circumstances may a Commander exercise discretion to reduce a rest period below 10 hours at accommodation.

When away from base and where an individual crew member separates from the crew, or the crew as a whole splits up, then any use of discretion to reduce rest becomes a decision for an individual crew member. The decision to continue with the next flight and the submission of an associated discretion report is the responsibility of the relevant Commander after the crewmember, and operator if in a position to do so, has informed the Commander that a reduced rest has been taken.

7.6.3 Reporting Exercise of Discretion

Whenever a Commander extends an FDP it shall be reported to the Company on a Discretion Report Form(GAL220) and a copy of the completed Flight Envelope attached. If the extension is more than 2 hours, then the Company will submit the Commander's written report together with the comments by the Company, to the CAA, within 14 days of the aircraft's return to base.

Whenever a Commander reduces a rest period, it shall be reported to the Company on a Discretion Report Form(GAL220B) and a copy of the completed Flight Envelope attached. If the reduction is more than 1 hour, then the Company will submit the Commander's written report together with the comments by the Company, to the CAA, within 14 days of the aircraft's return to base.

For an example of a Discretion Report Please refer to Appendix 8.

7.7 Days Off

Whenever possible and if required by the crewmember, days off will be taken in the home environment.

- A single day off will include 2 local nights and will last at least 34 hours.
- A planned rest period may be included as part of a day off.

Crew members will:

- Not be on duty more than 7 consecutive days between days off. Have 2 consecutive days off in 14 days following the previous 2 consecutive days off;

  As the operator has the option to position a crew on the ‘8th day (see para 7.4.7), A crew member will not be on duty more than 7 consecutive days between Days-Off but may be positioned to the usual operating base on the next day after which they will have 2 consecutive Days-Off.

- Have a minimum of 7 days off in any consecutive 4 weeks;

- Have an average of at least 8 days off in each consecutive 4 week period, averaged over three such periods.

7.8 Absolute Limits on Flying Hours

A person shall not act as a member of the flight crew of an aircraft if, at the beginning of the flight, the aggregate of all previous flights times:

During the period of 28 consecutive days expiring at the end of the day on which the flight begins exceeds 100 hours.

During the period of 12 months expiring at the end of the previous month exceeds 900 hours.

Different cumulative flying hours restriction apply for crew members rostered for regular early morning duties (see section 7.4.2)

7.9 Cumulative Duty Hours

The maximum duty hours for flight crew shall not exceed:

- 55 hours in any 7 consecutive days; but may be increased to 60 hours, when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays;
- 95 hours in any 14 consecutive days;
- 190 hours in any 28 consecutive days.

When a crewmember is not rostered for either standby or flying duties for 28 or more consecutive days then any duty hours worked are not added to cumulative totals.

However, when a crew member is anticipated to return to either standby or flying duties then the duty hours worked in the 28 days preceding that duty must be recorded.

7.9.1 Calculation of Cumulative Duty Hours

To count in full:

- Duty periods and flying duty periods, plus subsequent post-flight duties;
- All standby duty, except standby duty undertaken at home, (see below);

To count as half the time on duty:

- The standby duty, when the period of notice given to crew members before reporting for duty is *the greater of: 2hr 15 min or 3 x the report* time *for the aircraft type.*
- The standby duty, when undertaken at home or in suitable accommodation provided by the Company, takes place during the period 2200 to 0800 local time and the crew member can take undisturbed rest and is not called out for duty.

7.11 Records to be maintained FTL

Records for the duty and rest periods of all flying staff must be kept. These records shall include:

For each crew member:

- The beginning, end and duration of each duty or flying duty period, and function performed during the period.
- Duration of each rest period prior to a flying duty period or standby duty period.
- Dates of days off.
- consecutive day totals of duty.

For each flight crew member:

- Daily and 7 consecutive day flying hours.
- Records shall be preserved for at least 15 calendar months from the date of the last relevant entry.

7.11.1 Additionally, aircraft Commander's discretion reports of extended flying duty periods and reduced rest periods will be retained for a period of at least six months after the event.

7.12 Dedicated Air Ambulance

Air Ambulance Definition:- when the sole reason for the flight is to carry an ill or injured person to a recognised medical facility, or the carriage of a human organ necessary for a transplant operation. A sector flown to position an aircraft to the operating base before or after an Air Ambulance flight is considered part of that flight.

The company operates a dedicated Air Ambulance service and accordingly the allowable FDP, as per section 7.4.11, may be planned to be increased by up to a maximum of 4 hours. This is referred to as Air Ambulance FDP and to use this allowance the following must apply:

- When an ill or injured person is carried a qualified medical attendant must accompany the flight.
- The only passengers that may be carried in addition to the patient and medical crew are the immediate family or next of kin;
- The crew must have had the full entitlement of rest relating to the preceding duty prior to starting an Air Ambulance flying duty;
- Two Pilot Crew;

The Ambulance Allowance may be used in order to position an aircraft to transfer a patient and return back to base to enable the aircraft to be available for further life saving work with a fresh crew. This allowance cannot be planned to exceed 4 hours.

Upon completion of an Air Ambulance FDP the appropriate full rest period must be taken.

There is no limit to the number of Air Ambulance FDP's that can be undertaken within a roster period and no requirement for extended time before the Air Ambulance FDP can be used again.

The use of Commander's discretion to further extend the Ambulance FDP beyond the extra 4 hours permitted may be exercised only to off-load/deliver the patient or organ to the destination. This is then deemed to be an Extended Ambulance FDP and cannot be planned for. Such discretion cannot be used after the patient or organ has been off-loaded. A discretion report must be submitted with the flight paperwork.

Following an Extended Air Ambulance FDP the appropriate full rest period must be taken.

- In addition at least 48 hours must elapse between the end of one extended Air Ambulance FDP and the start of another extended Air Ambulance FDP. In one Air Ambulance operation involving two or more extended FDP duties (*the first of which is positioning to uplift a patient or organ)* the necessity for the 48 hours rest may be deferred until return to base. In this case the Commander may reduce the rest following the first FDP by up to 3 hours or to 10 hours in suitable accommodation, whichever is the greater.
- A pilot can only fly 3 Air Ambulances extended FDPs in any 28 consecutive days. *(This ruling shall only apply where extensions exceed one and a half hours)*;
- You may undertake a normal Air Ambulance FDP once rested following an Extended Air Ambulance FDP;
- The relevant duty records must show where an FDP was conducted in accordance with this supplement;
- The use of split duty to extend the FDP is not permitted.

All details to be recorded on form *GAL221 - Air Ambulance Commanders Discretion Report*

This page intentionally left blank

8 SECTION 8 - OPERATING PROCEDURES

All Gama Aviation aircraft operating for the purposes of Commercial Air Transport, shall:

a) comply with applicable retroactive airworthiness requirements; and
b) be operated in compliance with the terms of their respective certificates of airworthiness and within the approved limitations contained within their Aircraft Flight Manuals (AFM).

8.1 Flight Preparation Instructions

An Operational Flight Plan must be completed for each intended flight except as shown in para 8.1.9 below.

The Commander shall not commence a flight unless he is satisfied that:

(i) the aeroplane is airworthy;

(ii) the aeroplane configuration is in accordance with the MEL;

(iii) the instruments and equipment required for the flight to be conducted, in accordance with EASA-OPS Part CAT.IDE.A, are available;

(iv) the instruments and equipment are in operable condition except as provided in the MEL;

(v) those parts of the operations manual which are required for the conduct of the flight are available;

(vi) the documents, additional information and forms required to be available by para 8.1.12 are on board;

(vii) current maps, charts and associated documents or equivalent data are available to cover the intended operation of the aeroplane including any diversion which may reasonably be expected;

(viii) ground facilities and services required for the planned flight are available and adequate;

(ix) the provisions specified in the operations manual in respect of fuel, oil and oxygen requirements, minimum safe altitudes, aerodrome operating minima and availability of alternate aerodromes, where required, can be complied with for the planned flight;

(x) the load is properly distributed and safely secured;

(xi) the mass of the aeroplane, at the commencement of the take-off roll, will be such that the flight can be conducted in compliance with para 8.1.8 inclusive and Part B Sections 4, 6 and 7; and

(xii) any operational limitation in addition to those covered by sub-paragraphs (ix) and (xi) above can be complied with.

8.1.1 Establishment of Minimum Flight Altitudes CAT.OP.MPA.145

8.1.1.1 General

When an aeroplane is operated for the purpose of Commercial Air Transport, the minimum altitude/flight level at which it is permitted to fly is governed by regulation, air traffic control requirements, or by the need to maintain a safe height margin above any significant terrain or obstacle en route. The operators approved procedures for establishing the minimum flight altitudes will apply to all route sectors. Whichever of these requirements produces the highest altitude/flight level for a particular route will determine the minimum flight altitude for that route, and the Commander shall not fly below this minimum altitude.

The procedures outlined in the following paragraphs are to be followed when calculating the minimum altitude for the safe avoidance of en-route terrain and obstacles.

8.1.1.2 Minimum Obstacle Clearance Altitude (MOCA) and Minimum Off-route Altitude (MORA) Jeppesen Formula (CAT.OP.MPA.270)

The Commander or the Pilot to whom conduct of the flight has been delegated shall not fly below specified minimum altitudes except,

(a) necessary for take-off or landing, or
(b) descending in accordance with procedures approved by the competent authority.

The operators aircraft will not fly below the published MOCA if on a published route, or the MORA if off a published route (supplied by Jeppesen) except either landing or taking off from an airfield or when instructed by ATC, or when on the grounds of safety. The lowest flight shall not be less than 2000 ft.

When operating visually and below 3000 ft amsl, VFR minima will be an inflight visibility of 5km, clear of cloud and insight of the surface and minimum height of 1000 ft (Crewmembers still must comply with rules governing low flying).

8.1.1.3 MOCA is the sum of:

(a) The maximum terrain or obstacle elevation, whichever is the higher, plus:

1) 1000 feet for elevations up to and including 5000 feet, or

2) 2000 feet for elevations exceeding 5001 feet, rounded up to the next

Note: MOCA is designated on Jeppesen charts with a ‘T’ i.e. 4000T

8.1.1.4 In relation to a VOR station, the corridor width within which terrain/obstacles must be considered is defined as:

(v) starting 5 nm either side of the VOR, diverging 4° from the centreline until a width of 20 nm is reached at 70 nm out;

(w) a constant width of 20 nm from 70 nm out until 140 nm out;

(x) diverging 4° from 140 nm out until a width of 40 nm is reached at 280 nm out, then remaining constant at 40 nm.

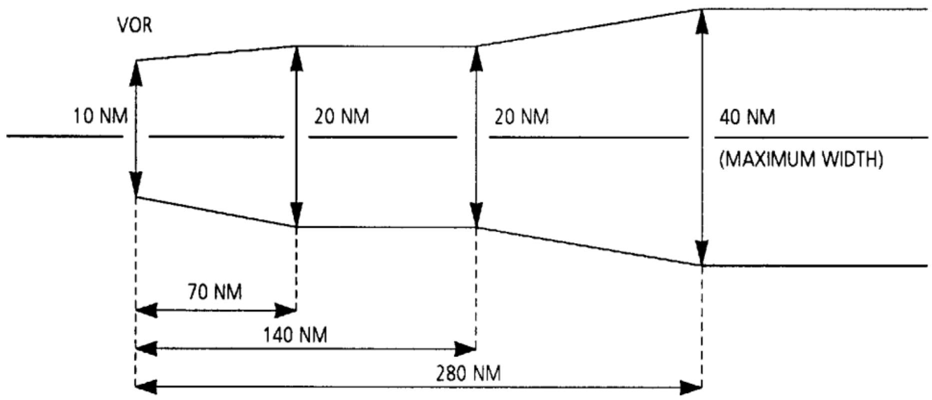


Figure 1

8.1.1.5 In relation to an NDB, the corridor width is:

(a) starting 5 nm either side of the station, diverging 7° until a width of 20 nm is reached 40 nm out;

(b) a constant width of 20 nm from 40 nm out until 80 nm out;

(c) diverging 7° from 80 nm out until a width of 60 nm is reached 245 nm out, then remaining constant at 60 nm.

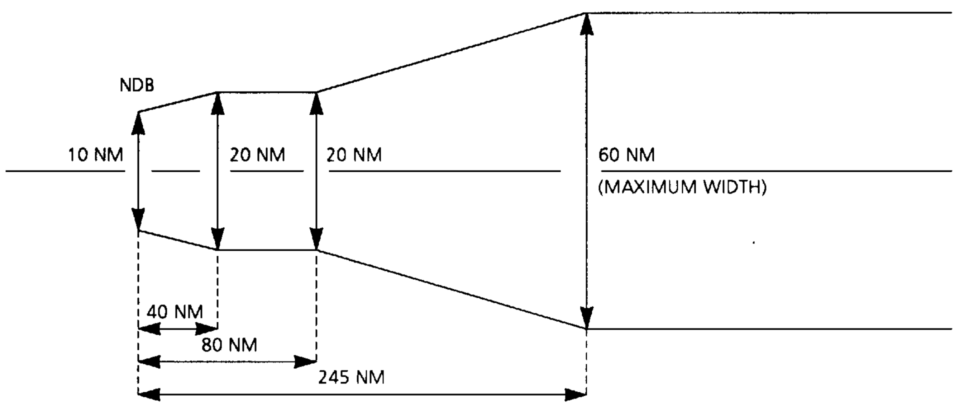


Figure 2

8.1.1.6 Minimum Off-route Altitude (MORA)

MORA is calculated for an area bounded by every Lat/Long square on the Radio Facility Chart/Topographical Aeronautical Map, and for each square is the sum of:

The maximum terrain or obstacle elevation, whichever is the Higher; plus

(a) 1000 feet for elevations up to and including 5000 feet**,** or

(b) 2000 feet for elevations above 5001 feet.

Route MORA values are computed on the basis of an area extending 10 NM to either side of the route centreline and including a 10NM radius beyond the radio fix/reporting point or mileage break defining the route segment.

8.1.1.7 Allowance for Wind Speed

When operating within 20 nm of terrain whose maximum elevation exceeds 2000 feet a.m.s.l, Commanders are to increase the standard MOCA/MORA by the amounts given in the following table, according to the wind speed over the route:

Terrain Elevation	**Wind Speed in Knots**			
	0-30	**31-50**	**51-70**	**70 Plus**
2000 to 8000 ft	+ 500ft	+1000 ft	+1500 ft	+2000 ft
More than 8000 ft	+1000 ft	+1500 ft	+2000 ft	+2500 ft

8.1.1.8 Temperature Correction

When the surface ambient temperature en route is well below the ISA value, MSA's must additionally be corrected as follows:

Surface Temperature	**Correction to MOCA/MORA**
ISA –16°C to ISA –30°C	MOCA/MORA plus 10%
ISA –31°C to ISA –50°C	MOCA/MORA plus 20%
ISA –51°C or below	MOCA/MORA plus 25%

8.1.1.9 Minimum En-route Altitude (MEAs) represent the lowest level (altitude) that ATC will assign on a section of the airway. MEAs are shown on Jeppesen charts.

8.1.1.10 Minimum Safe Altitude (MSA) provides terrain clearance of 1000 feet within 25 nm of the feature depicted in the circle. An approach chart reference is a good example of MSAs.

If an aircraft has to descend as a result of an emergency i.e. pressure problems etc. the Commander must consider the MSA. This must be considered during flight planning and regularly updated during the flight. Some routes Jeppesen consider the planning for you and some areas the Company will provide exit routes. However the responsibility in order to comply with this procedure rests with the Commander.

8.1.1.11 Multi-Engined Aeroplanes

For performance purposes, aeroplanes are grouped into the following classes:

- Class A includes all multi-engined turbojet powered aeroplanes, and multi-engined turbo propeller powered aeroplanes with a maximum operational passenger seating configuration, of more than 9, or a maximum take-off mass exceeding 5700 kg.

Note: Multi-engined aeroplanes powered by turbo propeller engines with a maximum operational passenger seating configuration of more than 9 with a maximum take-off mass of 5,700 kg or less may be permitted by the Authority to operate under alternative operating limitations to those of Performance Class A which shall not be less restrictive than the relevant requirements for Class B aeroplanes.

- Class B covers propeller-driven aeroplanes with a maximum operational passenger seating configuration of 9 or less, and a maximum take-off mass of 5700 kg or less.

- Class C comprises aeroplanes powered by reciprocating engines with a maximum operational passenger seating configuration of more than 9, or a maximum take-off mass exceeding 5700 kg.

8.1.1.12 Class A aeroplanes

In addition to meeting the minimum flight altitude requirements already discussed, aeroplanes operated to performance Class A standards must be capable of meeting the following performance requirements.

- One Engine Inoperative En-Route Net Flight Path.

In the event of loss of one engine at the most critical point along the route, and in the meteorological conditions expected for the flight

(a) the gradient of the net flight path must be positive at least 1000 feet above all terrain and obstructions along the route within 5 nm (9.3 km) on either side of the intended track, or, if this not possible

(b) the net flight path must permit the aeroplane to continue flight from the cruising altitude, clearing vertically by at least 2000 ft all terrain and obstacles along the route within 5 nm (9.3 km) on either side of the intended track, to an aerodrome where a landing can be made. The effect of the operation of ice protection systems on the net flight path must be taken into account if and when relevant.

- Aeroplanes With Three or More Engines – Two Engines Inoperative.

An aeroplane having three or more engines is at no point along the intended track to be more than 90 minutes at the all engines long range cruising speed at standard temperature in still air away from an aerodrome at which the performance requirements appropriate to the expected landing mass are met unless it complies with the following sub-paras:

(a) the two engines inoperative en-route net flight path data must permit the aeroplane to continue the flight, in the expected meteorological conditions, from the point where two engines are assumed to fail simultaneously, to an aerodrome at which it is possible to land and come to a complete stop when using the prescribed procedure for a landing with two engines inoperative. The net flight path must clear vertically, by at least 2000 ft all terrain and obstructions along the route within 9.3 km (5 nm) on either side of the intended track. At altitudes and in meteorological conditions requiring ice protection systems to be operable, the effect of their use on the net flight path data must be taken into account. If the navigational accuracy does not meet the 95% containment level, an operator must increase the width margin given above to 18.5 km (10 nm).

(b) the two engines are assumed to fail at the most critical point of that portion of the route where the aeroplane is more than 90 minutes, at the all engines long range cruising speed at standard temperature in still air, away from an aerodrome at which the performance requirements applicable at the expected landing mass are met;

(c) the net flight path must have a positive gradient at 1500 ft above the aerodrome where the landing is assumed to be made after the failure of two engines;

(d) fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with the required fuel reserves, if a safe procedure is used;

(e) the expected mass of the aeroplane at the point where the two engines are assumed to fail must not be less than that which would include sufficient fuel to proceed to an aerodrome where the landing is assumed to be made, and to arrive there at least 1500 ft directly over the landing area and thereafter to fly level for 15 minutes.

8.1.1.13 Class B aeroplanes

- Multi-Engined Aeroplanes.

In the event of an engine failure en route, in the meteorological conditions expected for the flight and with the remaining engines operating within the specified maximum continuous power conditions, a Class B aeroplane must be capable of continuing the flight at or above the relevant minimum altitude for safe flight calculated in accordance with paras 8.1.1.2 to 8.1.1.6, above, to a point of 1000 feet above an aerodrome at which the performance requirements can be met. The aeroplane must not be assumed to be flying, with all engines operating within the specified maximum continuous power conditions, at an altitude exceeding that at which the rate of climb equals 300 feet per minute, and the assumed en-route gradient with one engine inoperative shall be the gross gradient minus a gradient of 0.5%.

8.1.2 Criteria and responsibilities for determining the adequacy of aerodromes

The Operator (Gama Aviation (UK) Ltd) will ensure that all aerodromes which are selected as destinations or alternates are adequate and suitable in all respects for the types of aeroplane, which are intended to use them.

In this context, ‘adequate’ infers that the runway dimensions and significant obstacles in the local area are such that the performance requirements for the nominated aeroplane type will invariably be met at the weights at which the aeroplane is planned to land and take off, and in the conditions (including contaminated runways) which may be expected to exist at the time of operation.

Ancillary services, including ATS, appropriate aerodrome lighting, communications, navaids, weather reporting and emergency services as appropriate to the maximum total weight authorised and/or maximum passenger seating configuration of the particular aeroplane type are to be available.

For operations under Instrument Flight Rules, an approved approach procedure must be available for each destination and alternate aerodrome, with up-to-date copies of the approach plates available to each pilot. Specific aerodrome operating minima are similarly to be made available to the flight deck crew. These may be contained in the company's standard en-route guide, or be the subject of an entry in the commander's flight brief for 'one off' aerodromes which the guide does not mention. Where departure and approach procedures are published they must be followed unless deviation is specifically authorised by ATC. When deviating from a published route full account must be taken of operating conditions and minimum flight altitudes must be observed. If procedures different to those published by the State are to be used, these will be detailed in the commander's brief.

When arrival at/departure from a particular aerodrome is intended to be carried out under Visual Flight Rules, minimum operating visibilities and cloud ceilings are to be clearly stated on the commander's flight brief. It is not acceptable for the brief simply to state 'VFR'. Any particular hazards such as gliding activities at the aerodrome, or 'free lane' entries to an aerodrome surrounded by controlled airspace, are to be included in the brief.

Aerodrome categorisation, recording procedures and listing for flight crew competence qualifications will be found in Part C, Section 10, Aerodrome Categorisation for Flight Crew Competence Qualification.

In brief, aerodromes will be categorised in ascending order of difficulty from Category A to Category C.

The Categories are as follows:

8.1.2.1 Category A aerodrome - An aerodrome which satisfies all of the following requirements:

(i) an approved Instrument approach procedure;

(ii) at least one runway with no performance limited procedure for take-off and/or landing;

(iii) published circling minima not higher than 1000 ft a.a.l; and

(iv) night Operations capability.

8.1.2.2 Category B aerodrome - An aerodrome which does not satisfy the Category A requirements or which requires extra considerations such as:

(i) non-standard approach aids and/or approach patterns; or

(ii) unusual local weather conditions; or

(iii) unusual characteristics or performance limitations; or

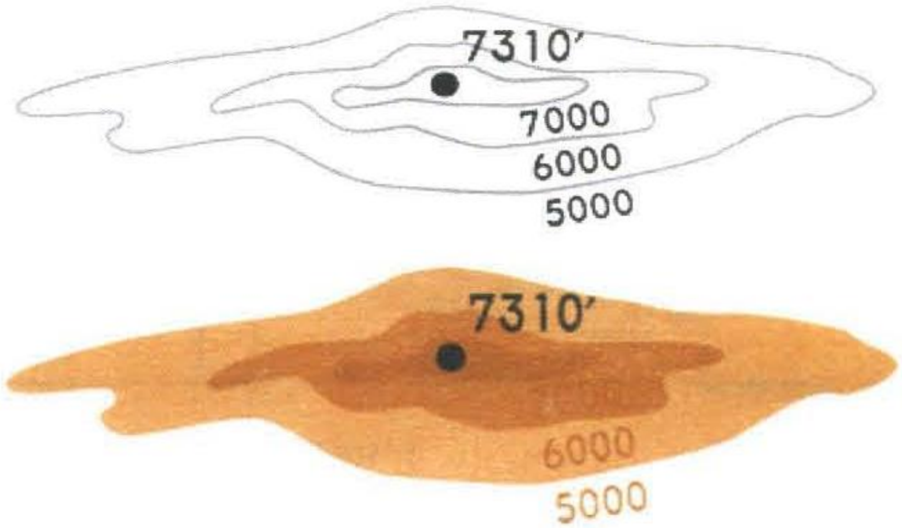
(iv) any other relevant considerations including obstructions, physical layout, lighting etc.

(v) Terrain – as depicted on Jeppesen arrival and approach charts.

Prior to operating to a Category B aerodrome, the Commander should be briefed, or self briefed by means of a programmed instruction provided by the operator, on the Category B aerodrome(s) concerned and should certify that he has carried out these instructions. A warning on the Flight Envelope will indicate the category and the issue that identifies the aerodrome as a 'B'.

8.1.2.2.1 Generalized Terrain Contours

Generalized terrain contour information may be depicted when terrain within the approach chart plan view exceeds 4000 feet above the airport elevation, or when terrain within 6 nautical miles of the Airport Reference Point (ARP) rises to at least 2000 feet above the airport elevation. THIS INFORMATION DOES NOT ASSURE CLEARANCE ABOVE OR AROUND THE TERRAIN AND MUST NOT BE RELIED ON FOR DESCENT BELOW THE MINIMUM ALTITUDES DICTATED BY THE APPROACH PROCEDURE. Furthermore, the absence of terrain contour information does not ensure the absence of terrain or structures.



8.1.2.3 Special Category B Qualification

Special Category B Airfields classification has been withdrawn.

8.1.2.4 Category C aerodrome - An aerodrome that requires additional considerations to a Category B aerodrome.

Prior to operating to a Category C aerodrome, the Commander should be briefed and visit the aerodrome as an observer and/or undertake instruction in a flight simulator. This instruction should be certified by the operator.

The operational flight plan will specify a take-off alternate if meteorological and/or performance considerations preclude return to the departure aerodrome. This take-off alternate shall be located within:

(a) For two engined aeroplanes either:

(1) one hour still air flight time at the AFM one-engine inoperative cruising speed in ISA calculated on the actual take-off mass; or

(2) ETOPS - Not Currently Used by the Operator

(b) Multi engines - Not currently Used by the Operator

(c) If the AFM does not contain a one-engine-inoperative cruising speed the speed to be used for calculation must be the remaining engine max continuous power speed.

8.1.2.5 At least one destination alternate must be selected for each IFR flight unless:

(i) the planned duration of the flight from take-off to landing or in the event of in-flight re-planning the remaining flying time to destination does not exceed 6 hours; and

(ii) two separate runways are available and usable at the destination aerodrome and the appropriate weather reports or forecasts for the destination aerodrome, or any combination thereof, indicate that for the period from one hour before until one hour after the expected time of arrival at the destination aerodrome, the ceiling will be at least 2000 ft or circling height + 500 feet, whichever is greater, and the visibility will be at least 5 km; or

8.1.2.6 Two destination alternate aerodromes must be selected when the appropriate weather reports or forecasts or any combination of these for the destination aerodrome indicate that:

(a) from 1 hour before to 1 hour after the aeroplane's ETA the weather conditions will be below the applicable planning minima; or

(b) when no meteorological information is available.

8.1.2.7 All required alternate aerodromes must be specified in the operational flight plan.

8.1.3 Methods and responsibilities for establishing aerodrome operating minima

(Jeppesen) CAT.OP.MPA.110 Aerodrome operating minima

Planning Requirements

<u>Take-Off Alternates</u>

For selection as a take-off alternate an aerodrome must satisfy the following conditions:

(a) meteorological reports and/or forecasts must indicate that the weather at the aerodrome will be at or above the applicable landing minima for ± 1 hour of the aeroplane's estimated time of arrival (ETA); and

(b) if only non-precision and/or circling approaches are available ceiling must be taken into account; and

(c) any one-engine inoperative limitations must be taken into account e.g. Loss of Cat II or III capability;

(d) take-off at departure aerodromes should not normally be permitted unless a suitable return alternate is available. A take-off alternate must be nominated in the computer flight plan if the aircraft is unable to return to the departure aerodrome due weather. This is to remain within I hour flight time at the AFM one-engine inoperative cruising speed in ISA conditions.

Destination Aerodrome

For selection as a destination an aerodrome must satisfy the following conditions:

(a) Meteorological reports and/or forecasts must indicate that the weather at the aerodrome will be at or above the applicable planning minima (refer para 8.1.2.6) as specified in (i) and (ii) below for ± 1 hour of the aeroplane's ETA:

(i) RVR/Visibility in accordance with para 8.1.3.6; and

(ii) For a non-precision or circling approach the ceiling must be at or above MDH; or

(b) A flight may depart to the destination aerodrome with a forecast below applicable minima or when no destination weather is available if two alternates are available and the weather is above planning minima.

8.1.3.1 Destination Alternate and En-Route Alternate Aerodromes.

For selection as a destination alternate or en-route alternate an aerodrome must satisfy the following conditions:

(a) Meteorological reports and/or forecasts must indicate that the weather at the aerodrome will be at or above the planning minima specified in Table 1 below for ± 1 hour of the aeroplane's expected time of arrival:

Planning minima – Destination alternate aerodrome or fuel ERA for the en-route alternate aerodrome.

See also section 8.1.7.2 (c) Contingency fuel and en-route alternates.

Type of Approach	Planning Minima
Cat II and III	Cat I (Note 1)
Cat I	Non-Precision (Note 1 and 2)
Non-Precision	Non-Precision plus 200 ft/1000 m (Note 1 and 2)
Circling	Circling

Notes:
1. RVR.
2 . The ceiling must be at or above the MDH.

8.1.3.2.1 Application of Aerodrome Forecasts (GM2 CAT.OP.MPA.185)

APPLICATION OF AERODROME FORECASTS (TAF & TREND) TO PRE-FLIGHT PLANNING (ICAO Annex 3 refers)

1. APPLICATION OF INITIAL PART OF TAF

a) Application time period: From the start of the TAF validity period up to the time of applicability of the first subsequent 'FM…*' or 'BECMG', or if no 'FM' or 'BECMG' is given, up to the end of the validity period of the TAF.

b) Application of forecast: The prevailing weather conditions forecast in the initial part of the TAF should be fully applied with the exception of the **mean wind** and **gusts (and crosswind)** which should be applied in accordance with the policy in the column 'BECMG AT and FM' in the table below. This may however be overdue temporarily by a 'TEMPO' or 'PROB**' if applicable according to the table below.

2. APPLICATION OF FORECAST FOLLOWING CHANGE INDICATION IN TAF AND TREND

<u>TAF or TREND</u> for AERODROME PLANNED AS:	**FM** (alone) and <u>**BECMG AT**</u>:	**BECMG** (alone), **BECMG FM, BECMG TL,** <u>**BECMG FM…*TL**</u>, in case of :		**TEMPO** (alone), <u>**TEMPO FM**</u>, <u>**TEMPO FM…TL**</u>, <u>**PROB30/40**</u>(alone)			<u>**PROB TEMPO**</u>
	Deterioration and Improvement	**Deterioration**	**Improvement**	**Deterioration** **Transient/Shower Conditions** in connection with short – lived weather phenomena, e.g. thunderstorms, showers	**Persistent Conditions** in connection with e.g. haze, mist, fog, dust/sandstorm, continuous precipitations	**Improve-ment** In any case	**Deterioration and Improvement**
DESTINATION at ETA ± 1 HR **TAKE – OFF ALTERNATE** at ETA ± 1 HR **DEST. ALTERNATE** at ETA ± 1 HR **ENROUTE ALTERNATE** at ETA ± 1 HR	Applicable from the **start of the change;** **Mean wind:** Should be within required limits; **Gusts:** May be disregarded.	Applicable from the time **of the start of** the change; **Mean wind:** Should be within required limits; **Gusts:** May be disregarded.	Applicable from the time **of the end of** the change; **Mean wind:** Should be within required limits; **Gusts:** May be disregarded.	Not applicable **Mean wind and gusts** exceeding required limits may be disregarded.	Applicable **Mean wind:** Should be within required limits; **Gusts:** May be disregarded;	Should be dis-regarded.	Deterioration may be disregarded; Improvement should be disregarded including mean wind and gusts.
ETOPS ENRT ALTN at earliest/latest ETA ± 1 HR	Applicable from the **time of start of** change; **Mean wind:** should be within required limits; **Gusts** exceeding crosswind limits should be fully applied.	Applicable from the **time of start of** change; **Mean wind:** should be within required limits; **Gusts** exceeding crosswind limits should be fully applied.	Applicable from the **time of end of** change; **Mean wind:** should be within required limits; **Gusts** exceeding crosswind limits should be fully applied.	**Applicable if below applicable landing minima;** **Mean wind:** Should be within required limits; **Gusts** exceeding crosswind limits should be fully applied.	**Applicable if below applicable landing minima;** **Mean wind:** Should be within required limits; **Gusts** exceeding crosswind limits should be fully applied.		

Note 1: 'Required limits' are those contained in the Operations Manual.
Note 2: If promulgated aerodrome forecasts do not comply with the requirements of ICAO Annex 3, operators should ensure that guidance in the application of these reports is provided.
* The space following 'FM' should always include a time group e.g. 'FM1030'.

8.1.3.2 Operating Minima

For minima purposes, aeroplanes are divided into five speed categories based on their nominal threshold speeds. These are defined as 1.3 times the stalling speed in the landing configuration or 1.23 times V_{S1G} for JAR 25 certificated aeroplanes, at maximum certificated landing mass. The five categories are as follows and the particular category for each Company aeroplane type will be stated in the Part B for that type:

Category	Threshold Speed (Kts)
A	Less than 91
B	91 to 120
C	121 to 140
D	141 to 165
E	166 to 210

Note: For the purposes of the above table if a lower landing mass than the maximum certificated landing mass has been approved by the Authority detail will be found in the limitations section of Part B.

Aeroplanes in Categories A and B may be operated under VFR in visibilities of less than 5 km, but not less than 3 km, in Class G airspace provided that the IAS is 140 knots or less.

Special VFR flights shall not be commenced when the visibility is less than 3 km and not otherwise conducted when the visibility is less than 1.5 km. All flights are to be conducted in accordance with Rules 24 to 27 inclusive, as appropriate, of the Rules of the Air Regulations currently in force.

Unless they have been authorised by the competent Authority for operations to Category II and III minima on landing, and for 'low visibility' departures, company aeroplanes will be restricted to Category I operations as outlined in the following paragraphs. Specific minima for particular combinations of approach aid, runway and lighting will normally be as contained in the company route guide for the aerodrome concerned or, if required, as stated in the commander's flight brief. If operations to Category II and III minima are authorised, the details will be contained in; paragraph 8.4 Low Visibility Operations and the supporting training requirements included in Part D (Training Manual).

Specific minima for particular combinations of approach aid, runway and lighting will normally be as contained in the Jeppesen Manual for the aerodrome concerned or, if required, as stated in the commander's flight brief.

(a) Departure minima for a given aerodrome shall be not less than those for landing for the same aerodrome unless a take-off alternate aerodrome is available which meets all the relevant landing minima and performance requirements for the aeroplane type. Minima must be high enough to ensure that there is sufficient guidance to enable the aeroplane to be controlled in the event of both a take-off in adverse circumstances and a continued take-off after failure of the critical power unit. If there is a requirement to see and avoid obstacles on departure and/or for a forced landing, a cloud ceiling (see para 8.4.2.1(e)) shall be specified in addition to the RVR/visibility.

(b) When the reported meteorological visibility is below that required for take-off or is not available and RVR is not reported, or when neither RVR nor meteorological visibility is available the commander shall not commence take-off unless he can determine that the actual conditions satisfy the applicable take-off minima.

For multi-engined aeroplanes whose performance is such that in the event of a critical power unit failure at any point during take-off, the aeroplane can either stop or continue to a height of 1500 feet above the aerodrome while clearing all obstacles by the required margins, the take-off minima may not be less than those given in Table 2, below:

Table 1 - RVR/Visibility for Take-Off (without LVO approval)
(ACM1 CAT .OP.MPA.110)

FACILITIES	RVR/Visibility in Metres
Nil (Day Only)	500m
Day: At least runway edge lights or centreline markings	400m

Notes:

1. Applies to all Category aeroplanes.
2. For night operations, at least runway edge and runway end lights are required.
3. The reported RVR/Visibility representative of the initial part of the take-off run may be replaced by pilot assessment.
4. The required RVR value must be achieved for all of the relevant RVR reporting points except as stated in Note 3 above.

The following is a definition of 'Relevant RVR':

For take-off; 'The RVR that reflects that portion of the runway required for the whole of the ground manoeuvre, including the touchdown zone, equivalent to the initial part of the take-off run, the mid-point and rollout for rejected take-off.

For landing; 'The RVR that reflects the landing distance required down to a speed of 60 kts'.

Pilots of multi-engined aeroplanes which cannot comply with the performance conditions noted at para 8.1.3.3, above, may need to re-land immediately and to see and avoid obstacles in the take-off area.

Such aeroplanes may be operated to the minima contained in Table 2a, below, provided they are able to comply with the applicable obstacle clearance criteria assuming engine failure at the height specified.

This height may not be lower than that from which the one-engine-inoperative net take-off flight path can be constructed. The RVR/Visibility limits applicable to a particular take-off shall be the higher of those contained in Table 2 for the circumstances.

Table 2 - Assumed Engine Failure Height above the Runway versus RVR/Visibility(LVO approval required below 400m)

Assumed Engine Failure Height (ft) above the Take-off runway	<50ft	51ft–100ft	101ft–150ft	151ft–200ft	201ft–300ft	>300ft
RVR/Vis(m) Notes (1) (2)	200 m	300 m	400 m	500 m	1000 m	1500 m (1)

Notes:

1 1500 metres is also applicable if no positive take-off flight path can be constructed.

2 The RVR/Visibility value representative of the initial part of the take-off run may be replaced by pilot assessment.

8.1.3.3 Category I, APV (APproach with barometric Vertical guidance) and Non-precision Approach Operations
(Annex 1 'Definitions for terms used in Annexes 11-V11)

'Category I (CAT I) approach operation' means a precision instrument approach and landing using an instrument landing system (ILS), microwave landing system (MLS), GLS (ground-based augmented global navigation satellite system (GNSS/GBAS) landing system), precision approach radar (PAR) or GNSS using a satellite-based augmentation system (SBAS) with a decision height (DH) not lower than 200 ft and with a runway visual range (RVR) not less than 550 m.

'Non-precision approach (NPA) operation' means an instrument approach with a minimum descent height (MDH), or DH when flying a CDFA technique, not lower than 250 ft and an RVR/CMV of not less than 750 m for aeroplanes.

An APV operation is an instrument approach which utilises lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations, with a DH not lower than 250 ft, and an RVR of not less than 600m.

Decision Height (DH). The DH shall be not less than the highest of:

(a) minimum height to which the approach aid can be used without the required visual reference; or
(b) the OCH for the category of aeroplane; or
(c) the published approach procedure decision height where applicable; or
(d) 200 ft for Cat I approach operations;
(e) The system minimum in Table 3; or

The lowest DH in the Aeroplane Flight Manual (AFM) or equivalent document, if stated;.

Minimum Descent Height (MDH). The MDH shall be not less than the highest of:

(a) The obstacle clearance height (OCH) for the category of aeroplane; or
(b) The system minimum in Table 3, or
(c) The minimum descent height in the Aeroplane Flight Manual (AFM) or equivalent document, if stated.

8.1.3.4 Visual reference. A pilot may not continue an approach below MDA/MDH or DH unless at least one of the following visual references for the intended runway is visible and identifiable to the Pilot:

(a) elements of the approach light system;
(b) the threshold;
(c) the threshold markings;
(d) the threshold lights;
(e) the threshold identification lights
(f) the visual glideslope indicator;
(g) the touchdown zone, zone markings or zone lights;
(h) the touchdown zone lights;
(i) the runway edge lights.; or
(j) other visual references acceptable to the Authority.

Table 3 - System Minima versus Facilities

Facility	Lowest DH/MDH
Localiser with or without DME	250 ft
SRA (terminating at ½nm)	250 ft
SRA (terminating at 1nm)	300 ft
SRA (terminating at 2nm)	350 ft
RNAV/LNAV	300 ft
VOR	300 ft
VOR/DME	250 ft
NDB	350 ft
NDB/DME	300 ft
VDF	350 ft

8.1.3.5 Criteria for establishing RVR/CMV (Ref Table 7)
In order to qualify for the lowest allowable values of RVR/CMV detailed in Table 6 (applicable to each approach grouping) the instrument approach shall meet at least the following facility requirements and associated conditions:

(a) Instrument approaches with designated vertical profile up to and including for CAT A and B aeroplanes 4.5° and 3.77° for CAT C and D aeroplanes, unless other approach angles are approved by the Authority, where the facilities are ILS/MLS/GLS/PAR or APV and where the final approach track is offset by no more than 15° for CAT A and B and 5° for CAT C and D aeroplanes.
(b) Instrument approaches flown using the CDFA technique with a nominal vertical profile up to and including 4.5 for CAT A/B and 3.77° for C/D, unless other approach angles are approved by the Authority, where the facilities are NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA or RNAV/LNAV with a final-approach segment of at least 3nm and which also fulfil the following criteria:

- the final approach track is offset by no more than 15° CAT A/B and 5° CAT C/D.
- The FAF or another appropriate fix where descent is initiated, is available or distance to THR is available by FMS/RNAV or DME.
- If the MAPt is determined by timing, the distance from FAF to THR is ≤ 8nm.

(c) Instrument approaches where the facilities are NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA or RNAV/LNAV not fulfilling the criteria of (b) above, or with an MDH ≥ 1,200 ft.

Missed approach.

The missed approach, after an approach has been flown using the CDFA technique, shall be executed when reaching the decision altitude or the MAPt, whichever occurs first. The lateral part of the missed approach procedure must be flown via the MAPt unless otherwise stated on the approach plate.

Table 4 Approach Light Systems

OPS Class of Facility	Length, configuration and intensity of approach lights
FALS (full approach light system)	ICAO: Precision approach CAT I Lighting System (HIALS 720m ≥) distance coded centreline, Barette centreline
IALS (intermediate als)	ICAO: Simple approach lighting system (HIALS 420 719m) single source, Barrette
BALS (basic als)	Any other approach lighting system (HIALS, MIALS or ALS 210-419m
NALS (no als)	Any other approach lighting system (HIALS, MIALS or ALS < 210m) or no approach lights

8.1.3.6 Determination of RVR/CMV/Visibility minima for Cat I, APV and - non-precision approach operations

The minimum RVR/CMV/Visibility shall be the highest of the values derived from Table 6 or Table 7 but not greater than the maximum values shown in Table 7 where applicable. If the approach is flown with a level flight segment at or above MDA/H, 400m shall be added to the minimum RVR/CMV value.

An RVR of less than 750m as indicated in Table 6 may be used:

- For Cat I approach operations to runways with FALS, Runway touchdown Zone Lights (RTZL) and Runway Centre Line Lights (RCLL) provided that the DH is not more than 200 ft.
- For Cat I approach operations to runways without RTZL and RCLL when using an approved HUDLS, or when conducting a coupled approach or flight-director-flown approach to a DH equal to or greater than 200 ft. The ILS must not be promulgated as a restricted facility.
- For APV approach operations to runways with FALS, RTZL and RCLL when using an approved HUD.

The Authority may approve RVR values lower than those given in Table 6 for HUDLS in accordance with Lower than Standard Cat I operations (8.4.3.4).

The visual aids comprise standard runway day markings and approach and runway lighting (runway edge lights, threshold lights, runway end lights and in some cases also touchdown zone and/or runway centreline lights). The approach light configurations acceptable are classified and listed in Table 4 above. However the Authority may approve RVR values relevant to a BALS on runways where the approach lights are restricted in length below 210m due to terrain or water, but at least one cross-bar is available.

For night operation or for any operation where credit for runway and approach lighting is required, the lights must be on and serviceable (except as provided in 8.4.9.10 Table A).

8.1.3.7 Conversion of reported Met Visibility to RVR/CMV

A Met visibility to RVR/CMV conversion must not be used for take-off, for calculating any other required RVR minimum less than 800m, or when reported RVR is available.

Note: If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. “RVR more than 1500 metres", it is not considered to be a reported value for the purposes of this paragraph.

When converting meteorological visibility to RVR in all other circumstances than those above, the following table must be used.

Table 5 - Conversion of reported Met Visibility to RVR/CMV

Lighting Elements in Operation	RVR = Met Visibility x	
	Day	Night
HI Approach and Runway Lighting	1.5	2.0
Any Type of Lighting Installation Other than Above	1.0	1.5
No Lighting	1.0	N/A

Table 6 RVR/CMV (see Table 5) versus DH/MDH

DH or MDH	Class of Lighting Facility			
	FALS	IALS	BALS	NALS
	See Paragraph 8.1.3.2.3 about RVR< 750m			
Feet	Metres			
200 - 210	550	750	1000	1200
211 - 220	550	800	1000	1200
221 - 230	550	800	1000	1200
231 - 240	550	800	1000	1200
241 - 250	550	800	1000	1300
251 - 260	600	800	1100	1300
261 - 280	600	900	1100	1300
281 - 300	650	900	1200	1400
301 - 320	700	1000	1200	1400
321 - 340	800	1100	1300	1500
341 - 360	900	1200	1400	1600
361 - 380	1000	1300	1500	1700
381 - 400	1100	1400	1600	1800
401 - 420	1200	1500	1700	1900

421 - 440	1300	1600	1800	2000
441 - 460	1400	1700	1900	2100
461 - 480	1500	1800	2000	2200
481 - 500	1500	1800	2100	2300
501 - 520	1600	1900	2100	2400
521 - 540	1700	2000	2200	2400
541 - 560	1800	2100	2300	2500
561 - 580	1900	2200	2400	2600
581 - 600	2000	2300	2500	2700
601 - 620	2100	2400	2600	2800
621 - 640	2200	2500	2700	2900
641 - 660	2300	2600	2800	3000
661 - 680	2400	2700	2900	3100
681 - 700	2500	2800	3000	3200
701 - 720	2600	2900	3100	3300
721 - 740	2700	3000	3200	3400
741 - 760	2700	3000	3300	3500
761 - 800	2900	3200	3400	3600
801 - 850	3100	3400	3600	3800
850 - 900	3300	3600	3800	4000
901 - 950	3600	3900	4100	4300
951 - 1000	3800	4100	4300	4500
1001 - 1100	4100	4400	4600	4900
1101 - 1200	4600	4900	5000	5000
1201 and above	5000	5000	5000	5000

Table 7 Maximum and Minimum applicable RVR/CVR (see Table 5) for all instrument approaches down to CAT I minima (lower and upper cut-off limits).

Facility/conditions	RVR/CMV (m)	Aeroplane Category			
		A	B	C	D
ILS, MLS, GLS, PAR and APV	Min	According to Table 6			
	Max	1500m	1500m	2400m	2400m
NDB, NDB/DME, VOR,VOR/DME, LLZ, LLZ/DME, VDF, SRA, RNAV/LNAV with a procedure as per para 8.1.3.2.2 (b)	Min	750m	750m	750m	750m
	Max	1500m	1500m	2400m	2400m
For NDB, NDB/DME, VOR, VOR/DME, LLZ, LLZ/DME, VDF, SRA, RNAV/LNAV: - not fulfilling the criteria in para 8.1.3.2.2 (b) above, or - with a DH or MDH ≥ 1200 ft	Min	1000m	1000m	1200m	1200m
	Max	According to Table 6 if flown using the CDFA technique. Otherwise an add-on of 400m applies to the values in Table 6 but not to result in a value exceeding 5000m**.**			

Table 8 Failed or downgraded equipment – effect on landing minima

Failed or Downgraded Equipment (See Note 1)	Effect on landing minima				
	CAT IIIB (Note 2)	CAT IIIA	CAT II	CAT I	Non precision
ILS standby transmitter	Not Allowed		No effect		
Outer marker	No effect if replaced by published equivalent position				N/A
Middle marker	No effect				No effect unless used as MAPT
Touchdown zone RVR assessment system	May be temporarily replaced with midpoint RVR if approved by the state of the aerodrome. RVR may be reported by human observation			No effect	
Midpoint or stop end RVR	No effect				
Anemometer for runway in use	No effect if other ground source available				
Ceilometer	No effect				
Approach Lights	Not allowed for operations with DH > 50ft		Not allowed	Minima as for nil facilities	
Approach lights except for the last 210m	No effect		Not allowed	Minima as for nil facilities	
Approach lights except for the last 420m	No effect			Minima as for intermediate facilities	
Standby Pwr for approach lights	No effect				
Whole runway light system	Not allowed			Day – minima for nil facilities Night – Not allowed	
Edge lights	Day only; Night – not allowed				
Centreline lights	Day – RVR 300m Night – not allowed		Day – RVR 300m Night – 550m	No effect	
Centreline lights spacing increased to 30m	RVR 150m	No effect			
Touchdown Zone Lights	Day – RVR 200m Night – RVR 300m	Day – RVR 300m Night - 550 m		No effect	
Standby power for runway lights	Not allowed			No effect	
Taxiway light system	No effect – except delays due to reduced movement rate				

Note 1: Conditions applicable to table 6

a) Multiple failures of runway lights other than indicated in Table 8 are not acceptable
b) Deficiencies of approach and runway lights are treated separately
c) Category II and III operations. A combination of deficiencies in runway lights and RVR assessment equipment is not allowed
d) Failures other than ILS effect RVR only and not DH

Note 2: For CAT IIIB operations with no DH, an operator shall ensure that, for aeroplanes authorised to conduct no DH operations with the lowest RVR limitations the following applies in addition to the content of table 7:

a) RVR. At least one RVR must be available at the aerodrome
b) Runway lights
   i. No runway edge lights or no centreline lights – Day – RVR 200m; night not allowed
   ii. No TDZ lights – no restrictions
   iii. No standby power to runway lights – Day -200m; night not allowed

8.1.3.8 Commencement and Continuation of an Approach. CAT.OP.MPA.305

An approach may be started irrespective of the RVR, but it may not be continued below 1000ft above the aerodrome height unless the reported controlling RVR (or converted met visibility see Table 5)/visibility is equal to or better than the specified minimum.

If below 1000ft above the aerodrome position, the approach may be continued to the landing irrespective of reported RVR/Visibility provided that the required visual reference has been established at the DH/MDH, and is maintained.

The touch-down zone RVR is always controlling. If reported and relevant, the mid point and stop end RVR are also controlling. The minimum RVR value for the mid-point is 125m or the RVR required for the touch-down zone if less, and 75m for the stop-end. For airplanes equipped with roll-out guidance or control system, the minimum RVR value for the mid-point is 75m.

Note: 'Relevant' in this context, means that part of the runway used during the high-speed phase of the landing down to a speed of approximately 60 knots.

8.1.3.9 Visual Manoeuvring/Indirect Approach.

Circling (visual manoeuvring) is the term used to describe the visual phase of an instrument approach required to position an aeroplane for landing on a runway which is not suitably located for a straight-in approach. It can also be called an Indirect Approach.

Minimum Descent Height (MDH). The MDH for circling shall be the higher of:

- The published circling OCH for the Aeroplane Category; or
- The minimum circling height derived from Table 9 below; or
- The DH/MDH of the preceding instrument approach procedure.

Minimum Descent Altitude (MDA). The MDA for circling shall be calculated by adding the published aerodrome elevation to the MDH as determined above.
Visibility. The minimum visibility for circling shall be the higher of:

- The circling visibility for the aeroplane category, if published; or
- The minimum visibility derived from Table 9 below; or
- The RVR/CMV derived from Tables 6 and 7 for the preceding instrument approach procedure.

Notwithstanding the requirements above, an Authority may exempt an operator from the requirement to increase the visibility above that derived from Table 9. Such exemptions must be limited to locations where there is a clear public interest to maintain current operations. The exemptions must be based on the operators experience, training programme and flight crew qualification. The exemptions must be reviewed at regular intervals.

.

Table X Visibility and MDH for Visual Manoeuvring

Aircraft Category	A	B	C	D
MDH (ft)	400	500	600	700
Minimum Meteorological Visibility(m)	1500	1600	2400	3600

Notes:

1. Visual manoeuvring with prescribed tracks is an accepted procedure within the meaning of this para.
2. For definition of Aeroplane Category see para 8.1.3.3
3. The MDH and OCH minimums in the above table are related to aerodrome elevation.

(a) Missed approach

The missed approach procedure to be carried out is the one applicable to the instrument approach runway unless another procedure is prescribed. Once the aeroplane has left the instrument procedure and commenced circling, an initial climbing turn towards the runway and overhead the aerodrome will be made, where the aeroplane will then establish in a climb on the missed approach track of the instrument approach runway. Because of the variability of circling procedures other patterns may be needed at different stages in order to keep the aeroplane in a safe area and to establish the missed approach track.

If the instrument approach procedure is carried out with the aid of an ILS, the Missed Approach Point (MAPt) associated with an ILS procedure without glide path (GP out procedure) should be taken into account.

(b) Instrument approach followed by visual manoeuvring (circling) without prescribed tracks.

(i) Before visual reference is established, but not below MDH – The flight should follow the corresponding instrument approach procedure.

(ii) At the beginning of the level flight phase at or above the MDH
From the beginning of the level flight phase, the instrument approach track determined by radio navigation aids should be maintained until:

- The commander estimates that, in all probability, visual contact with the runway or runway environment will be maintained during the entire procedure;
- The commander estimates that his aeroplane is within the circling area before commencing circling; and
- The commander is able to determine his aeroplane's position in relation to the runway with the aid of the external references.

(iii) If the conditions in paragraph (b)(ii) above are not met by the MAPt, a missed approach must be carried out in accordance with the instrument approach procedure.

(iv) After the aeroplane has left the track of the corresponding instrument approach procedure, the flight phase outbound from the runway should be limited to the distance which is required to align the aeroplane for the final approach. Flight manoeuvres should be conducted within the circling area and in such a way that visual contact with the runway or runway environment is maintained at all times.

(v) Flight manoeuvres must be carried out at an altitude/height which is not less than the circling minimum descent/altitude height (MDH).

(vi) Descent below MDH must not be initiated until the threshold of the runway to be used has been identified and the aeroplane is in a position to continue with a normal rate of descent and land within the touchdown zone.

(c) Instrument approach followed by a visual manoeuvring(circling)with prescribed track.

(i) Before visual reference is established, but not below MDH – The flight must follow the corresponding instrument approach procedure.

(ii) The aeroplane must be established in level flight at or above the MDH and the instrument approach track determined by the radio navigation aids maintained until visual contact can be achieved and maintained. At the divergence point, the aeroplane should leave the instrument approach track and the published routeing and heights must be followed.

(iii) If the divergence point is reached before the necessary visual reference is acquired, a missed approach procedure should be initiated not later than the MAPt and carried out in accordance with the instrument approach procedure.

(iv) The instrument approach track determined by radio navigation aids should only be left at the prescribed divergence point when only the published routeing and heights should be followed.

(v) Unless otherwise specified in the procedure, final descent must not be initiated until the threshold of the runway to be used has been identified and the aeroplane is in a position to continue with a normal rate of descent and land within the touchdown zone.

8.1.3.10 Visual Approach.

The minimum RVR for a visual approach shall be 800 metres.

8.1.3.11 Visual Approach / circuit at Night

In accordance with *Part D Appendix A* all crew will receive training in the simulator once a year and carry out at least one visual circuit and landing at night.

8.1.4 En-route Operating Minima for VFR Flights or VFR Portions of a Flight

Aeroplanes in Categories A and B, see para 8.1.3.3, may be operated under VFR in visibilities of less than 5 km, but not less than 3 km, in Class G airspace provided that the IAS is 140 knots or less. Special VFR flights shall not be commenced when the visibility is less than 3 km and not otherwise conducted when the visibility is less than 1.5 km. All flights are to be conducted in accordance with Rules 24 to 27 inclusive, as appropriate, of the Rules of the Air Regulations currently in force.

Minimum Visibilities for VFR Operations

Airspace class	B	C D E	F G	
			Above 900 m (3000 ft) AMSL or above 300 m (1000 ft) above terrain, whichever is the higher.	At and below 900 m (3000 ft) AMSL or 300 m (1000 ft) above terrain, whichever is the higher.
Distance from cloud	Clear of cloud	1500 m horizontally 300 m (1000 ft) vertically		Clear of cloud and in sight of the surface
Flight visibility	8 km at and above 3050 m (10 000 ft) AMSL (Note 1) 5 km below 3050 m (10 000 ft) AMSL			5 km (Note 2)

Notes:

1. When the height of the transition altitude is lower than 3050 m (10 000 ft) AMSL, FL 100 should be used in lieu of 10 000 ft.
2. Cat A and B aeroplanes may be operated in flight visibilities down to 3000 m, provided the appropriate ATS authority permits use of flight visibility less than 5 km, and the circumstances are such, that the probability of encounters with other traffic is low, and the IAS is 140 kt or less.

8.1.5 Presentation and Application of Aerodrome and En route Operating Minima

8.1.5.1 Presentation

Specific minima for a given aerodrome will normally be as shown in the Jeppesen en-route guide used by the operator. If the guide does not contain such information for a particular aerodrome, the details will be included in the commander's flight brief.

For precision approaches, minima are listed in terms of Decision Height (or Decision Altitude when QNH is used as the landing altimeter setting) and RVR. For non-precision approaches, minima are listed in terms of Minimum Descent Height (or Altitude for QNH settings) and RVR. For circling approaches, the Minimum Descent Height/Altitude will be shown together with a minimum Met visibility.

8.1.5.2 Application

A commander is not permitted to operate to minima which are lower than those published in the en-route guide, calculated in accordance with paras 8.1.3 and 8.1.4, above, or notified by the state which controls the aerodrome in question.

Before commencing take-off a Commander must satisfy himself that the RVR or visibility in the take-off direction is equal to or exceeds the applicable minima.

A commander may nevertheless elect to operate to higher minima than those established by any of these means if he considers that under the circumstances of the flight to do otherwise might compromise the safety of his aeroplane or its passengers.

Once the flight has started, the commander must be prepared to amend the intended minima for any aerodrome he is scheduled to use, in order to take account of any change in status of the relevant approach aids or aircraft systems which occurs during the flight. The minima used must be in accord with aeroplane performance criteria and crew qualification. (See also parts B
and D.)

8.1.5.3 Altitude Correction Chart *(UKAIP AD 1.1 Para 2.6.3)*

Pressure altimeters are calibrated to indicate true altitude under ISA conditions. In the case where the temperature is higher than ISA the true altitude will be higher than the figure indicated by the altimeter and the true altitude will be lower when the temperature is lower than ISA. The altimeter error may be significant under conditions of extremely low temperatures. The chart below gives corrections to apply to indicated altitudes.

Airport Temp°C	Altitude above Altimeter source Elevation (ft) (normally destination elevation)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0°C	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10°C	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20°C	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30°C	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40°C	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50°C	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500
	Values to be added to Published Altitudes (ft)													

8.1.6 The Methods for Interpretation of Meteorological Information

All flight Crew Members are required to develop and maintain a sound working knowledge of the system used for reporting aerodrome actual and forecast weather conditions and of the codes associated with it.

Some of the codes (e.g. for wind velocity) use the same figures as the values being reported; thus, a wind blowing from 280° at 15 knots is reported as ‘28015KT’.

Some of the more important codes, however, use lettered abbreviations which can become particularly significant when flight crews are attempting to assess whether conditions at a particular destination or alternate will be above company minima at the planned time of arrival.

Routine actual weather reports (METARs) are compiled half-hourly or hourly at fixed times while the aeronautical meteorological station is open. They may include the following terms to clarify the codes used in reporting the various elements:

(a) Horizontal Visibility

When there is no marked variation in the visibility by direction, the minimum is given in metres. When there is a marked directional variation, however, the reported minimum will be followed by one of the eight points of the compass to indicate its direction, e.g. ‘4000NE’. If the minimum visibility is less than 1500 metres, and the visibility in another direction is more than 5000 metres, both the minimum and maximum values, and their directions will be given, e.g. ‘1400SW 6000N’. A code figure of ‘9999’ indicates a visibility of 10 km or more, while ‘0000’ indicates that the visibility is less than 50 metres

(b) Runway Visual Range (RVR)

An RVR group has the prefix R followed by the runway designator, then an oblique stroke followed by the touch-down zone RVR in metres. If the RVR is assessed simultaneously on two or more runways, the RVR group will be repeated; parallel runways will be distinguished by the addition of L, C or R after the runway designator to indicate the left, central or right parallel runway respectively, e.g. ‘R24L/1100 R24R/1150’.

When the RVR is greater than the maximum value which can be assessed, or more than 1500 metres, the group will be preceded by the letter P, followed by the lesser of these two values, e.g. ‘R24/P1500’. When the RVR is less than the minimum value which can be assessed, the RVR will be reported as ‘M’ followed by the minimum value that can be assessed, e.g. ‘R24/M0050’.

(c) Cloud

Up to four cloud groups may be included, in ascending order of their bases. Each group consists of three letters to indicate the amount (FEW = 1 to 2 oktas, SCT, or scattered = 3 to 4 oktas; BKN, or broken, = 5 to 7 oktas, and OVC, or overcast = 8 oktas) and three figures indicating the height of the base of the cloud layer in hundreds of feet above aerodrome level.

Apart from significant convective clouds (CB = cumulus-nimbus; TCU = towering cumulus) cloud types are not indicated. Cloud layers or masses are reported such that the first group represents the lowest individual layer of any amount; the second group is the next individual layer of more than 2 oktas; the third group is the next higher layer of more than 4 oktas, and the additional group, if any, represents significant convective cloud, if not already reported, e.g. 'SCT010 SCT015 SCT018CB BKN025'.

(d) CAVOK and SKC

'CAVOK' will replace the visibility, RVR, weather and cloud groups when the visibility is 10 km or more; there is no cloud below 5000 feet or below the highest MSA, whichever is the greater, and no cumulus-nimbus; and there is no precipitation, thunderstorm, shallow fog or low, drifting snow. If any of these conditions are not met, but there is no cloud to report, then the cloud group is replaced by 'SKC' (sky clear).

(e) Air Temperature and Dewpoint

The air temperature and dewpoint are shown in degrees Celsius, separated by an oblique stroke. A negative value is indicated by an 'M' in front of the appropriate digits, e.g. 10/03 or '01/MOI'

(f) Pressure Setting

The QNH is rounded down to the next whole millibar and reported as a four-figure group preceded by the letter 'Q'. If the QNH value is less than 1000 Mbs, the first digit will be 'O', e.g. 'Q0993'.

(g) Recent Weather

Operationally significant weather which has been observed since the previous observation, but which was not current at the time of the present observation, will be reported using the standard present weather code preceded by the indicator 'RE', e.g. 'RETS'.

(h) Wind shear

A wind shear group may be included if winds hear is reported along the take-off or approach paths in the lowest 1600 feet with reference to the runway in use. 'WS' is used to begin the group as in the examples: 'WS TKOF RWY20', 'WS LDG RWY20'.

(i) Runway State

When snow or other runway contamination is present, an eight-figure group may be added at the end of the METAR.

(j) Trend

A trend group is added when significant changes in conditions are forecast to occur during the two hours following the time of observation. The codes 'BECMG' (becoming) or 'TEMPO' (temporarily) are used, and may be followed by a time group (in hours and minutes UTC) preceded by one of the indicators ‘FM’ (from), ‘TL’ (until) or ‘AT’ (at). These are followed by the expected change using the standard codes, e.g. ‘BECMG FM 1100 250/35G50KT’ or ‘TEMPO FM 0630 TL0830 3000 SHRA’. Where no such significant changes are expected, the trend group will be replaced by the word ‘NOSIG’.

(k) DENEB

The code word ‘DENEB’ may be added to a METAR to indicate that fog dispersal operations are in progress. Information which is missing from the METAR may be indicated by the use of oblique strokes to replace the missing code figures/letters.

8.1.6.1 Aerodrome Weather Forecasts (TAFs)

Aerodrome weather forecasts (TAFs) are usually issued to describe the forecast conditions at an aerodrome covering a period of 9 to 24 hours. The validity periods of many of the longer forecasts may not start for up to 8 hours after the time of origin and the forecast details only cover the last 18 hours.

The 9-hour TAFs are updated and re-issued every 3 hours, and those valid for 12 and 24 hours, every 6 hours. Amendments are issued as and when necessary. A TAF may be sub-divided into two or more self-contained parts by the use of the abbreviation ‘FM’ (from) followed by the time UTC to the nearest hour, expressed as two figures. Many of the groups used for METARs are also used in the TAFs, but differences are noted below:

(a) Validity Period

Whereas a METAR is a report of conditions at a specific time, the TAF contains the date and time of origin, followed by the start and finish times of the validity period in whole hours UTC, e.g. ‘TAF EGLL 130600Z (date and time of issue) 0716 (period of validity 0700 to 1600 hours UTC).

(b) Horizontal Visibility

The minimum visibility only is forecast; RVR is not included.

(c) Weather

If no significant weather is expected, the group is omitted. After a change group, however, if the weather ceases to be significant, the abbreviation ‘NSW’ (no significant weather) will be inserted.

(d) Cloud

When clear sky is forecast, the cloud group will be replaced by ‘SKC’ (sky clear). When no cumulonimbus, or clouds below 5000 feet or below the highest minimum sector altitude, whichever is the greater, are forecast, but ‘CAVOK’ or ‘SKC’ are not appropriate, the abbreviation ‘NSC’ (no significant cloud) will be used.

(e) Significant Changes

In addition to ‘FM’ and the time *(see* *para 8.1.6.3, above)* significant changes may be indicated by the abbreviation ‘BECMG’ (becoming) or ‘TEMPO’ (temporarily).

'BECMG' is followed by a four-figure group indicating the beginning and ending of the period in which the change is expected to occur.

The change in the forecast conditions is expected to be permanent, and to occur at an unspecified time within this period. 'TEMPO' will similarly be followed by a four-figure time group; it indicates a period of temporary fluctuations in the forecast conditions which may occur at any time during the stated period.

The 'TEMPO' conditions are expected to last less than one hour in each instance, and in aggregate, less than half the period indicated.

(f) Probability

The probability of a significant change occurring will be given as a percentage, but only 30% and 40% will be used. The abbreviation 'PROB' will precede the percentage, which will be followed by a time group, or a change and time group, e.g. 'PROB 30 0507 0800FG BKN004', or 'PROB40 TEMPO 1416 TSRA BKN010CB'.

(g) Amendments

When a TAF requires amendment, the amended forecast will have 'AMD' inserted between 'TAF' and the aerodrome identifier, and will cover the remainder of the validity period of the original forecast.

8.1.7 Determination of the Quantities of Fuel and Oil Carried

The Fuel policy and any changes require a prior approval by the competent authority.CAT.OP.MPA.150

8.1.7.1 Fuel Planning

Based on the appropriate consumption figures for the stage of flight as contained in Part B of the manual for the specific aeroplane type, the fuel on board at the start of each flight must be sufficient to cover the elements listed in the following paragraphs.

The following factors should be included in the fuel planning process if the amounts they represent are significant:

- Use of APU;
- Amounts used when using De-icing systems or heaters;
- Lengthy SID's and Star's;
- Quantities known to b unusable;
- Amounts required to compensate for potential delays such as if the destination is in congested control area (e.g. London TMA) extra fuel must be carried to cope with possible ATC delays.

Note: Great care must be taken to ensure that the landing weight is not exceeded if contingency fuel is not used.

8.1.7.2 Standard Procedure.

The fuel required is the sum of:

- Taxy Fuel;
- Trip Fuel;
- Contingency Fuel;
- Alternate Fuel;
- Final Reserve Fuel;
- Additional Fuel;
- Extra Fuel.

The above are defined as:

(a) Taxy Fuel, the total amount of fuel expected to be used prior to take-off including allowances for operation of ice protection systems and APU.

(b) Trip Fuel, to include:

(i) take-off and climb from aerodrome elevation to initial cruising level/altitude, taking into account the expected departure routing;

(ii) cruise from top of climb (TOC) to top of descent (TOD), including any step climb/descent;

(iii) TOD to initial approach point, taking into account the expected arrival routeing and procedure; and

(iv) approach and landing at destination aerodrome.

(c) Contingency Fuel, which must be the higher of (i) or (ii) below:

(i) either

A 5% of the planned trip fuel or, in the event of in-flight replanning, 5% of the trip fuel for the remainder of the flight; or

B not less than 3% of the planned trip fuel or, in the event of in-flight replanning, 3% of the trip fuel for the remainder of the flight, provided that an en-route alternate aerodrome is available. The en-route alternate should be located within a circle having a radius equal to 20% of the total flight plan distance, the centre of which lies on the planned route at a distance from the destination of 25% of the total flight plan distance, or at 20% of the total flight plan distance plus 50 nm, which ever is greater. (Refer to the diagram in the appendices of this section).

(ii) an amount to fly for 5 mins at holding speed at 1500 ft above the destination aerodrome in ISA conditions.

Note: At the planning stage not all factors which could have an influence on the fuel used to the destination aerodrome can be foreseen. Consequently contingency fuel is carried to compensate for items such as:

- Deviations of an individual aeroplane from the expected fuel consumption data;
- Deviations from forecast meteorological conditions; and
- Deviations from planned routings and/or cruising levels/altitudes.

At the planning stage it is assumed that the contingency fuel remains unused at the ETP for both engine out and depressurisation failures.

(d) Alternate Fuel, to include

(i) fuel for a missed approach from the applicable MDA/DH at the destination aerodrome to missed approach altitude, taking into account the complete missed approach procedure; and

(ii) fuel for climb from missed approach altitude to cruising level /altitude taking into account the expected departure routing; and

(iii) fuel for cruise from TOC to TOD taking into account the expected departure routing; and

(iv) fuel for descent from TOD to the point where the approach is initiated, taking into account the expected arrival procedure; and

(v) fuel for executing an approach and landing at the destination alternate aerodrome selected in accordance with para 8.1.2.4.

Note: Where two destination alternate aerodromes are required in accordance with para 8.1.2.5, then alternate fuel must be sufficient to proceed to the alternate aerodrome which requires the greater amount of alternate fuel.

Note: The departure aerodrome may be selected as a destination alternate.

(e) Final Reserve Fuel which must be:

(i) for aeroplanes with reciprocating engines, fuel to fly for 45 minutes; or

(ii) for turbo-prop and turbo-jet aeroplanes, fuel to fly for 30 minutes at holding speed at 1500 ft above aerodrome elevation in ISA conditions calculated with the estimated mass on arrival at the destination alternate aerodrome or the destination aerodrome, when no destination alternate aerodrome is required.

(f) Additional Fuel (to be carried if dictated by the type of operation e.g. ETOPs).

(a) The aeroplane is to descend as necessary and proceed to an adequate alternate aerodrome in the event of engine failure or loss of pressurisation, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route, and

1. hold there for 15 mins at 1500 ft above aerodrome elevation in ISA conditions; and
2. make an approach and landing.

except that additional fuel is only required, if the minimum amount of fuel calculated in accordance with para 8.1.3.1 above is not sufficient for such an event, and

(iii) holding for 15 mins at 1500 ft above destination aerodrome elevation in ISA conditions, when a flight is operated without a destination alternate aerodrome;

(g) Extra fuel, at the discretion of the commander.

8.1.7.3 Reduced Contingency Fuel (RCF) procedure

When planning includes pre-flight planning to a destination 1 aerodrome (commercial destination) with a reduced contingency fuel procedure using a decision point along the route and a destination 2 aerodrome (optional refuel destination), the amount of usable fuel, on board for departure, shall be the greater of (1) or (2) below:

a) The sum of:

- taxi fuel; and
- Trip fuel to the destination 1 aerodrome, via the destination point; and
- Contingency fuel equal to not less than 5% of the estimated fuel consumption from the decision point to the Destination 1 aerodrome; and
- Alternate fuel or no alternate fuel if the decision point is at less than six hours from the destination 1 aerodrome and the requirements are fulfilled; and
- Final reserve fuel; and
- Additional fuel; and
- Extra fuel if required by the Commander.

b) The sum of:

- taxi fuel; and
- Trip fuel to the destination 2 aerodrome, via the destination point; and
- Contingency fuel equal to not less than the amount calculated from departure aerodrome to the destination 2 aerodrome; and
- Alternate fuel, if a destination 2 alternate aerodrome is required; and
- Final reserve fuel; and
- Additional fuel; and
- Extra fuel if required by the Commander.

Note:

The weather minima for an en-route alternate to be used must follow the requirements in table in para 8.1.3.2. The en-route alternate must follow the planning procedures as indicated by the diagram in the appendices and referred to in the contingency fuel section. Pilots are to make a fuel check at the decision point and annotate their calculations on the flight log. The DP position is where the crew initiate the diversion if insufficient fuel remains to the original destination.

8.1.7.4 Pre-determined Point (PDF) Procedure.

When planning to a destination alternate aerodrome where the distance between the destination aerodrome and the destination alternate aerodrome is such that a flight can only be routed via a predetermined point to one of these aerodromes, the amount of usable fuel, on board for departure, shall be the greater of (a) or (b) below

(a) The sum of:

- taxy fuel;
- trip fuel from the departure aerodrome to the destination aerodrome, via the predetermined point; and
- contingency fuel of not less than 5% of the estimated fuel used from the decision point to the destination aerodrome (refer para 8.1.7.2 (c));
- additional fuel, if required but not less than:

  (i) for aeroplanes with reciprocating engines, fuel to fly for 45 minutes plus 15% of the time planned to be spent at cruising level or two hours, whichever is less; or
  (ii) for aeroplanes with turbine engines, fuel to fly for two hours at normal cruise consumption above the destination aerodrome.

This shall not be less than final reserve fuel; and

- extra fuel if the required by the commander.

(b) The sum of:

- taxy fuel;
- trip fuel from the departure aerodrome to the destination alternate aerodrome, via the predetermined point; and
- contingency fuel of not less than 5% of the estimated fuel used from the decision point to the destination aerodrome;
- additional fuel, if required but not less than:

  (i) for aeroplanes with reciprocating engines, fuel to fly for 45 minutes; or
  (ii) for aeroplanes with turbine engines, fuel to fly for 30 mins at holding speed at 1500 feet above the destination alternate aerodrome elevation in ISA conditions

This shall not be less than final reserve fuel; and

- extra fuel if the required by the commander.

8.1.7.5 Fuel Management Procedures

Refer to Section 8.3, para 8.3.7

The Commander when he becomes aware that fuel is being consumed at a rate outside the planned consumption he must make an early decision to divert to planned enroute alternate or an aerodrome that he declares satisfactory and complies with normal performance criteria.

The Commander must inform ATC of his intentions and contact the Operations as soon as practicable by way of passing information via airport handling facilities or using the aircraft satellite telephone system.

8.1.7.6 Low fuel Quantity

A Mayday call is to be declared to ATC as soon as it becomes known that the estimated fuel on landing is expected to be less than the final reserve fuel of 30 mins endurance.

8.1.7.7 Landing delays

A Commander must calculate on all flights the Operators Minimum Reserves. He must be aware of changing conditions and the effect that this might have on his fuel planning.

It is recognised that at major international airports that up to 20 mins delay due to traffic congestion is regarded by ATC as a no delay scenario.

8.1.7.8 Oil

While the engine oil contents must obviously be sufficient to cover the same elements as those for the fuel, it will be sufficient for the commander to ensure before flight that the engine oil contents have been topped up in accordance with the manufacturer's recommendations, and between flights that no excess oil consumption has taken place.

8.1.7.9 Maintenance of Fuel and Oil Carriage and Consumption Records

(a) Fuel records will be retained with the flight paperwork and technical log sheets and passed to Company Operations.

(a) Oil carriage and consumption will be recorded in the technical log and preserved with same.

8.1.8 Mass and Centre of Gravity

8.1.8.1 Definitions

(a) Dry Operating Mass (DOM).

The total mass of the aeroplane ready for a specific type of operation excluding all usable fuel and traffic load. This mass includes items such as:

(i) Crew and crew baggage;

(ii) catering and removable passenger service equipment; and

(iii) potable water and lavatory chemicals.

(b) Maximum Zero Fuel Mass.

The maximum permissible mass of an aeroplane with no usable fuel.
The mass of the fuel contained in particular tanks must be included in the zero fuel mass when it is explicitly mentioned in the Aeroplane Flight Manual limitations.

(c) Maximum Structural Landing Mass.

The maximum permissible total aeroplane mass upon landing under normal circumstances.

(d) Maximum Structural Take-Off Mass.

The maximum permissible total aeroplane mass at the start of the take-off run.

(e) Passenger classification

(1) Adults, male and female- persons of an age of 12 years and above.
(2) Children-persons of 2 years and above but less than 12 years of age.
(3) Infants- persons who are less than 2 years of age.

(f) Traffic Load.

The total mass of passengers, baggage and cargo, including any non-revenue loads.

(g) Verbal statement.

A passenger mass established by a verbal statement by or on behalf of each passenger. This mass must then have added to it a specific constant which accounts for hand baggage and clothing. These constants have been developed by route analysis and are included in the commander's brief and will never be less than 4 kg for clothing and 6 kg for hand baggage (if carried).

The mass and centre of gravity (C of G) of each company aeroplane must be established by actual weighing before it is used for the purpose of Commercial Air Transport.

All aircraft are to be re-weighed thereafter at intervals of four years unless, with the agreement of the Competent Authority, fleet masses are used, in which case they are to be recalculated at 9 year intervals.

A basic aircraft mass and C of G position will normally be noted on the weighing report, or mass and centre of gravity schedule, as produced by the manufacturer or approved maintenance organisation. These will be used by the Company to calculate an aeroplane DOM and C of G for each aeroplane, or for each fleet, as appropriate.

The accumulated effects of modifications and repairs on mass and balance must be taken into account. Details are contained in Part B for the particular aeroplane type.

If the aeroplanes are to be operated in a variety of roles, e.g., commuter, executive, air ambulance or freight, specific DOM values for each role will be provided, and are to be used as the basis for all loading calculations.

The mass of Crew Members and crew baggage to be included in the aeroplane DOM may be achieved using either standard masses (see Table 4 below) or actual masses. Actual masses must be used for all other operating items to be included in the DOM. If the mass of engine oil has not been included in the calculation of basic aeroplane mass it must be included in the DOM. The effect of all the above items on the aeroplane C of G must be determined and taken into account.

The effect of all the above items on the aeroplane C of G must be determined and taken into account.

Actual or standard masses may be used for passengers and baggage when determining the aeroplane traffic load. It is company policy that standard masses will be utilised except when:

(a) There are instructions in the commander's brief to use actual masses;

(b) It is expected that the passenger and or baggage mass on the aeroplane will be significantly less than standard e.g. school trips;

(c) If a significant number of passengers on any flight and/or a significant amount of checked baggage is expected to exceed the standard mass, then actual mass must be used or an adequate increment to the standard mass must be added.

Whenever the actual mass of passengers and or baggage is more than the standard mass then the actual masses must be used.

Standard masses are shown in Tables 1, 2, and 3 below. Hand baggage and infants under two carried on laps are included in Tables 1 and 2 below. Actual mass must be used when taking freight or ballast into account. The mass of the fuel load must be calculated using either actual density or standard density values of:

- Gasoline – 0.71;
- Jet Fuel, JP1 – 0.79;
- Jet Fuel, JP4 – 0.76;
- Oil, – 0.88.

8.1.8.2 Standard Mass Values

Mass values for passengers, 19 seats or less

Passenger Seats	1–5	6–9	10–19
Male	104 kg 229 lbs	96 kg 212 lbs	92 kg 203 lbs
Female	86 Kg 190 lbs	78 kg 172 lbs	74 kg 163 lbs
Children 2-11 years	35 kg 77 lbs	35 kg 77 lbs	35 kg 77 lbs

Notes:

1. Passenger bags can be weighed using calibrated scales on board each aircraft.
2. When the number of passenger seats is less than 9, and when indicated in the commander's brief, passenger mass may be established by use of a verbal statement as described in para 8.1.8.1(g).
3. On flights where no hand baggage is carried in the cabin or where hand baggage is accounted for separately, 6 kg may be deducted from the above male and female masses. It is acceptable, under exceptional circumstances, for passenger baggage to be weighed using the aircraft scales carried onboard with calibration dates managed by GAL. Articles such as an overcoat, umbrella, small handbag or purse, reading material or a small camera are not considered as hand baggage for the purpose of the above table.

Mass Values for Crew

Crew Position	Standard Mass Including Hand Baggage
Flight Crew	85 kg (187lbs)

Note:

1. Any additional baggage must be taken into account, including its effect on the C of G.
2. Any variation in the standard masses must be acceptable to the Authority

8.1.8.3 Load sheet Requirements

A Company mass and balance document is to be raised in duplicate for each flight carried out for the purpose of Commercial Air Transport.

One copy is to be carried on the aeroplane, whilst another, as accepted by the commander, must remain available on the ground for at least 3 days. Part B contains detailed loading instructions, and a sample, mass and balance document for the particular aeroplane type.

Where the use of a standard load plan has been authorised by the Competent Authority, details are included, together with additional limitations on the permissible range of C of G travel on which the standard plan is based. Irrespective of whether a 'drop-line' mass and balance document, a standard plan, a load calculator, or a computer programme is used in establishing the aeroplane's mass and C of G position, the final mass and balance document must contain details of the disposition of all loaded items, including fuel, and must indicate whether standard or actual mass values have been used.

The person supervising the loading must confirm by signature that the load and its distribution are as stated on the mass and balance document, which must also contain the name of the person who prepared it. The mass and balance document must be acceptable to, and countersigned by the aeroplane commander. Details of any late alterations in the load must be passed to the commander, and entered in the 'last minute changes' spaces on the mass and balance document.

The commander must be advised whenever a non-standard method has been used for determining the mass of the traffic load. In addition the method employed must be stated in the mass and balance documentation.

8.1.9 ATS Flight Plan

An ATS Flight Plan is to be submitted to the appropriate air traffic services unit for all flights for the purpose of Commercial Air Transport, except for those flights which will be conducted in accordance with the visual flight rules (VFR) and are intended to take off and land at the same aerodrome.

Flight plans are also to be filed for positioning flights, private flights and those carried out in the course of line training in accordance with Part D, whenever these are intended to follow a planned route to a destination other than the point of departure.

Details of flights such as local area training flights or those involving air tests of aeroplanes or their systems are to be passed to the ATS unit ('booking out') and the operator is to ensure that a nominated person on the ground is made responsible for monitoring the flight progress, and for alerting the emergency services if the aeroplane has not returned within an hour of its estimated time of return.

The commander is responsible for ensuring that a plan has been filed, and that he is fully aware of the details.

In exceptional circumstances when unable to submit or close the ATS flight plan due to lack of ATS facilities or communication, the commander must ensure that a suitable person/agent is made responsible for alerting search and rescue services. This person/agent must be provided with at least the information to be included in a VFR flight plan together with the location, date and estimated time for re-establishing communications. The person/agent must notify the appropriate ATS or search and rescue facility if the aeroplane is overdue or missing. Lastly the above flight details must be retained at the departure aerodrome, or other suitable place until the completion of the flight.

Where there is a need for operational changes in-flight that require a change to the ATS Flight Plan, these should – whenever possible – be coordinated with the appropriate Air Traffic Service unit before bring passed to the aircraft.

8.1.10 Operational Flight Plan

An Operational Flight Plan (navigation log, or Plog), is to be prepared and used for all flights other than those intended to take-off and land at the same aerodrome for such purposes as air tests, training and local area pleasure flights under VFR.

Whereas the company will normally issue a prepared plan for each flight, the flight crew may be required to produce their own plans, using the standard company proforma, for ‘one-off’ flights. The following information is to be recorded:

(a) aeroplane registration;

(b) aeroplane type and variant;

(c) date of flight;

(d) flight identification;

(e) names of flight Crew Members;

(f) duty assignment of flight Crew Members;

(g) place of departure;

(h) time of departure (actual off-block time, take-off time);

(i) place of arrival (planned and actual);

(j) time of arrival (actual landing and on-block time);

(k) type of operation (ETOPS, VFR, Ferry flight, etc.);

(l) route and route segments with checkpoints; waypoints, distances, time and tracks;

(m) planned cruising speed and flying times between check-points/waypoints. Estimated and actual times overhead;

(n) safe altitudes and minimum levels;

(o) planned altitudes and flight levels;

(p) fuel calculations (records of in-flight fuel checks);

(q) fuel on board when starting engines;

(r) alternates(s) for destination and, where applicable, take-off and en-route, including information required in sub-paragraphs (l), (m), (n) and (o);

(s) initial ATS Flight Plan clearance and subsequent re-clearance;

(t) in-flight re-planning calculations; and

(u) relevant meteorological information.

Items which are readily available in other documentation or from an acceptable source or are irrelevant to the type of operation may be omitted from the operational flight plan.

8.1.11 Aeroplane Technical Log

The aeroplane technical log is a system for recording defects and malfunctions discovered during the operation and for recording details of all maintenance carried out on the particular aeroplane to which the aeroplane technical log applies whilst that aeroplane is operating between scheduled visits to the base maintenance facility. In addition, it is used for recording operating information relevant to flight safety and must contain maintenance data that the operating crew need to know.

The aeroplane technical log system covers in five sections the necessary details although it is acceptable to further sub-divide where it is found that the information is so extensive that sub-sections are considered to be more appropriate.

(a) Section 1. Contains details of the registered name and address of the operator, the aeroplane type and the complete international registration marks of the aeroplane.

(b) Section 2. Contains details of when the next scheduled maintenance is due, including, if relevant any out of phase component changes due before the next maintenance check. In addition this Section contains the current Certificate of Release to Service, for the complete aeroplane, issued normally at the end of the last maintenance check.

Note: The flight crew does not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the Authority.

(c) Section 3. Contains details of all information considered necessary to ensure continued flight safety. Such information includes:

(i) The aeroplane type and registration mark.

(ii) The date and place of take-off and landing.

(iii) The times at which the aeroplane took off and landed.

(iv) The running total of flying hours, such that the hours to the next schedule maintenance can be determined.

The flight crew does not need to receive such details if the next scheduled maintenance is controlled by other means acceptable to the Authority.

(v) Details of any defect to the aeroplane affecting airworthiness or safe operation of the aeroplane including emergency systems known to the commander.

Provision is made for the commander to date and sign such entries, including, where appropriate, the nil state for continuity of the record. Provision is made for a Certificate of Release to Service following rectification of a defect or any deferred defect or maintenance check carried out.
Such a certificate readily identifies the defect(s) to which it relates or the particular maintenance check as appropriate.

(vi) The quantity of fuel and oil uplifted and the quantity of fuel available in each tank, or combination of tanks, at the beginning and end of each flight; provision is made to show, in the same units of quantity, both the amount of fuel planned to be uplifted and the amount of fuel actually uplifted; provision for the time when ground de-icing and/or anti-icing was started and the type of fluid applied, including mixture ratio fluid/water.

(vii) The pre-flight inspection signature.

Note: The performance of de-icing and anti-icing activities does not require a EASA 145 approval.

In addition to the above it is necessary to record the following supplementary information:

(a) the time spent in particular engine power ranges where use of such engine power affects the life of the engine or engine module. Maximum or Inter Contingency Power are two examples;

(b) the number of landings where landings affect the life of an aeroplane or aeroplane component;

(c) flight cycles or flight pressure cycles where such cycles affect the life of an aeroplane or aeroplane component.

Where Section 3 is of the multi-sector ‘part removable’ type then such ‘part removable’ sections must contain all of the foregoing information where appropriate.

Section 3 is designed such that one copy of each page may remain on the aeroplane and one other copy may be retained on the ground until completion of the flight to which it relates.

Section 3 layout should be divided to show clearly what is required to be completed after flight and what is required to be completed in preparation for the next flight.

Section 4, Contains details of all deferred defects that affect or may affect the safe operation of the aeroplane and should therefore be known to the aeroplane commander. Each page of this section must be pre-printed with the company’s name and page serial number and provision is made for recording the following:

(a) a cross reference for each deferred defect such that the original defect can be identified in the particular Section 3 Sector Record Page;

(b) the original date of occurrence of defect deferred;

(c) brief details of the defect;

(d) details of the eventual rectification carried out and its Certificate of Release to Service or a clear cross-reference back to the document that contains details of the eventual rectification.

Section 5, Contains any necessary maintenance support information that the aeroplane commander needs to know. Such information includes data on how to contact maintenance engineering if problems arise whilst operating the routes etc.

The aeroplane Technical Log System can be either a paper or computer system or any combination of both methods.

8.1.11.1 Pilot Maintenance Procedures

The Commander is to refer to the Schedule Maintenance Inspection Certificate of Release to Service in the aircraft Technical Log and cross reference this information with the current sector page. The SMI CRS may have a number of items with dates/hours limitations and the most limiting of these is to be entered in the out of phase box on the current sector page. When a limit is reached and cleared by Engineers the next most limiting item is to be entered as an out of phase item.

If the Commander has a defect with any component part of the aircraft he/she must record this defect in the appropriate area of the Technical Log.

The Commander may require an Engineer to clear this defect before the next flight or he/she may be able to refer to the MEL and follow MEL deferring procedures as detailed in '*AOC.OP.036-Notifications of Aircraft Defects (Scottish Based Aircraft)'* and '*AOC.OP.100-Technical Log MEL Procedures Flowchart*' which is located in Section 1 of the Tech Log.

The Commander is to refer to the MEL deferred Page to check that there are no outstanding maintenance issues. It is also good practice to check back through previous sectors in order to check that there is not any maintenance entries that require a Certificate of Release to Service.

The Commander of the aircraft when at any location feels it is necessary to obtain Engineering assistance he/she is to consult with the Company and get prior authority to contact an approved Engineering Organisation. Any work to be carried out on Company aircraft will be managed by the Company Maintenance Manager in accordance with Part M Subpart G and/or EASA Part 145.

8.1.12 List of Documents, Forms and Additional Information to be Carried (*CAT.GEN.MPA.180*)

a) The following documents or copies thereof belonging to the respective aeroplanes are to be carried on each individual flight:

(1) the aircraft flight manual (AFM), or equivalent document(s);
(2) the original certificate of registration;
(3) the original certificate of airworthiness (CofA);

(4) the noise certificate;
(5) a certified true copy of the air operator certificate (AOC);
(6) the operations specifications relevant to the aircraft type, issued with the AOC;
(7) the original aircraft radio licence;
(8) the third party liability insurance certificates(s);
(9) the journey log, or equivalent, for the aircraft;
(10) the aircraft technical log;
(11) details of the filed ATS flight plan, if applicable;
(12) current and suitable and suitable aeronautical charts for the route of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
(13) procedures and visual signals information for use by intercepting and intercepted aircraft;
(14) information concerning search and rescue services for the area of the intended flight, which shall be easily accessible in the flight crew compartment;
(15) the current parts of the operations manual that are relevant to the duties of the crew members; which shall be easily accessible to the crew members;
(16) the MEL;
(17) appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation.
(18) appropriate meteorological information;
(19) cargo and /or passenger manifests, if applicable;
(20) mass and balance documentation;
(21) the operational flight plan, if applicable;
(22) notification of special categories of passenger (SCPs) and special loads, if applicable; and
(23) any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

(b) In case of loss or theft of documents specified in (a)(2) to (a)(8), the operation may continue until the flight reaches its destination or a place where replacement documents can be provided.

(c) Each flight Crew Member shall, on each flight, carry a valid flight crew licence with the appropriate rating(s), Passport, Visas, Medical and Vaccination Certificates.

(d) (1) In consideration of the (a)(1) above the current Aeroplane Flight Manual, unless it has been accepted by the Authority that Part B of this Operations Manual contains relevant data for the aeroplane.

(2) In consideration of (a) (10) above the Technical log, containing at least the information required in para 8.1.11;

In addition,

- ICAO Special Rules Airspace Procedures Manual;
- mass and balance documentation as
- notification of special categories of passenger such as security personnel, if not

- considered as crew, handicapped persons, inadmissible passengers, deportees
- and persons in custody;
- notification of special loads including dangerous goods including written
- information to the commander as prescribed in Section 9 ;
- Overflight Permits;
- forms to comply with the reporting requirements of the Authority and the operator (Discretion/MOR/Incident);
- Aircraft Checklists.

8.1.13 Information to be retained on the ground

The following information is to be retained on the ground for 48 hrs with a suitably authorised person i.e. Handling Agent etc.:

- A copy of the operational flight plan;
- Copies of the tech log showing departure information *(Refer to AOC.OP.100 – Technical Log Flow Chart);*
- A copy of the load sheet;
- Copy of any special loads i.e. Dangerous Goods.

8.2 Ground Handling Instructions

8.2.1 Fuelling Procedures

Under normal circumstances it may be necessary for refuelling to take place with passengers on board the aeroplane.

When the commander considers it preferable for the passengers to remain on board while refuelling takes place, the precautions to be taken are as given *in paragraph 8.2.1.3* below.

8.2.1.1 At Base

When operating from its base aerodrome, the Commander is to confirm with operations that the fuel quantity ordered is sufficient to meet his calculated requirements for the flight, and during the pre-flight inspection is to ensure that he, or a flight Crewmember nominated by him, confirms that:

(a) the correct type, grade, quantity and quality of fuel has been loaded and the water drain check has been completed in accordance to the manufacturers requirements.

(b) the bowser or other fuel installation is earthed to the aeroplane structure before the hose is extended, and remains so earthed until refuelling is complete;

Bonding connections should be made to the designated points or to clean unpainted metal surfaces, and should connect the installation delivering the fuel, with the aircraft or installation receiving the fuel. All connections should be made before the filler caps are removed i.e. prior to the start of fuelling, and not broken until fuelling is complete and the filler caps have been replaced where applicable. On no account should either the fuelling vehicle or the aircraft be bonded to a fuel hydrant pit.

(c) smoking is not permitted within 15 metres of the aeroplane while refuelling is in progress;

(d) the fuel drains are operated to check for water content, and left properly closed;

(e) where practical, a visual check of tank contents, or if specified in the check lists for smaller aeroplanes, a dipstick check reveals the correct amount of fuel on board to within reasonable tolerances;

(f) all fuel tank caps are properly secured;

(g) the aeroplane fuel gauges indicate that the tanks have been filled to the required levels; and

(h) details of the fuel uplift have been correctly entered in the technical log and a gross error check is carried out;

(i) if an auxiliary power unit located within the fuelling zone or which has an exhaust efflux discharging into the zone is stopped for any reason during a fuelling operation it should not be restarted until the flow of fuel has ceased and there is no risk of igniting fuel vapours;

(j) Company aircraft may not be refuelled or de-fuelled when an engine is running. In the event that pressure refuelling system is not possible then over wing refuelling is prohibited with passengers on board.

8.2.1.2 En Route

When operating away from base, a flight Crewmember is normally to be nominated by the Commander to be present during the refuelling, and in addition to confirming that the requirements of para 8.2.1.1 above, are met, he is to ensure that:

(a) particular care is taken in advising the refuelling agency of the type, grade and fuel quantity required, with special reference to the units of measurement quoted *(litres, US. gallons, pounds etc.);*

(b) the correct quantity of anti-freeze additive is dispensed into the fuel where specified by the aeroplane manufacturer;

(c) the fuel bowser/installation readings at the start and finish of refuelling reflect accurately the fuel uplift as indicated on the aeroplane fuel quantity gauges, and a gross error check is carried out.

Note: When refuelling with wide cut fuels the aeroplane electrical supply should be switched off before refuelling starts, and remain off until refuelling ceases and the hoses have been removed.

8.2.1.3 Passengers on Board

1) The following is applicable for medical flights only.

When passengers are to be allowed to embark, disembark or remain on board during refuelling or defueling, the following additional precautions are to be observed:

(a) a flight Crewmember, or suitably qualified ground engineer *(see note below),* must remain on the flight-deck during refuelling/defueling.

Note: The qualified person referred to above must be capable of handling emergency procedures concerning fire protection and fire fighting, handling communications and initiating and directing an evacuation.

(b) if required by the local national, or airport Authority, air traffic control and the aerodrome fire services are to be advised that refuelling/defueling will be taking place with passengers on board;

(c) crew, staff and passengers are to be advised that refuelling/defueling is about to take place;

(d) 'Fasten Seat Belt' signs must be off, 'No Smoking' signs must be on together with interior lighting to enable emergency exits to be identified;

(e) passengers are to be briefed not to smoke at any time on the ground and to remain seated, but with seat belts/harnesses unfastened, until the refuelling has been completed. In addition all mobile telephones must be switched off.

(f) a Crewmember is to be stationed at the main exit door to assist in the evacuation if an emergency should occur and other emergency doors exits must be guarded by Crewmembers who must be prepared for an immediate emergency evacuation;

(g) if the presence of fuel vapour is detected inside the aeroplane, or any other hazard arises refuelling/defueling must be stopped immediately;

(h) no individual items of electrical equipment may be switched on or off while refuelling/defueling is in progress;

(i) the position of the fuel bowser/installation relative to the aeroplane is to be such that it will not impede the rapid exit of passengers if an emergency evacuation becomes necessary;

(j) the ground area beneath the exits intended for emergency evacuation and slide deployment areas must be kept clear;

(k) however notwithstanding the foregoing an operator shall ensure that no aeroplane is re/de-fuelled with Avgas or wide cut fuel (*e.g. Jet B or equivalent)* or when a mixture of these types of fuel might occur, when passengers are embarking, on board or disembarking.

2) Refuelling With Passengers on Board

Refuelling or defueling may take place with passengers on board if local regulations allow.

The following basic procedures apply:

(a) At least one Flight Crew member or suitably qualified engineer must be on the flight deck whilst refuelling /defueling is taking place and they will co-ordinate the necessary procedures and precautions to be observed.

(b) One crew member must be positioned in the vicinity of the main passenger door whilst refuelling is taking place. Should the presence of any fuel vapour be detected within the aircraft, the Captain shall be advised immediately. Refuelling must be stopped.

(c) The ‘NO SMOKING’ signs must be on, together with sufficient interior lighting to enable the emergency exits to be identified.

(d) The ‘FASTEN SEAT BELT’ signs must be turned off, and passengers instructed to unfasten their seat belts.

(e) Passengers must be advised that refuelling is taking place and that smoking is strictly prohibited during this time. The use of electrical items is prohibited.

(f) If passengers are embarking or disembarking during refuelling, ground personnel must advise passengers of their route thus avoiding the fuelling zone. Passengers must be reminded that the use of mobile phones is strictly prohibited in the vicinity if the fuelling zone.

8.2.2 Aeroplane, Passenger and Cargo Handling Procedures Related to Safety

All personnel who are to be made responsible for the ground handling of the Company’s aeroplanes, including the loading and offloading of both passengers and freight, are to be given detailed guidance in the completion of their duties in respect of each aeroplane type for which they may be responsible.

Such personnel include flight crews and the Company’s own ground personnel. In the event of usage of non – Company ground personnel it is the responsibility of the Commander to ensure that those personnel are adequately briefed.

8.2.2.1 Passengers and Special Categories of Passengers (SCP’s) CAT.OP. MPA.155

Persons requiring special conditions, assistance and/or devices when carried on a flight shall be considered as SCPs including at least:

(1) persons with reduced mobility (PRMs) who, without prejudice to Regulation (EC) No 1107/2006, are understood to be any person whose mobility is reduced due to any physical disability, sensory or locomotory, permanent or temporary, intellectual disability or impairment, any other cause of disability, or age;

(2) infants and unaccompanied children; and

(3) deportees, inadmissible passengers or prisoners in custody.

(Persons requiring special conditions, assistance and /or devices shall be considered as SCP’s. The Commander shall be notified in advance when SCP’s are to be carried on board)

(a) As far as is possible, subject to mass and balance requirements, passengers are to be allowed a free choice of seating from the space available on the aeroplane when they arrive at check in. Regard must be paid however to seat allocation affecting emergency evacuation of the aeroplane. To this end passengers are to be categorised into three groups and seats allocated accordingly.

(i) Passengers likely to assist evacuation. Only those persons who appear reasonably fit and strong should be seated adjacent to self-*help (type III and type IV)* exits.

(ii) Special Category Passengers should be seated where they will not obstruct emergency equipment or exits, or otherwise impede the crew in carrying out their duties include:

A passengers who are physically or mentally handicapped to the extent that they would have difficulty in moving quickly if asked to do so;

B passengers whose sight or hearing is impaired to the extent that they might not readily become aware of instructions given to begin evacuating the aeroplane;

C children and infants, whether or not they are accompanied by an adult;

D passengers in custody and those who are being deported; and

E passengers with reduced mobility or whose physical size would prevent them from being able to move quickly.

F Consideration should be given to:

(1) the number and categories of SCP's which should not exceed the number of passengers capable of assisting them in case of emergency evacuation,
(2) The total number of passengers on board,
(3) Aircraft type and cabin configuration,
(4) Number of crew members required for the operation of the aircraft.

(iii) Passengers who are unlikely to affect evacuation performance. Passengers with no seating restrictions except for (i) above.

Notes:

(1) Multiple occupancy of seats is only permitted when one occupant is an infant under 2 years old and the other is a responsible adult aged 16 years or more.

(2) When persons of reduced mobility (PRMs) are carried as passengers then (a)(ii) above applies. PRM is understood to mean a person whose mobility is reduced due to physical incapacity (sensory or locomotory), an intellectual deficiency, age, illness or any other cause of disability when using transport and when the situation needs special attention and the adaptation to a person's need of the service made available to all passengers. When the number of PRMs forms a significant proportion of the total number of passengers carried they must not exceed the number of able bodied persons capable of assisting with an emergency evacuation.

(b) There may be a wide variation in the circumstances in which passengers are accepted and conveyed to an aeroplane, depending on the aerodrome of departure, the type of aeroplane and its crew composition, the use of a check-in desk or rendezvous point, the availability of a courtesy vehicle and the proximity of the parked aeroplane to the exit from the terminal building. Irrespective of the circumstances however, passengers are to be either taken to the aeroplane in approved transport, or escorted by a Crew Member, nominated Company employee or representative of the appointed handling agent, as appropriate, from the terminal building to the aeroplane. Passengers should not be embarked until the engines have been shut down.

(c) Once at the aeroplane, they should be guided to their allocated seats in an order which will ensure that the aeroplane remains stable during the loading process. When seats are allocated, the aim should be to locate disabled or handicapped passengers clear of the normal/emergency exits so that they will not delay the evacuation process in case of emergency. In order that this aim is achieved the crew will ensure as far as practical that passengers are seated in accordance with their seat allocation.

(d) Similarly to *para b)* above on arrival at the destination, passengers are to be advised to remain on the aeroplane until the engines have been shut down, and arrangements have been made for the passengers to proceed to the terminal by vehicle, or with an escort. Every care is to be taken to ensure that they remain in a unified group, refrain from smoking, and are kept well clear of propeller or rotor wash and jet engine intake and exhaust danger areas while on the aircraft movement area. On arrival at the designated parking stand a flight crew member shall open the main entry door, be the first person to exit the aircraft and remain at the aircraft door assisting the disembarking passengers.

(e) Once the passengers are seated, a flight Crew member is to close the aeroplane door(s) and/or confirm by inspection that it has been properly closed and secured.

(f) If the Company is required to carry such normally inadmissible passengers as deportees or persons charged with criminal offences, special arrangements, including the provision of escorts will be made and full details will be included in the commander's flight brief.

(g) In addition to having their attention drawn to the safety cards, passengers are to be carefully briefed on their contents, as detailed in para. 8.3.16. Emphasis should be placed on the operation of the normal/emergency exits, the use of safety belts/harnesses, the position of seat backs during take-off and landing, and the general requirements for cabin security at all times.

8.2.2.2 Baggage and Freight (Permissible size and weight of hand baggage)

(a) Cabin baggage will normally be restricted to handbags, briefcases, cameras outdoor coats and other items that can be reasonably stowed in approved stowage's, unless the carriage in the cabin of other items has been cleared with the Company at the time of booking.
At check-in, or prior to boarding the aeroplane, passengers will be informed as to items of hand baggage that are considered to be dangerous goods and must not be carried.

Warning notices or placards sufficient in number will be prominently displayed, at each of the places at an airport where tickets are issued and passengers checked in, in aeroplane boarding areas and at any other place where passengers are checked in. In addition a warning will be issued with the passenger ticket. This may be printed on the ticket or on a ticket wallet or on a leaflet.

(b) The mass of individual cabin baggage items should reflect that passenger's standard allowance, unless the pieces are weighed and accounted for. The size and number of items to be allowed per passenger is determined by the aeroplane type, route and load factor and will be detailed in Part B or the Mass, Balance and Loading instructions. Stowage of items of cabin baggage is to be as shown below:

(i) each item carried in a cabin must be stowed and restrained in an approved stowage;

(ii) mass limitations placarded on or adjacent to stowage's must not be exceeded;

(iii) under seat stowage's must not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment and not obstruct egress from the seat row;

(iv) items must not be stowed in toilets or against bulkheads that are incapable of restraining articles against movement forwards, sideways or upwards and unless the bulkheads carry a placard specifying the greatest mass that may be placed there;

(v) baggage and cargo placed in lockers must not be of such size that they prevent latched doors from being closed securely;

(vi) baggage and cargo must not be placed where it can impede access to emergency equipment; and

(vii) checks must be made before take-off, before landing, and whenever the commander illuminates the fasten seat belts signs (or otherwise so orders) to ensure that baggage is stowed where it cannot impede evacuation from the aeroplane or cause injury by falling (or other movement) as may be appropriate to the phase of flight.

(c) Hold baggage is to be stowed and secured only in those areas and compartments, which are designated for its carriage, and subject to the floor loading limitations of the particular area. It may be necessary to restrict the type of luggage carried in particular areas (e.g. to grips and holdalls in smaller aircraft wing lockers) or to restrict the weight carried for balance purposes rather than structural considerations. The commander is to ensure that all personnel who may be responsible for loading the aeroplane are made aware of such additional restrictions.

(d) Freight is not to be carried unless the particular aeroplane has been cleared for operations in the freight role, and the appropriate spreader boards, freight lashings, nets and anchor points are available and approved. For such approved aeroplanes, details of the freight configuration(s) and loading restrictions will be found in *Part B* for the aeroplane type.

8.2.2.3 Ground Operations (Including positioning of ground equipment)

(a) Whenever an aeroplane is to be positioned on the ramp, whether under tow or under its own power, the assistance of marshallers or wingtip guides, as appropriate, should be obtained if there is any doubt about the clearances available for manoeuvring. Once on the hardstanding, positioning of the aeroplane should represent the best available compromise between the requirements of the aerodrome and/or air traffic control authorities, the prevailing wind direction, and the proximity to buildings and other aeroplane.

(b) Once the aeroplane has been parked, ground support vehicles should be stationed clear of its extremities and if possible parallel to the fuselage or mainplane centreline so that in the event of brake failure they will not collide with the aeroplane itself. Ground equipment should also be positioned so that inadvertent movement will not endanger the aeroplane structure. In all cases, free access to the aeroplane main exit must be preserved.

(c) When departing from the ramp, local procedures for start-up and taxy clearance are to be followed. Engine start is not to be initiated until all passengers or freight have been loaded, the aeroplane doors and hatches have been closed, and all ground equipment, except for a ground power unit when used, has been removed from the vicinity of the aeroplane. As for the arrival, the assistance of marshallers should be arranged when manoeuvring in relatively confined or crowded areas of the apron.

(d) Ground staff must have been briefed on all aspects of ramp safety with particular reference to fire prevention, blast and suction areas, and the need to be constantly alert to remove loose objects and/or debris.

(e) Push back of Company aircraft is permitted after the Captain has established a procedure with the ground staff using the aircraft flight intercom system or hand signals as appropriate. Aircraft hydraulic systems must be isolated (if applicable) in order to prevent the inadvertent activation of the nose wheel whilst attached to the Tow Bar. The most dangerous time is when the Tow Bar is connected to the nose wheel and whilst waiting for a tug. Ground staff and crew are often walking in the radius of the pole. ATC clearance must be obtained prior to pushing back on to an active taxy way.

(f) Towing of aircraft is permitted by an authorized person. Brakes must be left off and the aircraft chocked if the towing of an aircraft is likely. Undercarriage pins must be installed prior to towing if the aircraft type requires undercarriage pins in place (refer AFM).Note: Crewmembers must be in the flight deck during push back when departing but do not need to be present whilst towing of an aircraft to a hangar or apron stand.

8.2.2.4 Taxiing of Aeroplanes. CAT.GEN.MPA.125

SKILLS AND KNOWLEDGE REQUIRED

The following skills and knowledge may be assessed to check if a person, other than a qualified pilot can be authorised by the operator to taxi an aeroplane:

(a) positioning of the aeroplane to ensure safety when starting engine;

(b) obtaining automatic terminal information service (ATIS) reports and taxi clearance, where applicable;

(c) interpretation of airfield markings/lights/signals/indicators;

(d) interpretation of marshalling signals, where applicable;

(e) identification of suitable parking area;

(f) maintaining lookout and right-of-way rules and complying with air traffic control (ATC) or marshalling instructions when applicable;

(g) avoidance of adverse effect of propeller slipstream or jet wash on other aeroplanes, aerodrome facilities and personnel;

(h) inspection of taxi path when surface conditions are obscured;

(i) communication with others when controlling an aeroplane on the ground;

(j) interpretation of operational instructions;

(k) reporting of any problem that may occur while taxiing an aeroplane; and

(l) Adapting the taxi speed in accordance with prevailing aerodrome, traffic, surface and weather conditions.

8.2.3 Procedures for the Refusal of Embarkation

8.2.3.1 The aeroplane commander has the statutory authority to refuse entry to his aeroplane of anyone whose presence in flight could represent a hazard to the safety of the aeroplane or its passengers.
Such persons could include those suspected of being under the influence of alcohol or drugs to the extent that the safety of the aeroplane or its occupants is likely to be endangered, or of suffering from any form of mental or physical illness which could put the remaining passengers at risk. In the case of known or declared illnesses, arrangements may be made for such sufferers to be carried if prior medical approval has been given, and qualified nursing personnel accompany the patient(s).

8.2.3.2 In order to assist the commander in the proper exercise of this authority, all company personnel engaged in passenger handling and loading, including other Crew Members, handling agents and check-in personnel, should alert the commander if at any time they consider that the condition of particular passengers could jeopardise the safety of a proposed flight.

8.2.3.3 If difficulty is encountered in dealing with such passengers, particularly those who may require physical restraint, the assistance of the aerodrome, or local police should be requested.

8.2.4 De-icing and Anti-icing on the Ground

8.2.4.1 Certification for Flight in Icing Conditions

Some, but by no means all, aeroplane types are certificated for flight in a variety of icing conditions, and the details are contained in the Aeroplane Flight Manual and its supplements, with which all pilots should be familiar.

Whether or not an aeroplane type has been certificated for flight in icing conditions, it is not certificated for take-off or flight when carrying ice deposits resulting from ground operations or storage.

<u>**Gama Aviation has a zero ice policy on all its aircraft being operated.**</u>

8.2.4.2 De-icing

Ice, snow, slush or frost may be removed from aeroplane surfaces by heated fluids, mechanical methods, alternate technologies or combinations thereof... Flight crews should familiarise themselves with the methods locally available, and with those areas of their aeroplane from which the removal of deposits is vital, or which may be adversely affected by the incomplete or careless removal of snow or slush (e.g. control surface hinges, engine intakes and static ports).

Ice, snow, slush and frost shall be removed from aeroplane surfaces prior to dispatch or prior to anti-icing.

When the commander requires the aircraft to be de-iced/ anti-iced the Commander must inform all crew members and passengers, if on board that de-icing/anti-icing will be taking place. The commander must ensure that all crew and passengers are briefed on any safety procedures are observed.

8.2.4.2.1 Removal of frost and light ice

A nozzle setting giving a solid cone (fan) spray should be used.

NOTE: This ensures the largest droplet pattern available, thus retaining the maximum heat in the fluid. Providing the hot fluid is applied close to the aeroplane skin, a minimal amount of fluid will be required to melt the deposit.

8.2.4.2.2 Underwing de-icing procedures

Treatments must be symmetrical and may include flaps lower surfaces. Spray the affected areas with a heated fluid/water mixture suitable for a One-Step or Two Step Procedure, as required, (see caution below), and then spray the same areas under the other wing. Both wings must be treated identically (same areas, same amount and type of fluid, same mixture strength), even if the frozen contamination is only present under one wing. A trained and qualified person must check that the treatment was done symmetrically and that all frozen deposits have been removed, and then report the details of the treatment to the Commander. No holdover times apply to underwing treatments.

CAUTION: Underwing frost and ice are usually caused by very cold fuel in the wing tanks. Use a fluid/water mixture with a higher concentration of glycol than is usually required by the OAT to prevent re-freezing.

8.2.4.2.3 Removal of snow

A nozzle setting sufficient to flush off deposits and minimise foam production is recommended. Foam could be confused as snow.

The procedure adopted will depend on the equipment available and the depth and type of snow; i.e. light and dry or wet and heavy. In general, the heavier the deposits the heavier the fluid flow that will be required to remove it effectively and efficiently from the aeroplane surfaces.

For light deposits of both wet and dry snow, similar procedures as for frost removal may be adopted. Wet snow is more difficult to remove than dry snow and unless deposits are relatively light, selection of high fluid flow will be found to be more effective. Under certain conditions it will be possible to use the heat, combined with the hydraulic force of the fluid spray to melt and subsequently flush off frozen deposits. However, where snow has bonded to the aeroplane skin, the procedures detailed in section 8.2.4.2.5 should be utilised.

Heavy accumulation of snow will always be difficult to remove from aeroplane surfaces and vast quantities of fluid will invariably be consumed in the attempt. Under these conditions, serious consideration should be given to removing the worst of the snow manually before attempting a normal de-icing procedure.

8.2.4.2.4 Removal of ice

Heated fluid shall be used to break the ice bond. The method makes use of the high thermal conductivity of the metal skin.

A stream of hot fluid is directed at close range onto one spot at an angle of less than 90°, until the aeroplane skin is just exposed. The aeroplane skin will then transmit the heat laterally in all directions raising the temperature above the freezing point thereby breaking the adhesion of the frozen mass to the aeroplane surface. By repeating this procedure a number of times, the adhesion of a large area of frozen snow or glazed ice can be broken. The deposits can then be flushed off with either a low or high flow, depending on the amount of the deposit.

8.2.4.2.5 General de-icing fluid application

For effective removal of snow and ice, the following techniques shall be adopted. Certain aeroplanes can require unique procedures to accommodate design differences, see aircraft manufacturer's instructions.

Ice, snow or frost dilutes the fluid. Apply enough hot de-icing fluid ensure that re-freezing does not occur and all contaminated fluid is driven off.

8.2.4.2.5.1 Wings, horizontal stabiliser, and elevators

Spray from the leading edge to the trailing edge. Do not spray from the rear. Start at the highest point of the surfaces and work to the lowest parts, i.e. on most aeroplanes start at the wing tip and work towards the wing root.

NOTE: Refer to the aircraft manufacturer’s maintenance manual for any deviation from this procedure.

8.2.4.2.5.2 Vertical surfaces

Start at the top and work down.

8.2.4.2.5.3 Fuselage

Spray along the top centre line and then outboard. Ensure that it is clear of snow, slush or ice in accordance with aircraft manufacturer's manuals. Hoarfrost may be allowed.

8.2.4.2.5.4 Nose / Radome Area and Flight Deck Windows

Type I / water fluid mixture or manual methods of removal *(such as squeegees or brushes)* are recommended.

When thickened fluids are used, avoid spraying near flight deck windows, as fluid residues can cause a severe loss of visibility during flight.

Any thickened fluid remaining on nose areas where it could blow back onto the windscreens should be removed prior to departure, using squeegees or equivalent. If flight deck windows are contaminated with thickened fluids use an approved windshield cleaner and a soft cloth. A low freezing point windscreen washing fluid is recommended when OAT is at or below 0°C.

CAUTION: Prior to cleaning of Flight Deck Windows ensure that the window heating system is switched off.

8.2.4.2.5.5 Landing gears and wheel bays

The application of de-icing fluid in this area shall be kept to a minimum. De-icing fluid shall not be sprayed directly onto brakes and wheels.
Landing gear and wheel bays shall be kept free from build-up of slush, ice or accumulations of blown snow.

NOTE: *Accumulations such as blown snow may be removed by other means than fluid (mechanically, air blast, heat etc.).* However, where deposits have bonded to surfaces, they can be removed by the application of hot air or by spraying with hot de-icing fluids.

8.2.4.2.5.6 Engines

Deposits of snow shall be removed mechanically from engine intakes prior to departure. Any frozen deposits that have bonded to either the lower surface of the intake, the fan blades including the rear side, or propellers, shall be removed by hot air or other means recommended by the engine manufacturer.

8.2.4.3 Anti-Icing

Ice, snow, slush or frost will, for a period of time, be prevented from accumulating on aeroplane surfaces by the application of anti-icing fluids. The following procedures shall be adopted when using anti-icing fluids.

Anti-icing fluid shall be applied to the aeroplane surfaces when freezing rain, snow or other freezing precipitation may adhere to the aeroplane at the time of aeroplane dispatch.

For effective anti-icing, an even layer of sufficient thickness of fluid is required over the prescribed aeroplane surfaces, which are clean *(free of frozen deposits).* For longer anti-icing protection, undiluted Type II, Type III, or Type IV fluid should be used.
The high fluid pressures and flow rates normally associated with de-icing are not required for this operation and, where possible, pump speeds should be reduced accordingly. The nozzle of the spray gun should be adjusted to provide a medium spray.

NOTE: Type I fluids provide limited holdover effectiveness when used for anti-icing purposes. Little benefit is gained from the minimal holdover time generated.

8.2.4.3.1 Anti-icing fluid application strategy

The process should be continuous and as short as possible. Anti-icing should be carried out as near to the departure time as operationally possible in order to utilise maximum holdover time.

The anti-icing fluid shall be distributed uniformly and with sufficient thickness over all surfaces to which it is applied. In order to control the uniformity, all horizontal aeroplane surfaces shall be visually checked during application of the fluid.

The correct amount is indicated by fluid just beginning to run off the leading and trailing edges.

Spray from the leading edge to the trailing edge. Do not spray from the rear.

Start at the highest point of the surfaces and work to the lowest parts, i.e. on most aeroplanes start at the wing tip and work towards the wing root. On vertical surfaces, start at the top and work down.

The following surfaces shall be treated:

a) Wing upper surfaces including leading edges and upper control surfaces.
b) Horizontal stabiliser upper surfaces including leading edges and elevator upper surfaces.
c) Vertical stabiliser surfaces including the rudder *surfaces (both sides).*
d) Fuselage upper surfaces depending upon the amount and type of precipitation *(especially important on centre-line engine aeroplanes).*

CAUTION: Anti-icing fluids may not flow evenly over wing leading edges, horizontal and vertical stabilisers. These surfaces should be checked to ensure that they are properly coated with fluid.

8.2.4.4 Fluid Limits and Precautions

8.2.4.4.1 Temperature limits

When performing two-step de-icing/anti-icing, the freezing point of the fluid used for the first step shall not be more than 3°C above ambient temperature. *(See also Tables 1 and 2.)*

8.2.4.4.2 Type I fluids

The freezing point of the Type I fluid mixture used for either one-step de-icing/anti-icing or as a second step in the two-step operation shall be at least 10°C below the outside air temperature. In no case shall this temperature be lower than the lowest operational use temperature (LOUT).

CAUTION: Type I fluids supplied as concentrates for dilution with water prior to use shall not be used undiluted. For exceptions refer to fluid manufacturer's documentation.

8.2.4.4.3 Type II / Type III / Type IV fluids

Type II, III, and IV fluids used as de-icing/anti-icing agents may have a lower temperature application limit of -25°C the application limit may be lower, provided a 7°C buffer is maintained between the freezing point of the neat fluid and outside air temperature.

In no case shall this temperature be lower than the lowest operational use temperature (LOUT).

Note: These fluids may not be used below -25°C (-13°F) in active frost conditions *(See Table 3)***.**

Approved concentrations of ISO Type II, III and IV fluids, used either for one-step de-icing/anti-icing or as the second step in a two-step operation, are listed in Table 2 in section 8.2.4.14. Together with details of the lowest temperature at which the various concentrations may be applied to the aircraft surfaces.

Approved concentrations of ISO Type II, III and IV fluids, used for the first step in a TWO-STEP operation, are listed in *Table 2* in section 8.2.4.14. Together with details of the lowest temperature at which the various concentrations may be applied to the aircraft surfaces

Upper Wing Skin temperatures may, under certain circumstances, be lower than the OAT. When this is suspected, e.g. when large quantities of cold fuel remain from the previous sector, consideration should be given to selecting a stronger mix than would be required by the existing OAT. This will ensure that an adequate buffer is maintained between the freezing point of the fluid used and the temperature of the upper wing.

8.2.4.4.4 Application limits

Under no circumstances shall an aeroplane that has been anti-iced receive a further coating of anti-icing fluid directly on top of the contaminated film.

If an additional treatment is required before flight, a complete de-icing/anti-icing shall be performed *(see Application Tables 1 and 2).*

Ensure that any residues from previous treatment are flushed off. Anti-icing only is not permitted.

8.2.4.5 Procedure precautions

8.2.4.5.1 One-step de-icing/anti-icing is performed with a heated anti-icing fluid.

The fluid used to de-ice the aeroplane remains on the aeroplane surfaces to provide limited anti-ice capability.

The correct fluid concentration shall be chosen with regard to desired holdover time and is dictated by outside air temperature and weather conditions *(see Application Tables 1 and 2 in section 8.2.4.8 below).*

CAUTION: Wing skin temperatures may be lower than OAT. If this condition is identified, a stronger mixture (*more glycol)* may need to be used to ensure a sufficient freezing point buffer.

CAUTION: The application of Type II, III, or IV fluid, especially when used in a one step process, may cause residues to collect in aerodynamically quiet areas, cavities and gaps. Dried residues may rehydrate and freeze following a period of high humidity and/or rain conditions. This may impede flight control systems. These residues may require removal.

Consult the aircraft manufacturer with regard to inspection methods and frequency, related maintenance requirements and aeroplane washing recommendations.

NOTE 1: When checking for residues, their visibility may be facilitated by misting with water.

NOTE 2: If removal of contamination is required on the lower side of the wings and the horizontal stabiliser and elevator, de-icing/anti-icing fluid shall be applied sparingly to minimise fluid flow into drain holes.

8.2.4.5.2 Two-step de-icing/anti-icing *(When the first step is performed with de-icing fluid)*

The correct fluid(s) shall be chosen with regard to ambient temperature. After de-icing, a separate over-spray of anti-icing fluid shall be applied to protect the relevant surfaces thus providing maximum possible anti-ice capability.

The correct fluid concentration shall be chosen with regard to desired holdover time and is dictated by outside air temperature and weather conditions *(see Application Tables 1 and 2 in section 8.2.4.8 below).*

The second step shall be performed before first step fluid freezes *(typically within 3 min),* if necessary area by area.

When applying the second step fluid, use a spraying technique, which completely covers the first step fluid *(for example using the method described in section 8.2.4.3.1)* and provides a sufficient amount of second step fluid.

Where re-freezing occurs following the initial treatment, both first and second step must be repeated.

CAUTION: Wing skin temperatures may be lower than OAT. If this condition is identified, a stronger mixture (*more glycol)* may need to be used to ensure a sufficient freezing point buffer

CAUTION: The application of Type II, III, or IV fluid, especially when used in a one step process or in the first step of a two-step process, may cause residues to collect in aerodynamically quiet areas, cavities and gaps. Dried residues may rehydrate and freeze following a period of high humidity and/or rain conditions. This may impede flight control systems. These residues may require removal.
Consult the aircraft manufacturer with regard to inspection methods and frequency, related maintenance requirements and aeroplane washing recommendations.

The use of hot water or heated mixture of Type I fluid/water for the first step of a two-step de-icing/anti-icing process will minimise the formation of residues.

NOTE 1: When checking for residues, their visibility may be facilitated by misting with water.

NOTE 2: Anti-icing of the lower side of the wings and/or horizontal stabiliser and elevator is normally not foreseen. However, if these surfaces must be de-iced, the freezing point of the de-icing fluid must be low enough to prevent refreezing.

8.2.4.5.3 With regard to holdover time provided by the applied fluid, the objective is that it be equal to or greater than the estimated time from start of anti-icing to start of take-off based on existing weather conditions.

8.2.4.5.4 De-icing treatments shall be symmetrical, that is, left-hand and right-hand side of the aeroplane shall receive the same treatment, even when only one side of the aeroplane is contaminated.

Anti-icing treatments shall always cover the entire wing and the entire horizontal stabiliser/elevator on both sides of the aeroplane.

CAUTION: Aerodynamic problems could result if these requirements are not met.

8.2.4.5.5 During anti-icing and de-icing, the moveable surfaces shall be in a position as specified by the aircraft manufacturer.

Engines are normally shut down but may remain running at idle during de-icing/anti-icing operations.

Air conditioning and/or APU air shall be selected OFF, or as recommended by the airframe and engine manufacturer.

8.2.4.5.6 De-icing/anti-icing fluids shall not be sprayed directly on wiring harnesses and electrical components *(receptacles, junction boxes, etc.),* onto brakes, wheels, exhausts, or thrust reversers.

De-icing/anti-icing fluid shall not be directed into the orifices of pitot heads, static ports or directly onto air stream direction detectors probes/angle of attack airflow sensors.

All reasonable precautions shall be taken to minimise fluid entry into engines, APU, other intakes/outlets and control surface cavities.

De-icing/anti-icing fluid shall not be directed into engine inlets or directly onto engine probes / sensors.

Fluids shall not be directed onto flight deck or cabin windows as this can cause crazing of acrylics or penetration of the window seals.

In general, prior to the application of de-icing/anti-icing fluids all doors and windows should be closed and all service vehicles / personnel should be clear to prevent:

a) Galley floor areas being contaminated with slippery de-icing fluids.
b) Upholstery becoming soiled.
c) Vehicles/personnel becoming contaminated with fluid.

8.2.4.5.7 When removing ice, snow, slush or frost from aeroplane surfaces care shall be taken to prevent it entering and accumulating in auxiliary intakes or control surface hinge areas. Remove snow from wings, stabiliser, ailerons and elevators by spraying from the leading edge to the trailing edge.

Start at the highest point of the surfaces and work to the lowest parts, i.e. on most aeroplanes start at the wing tip and work towards the wing root.

Under freezing fog conditions, the rear side of the fan blades shall be checked for ice build-up prior to start-up. Any deposits discovered shall be removed by directing air from a low flow hot air source, such as a cabin heater, onto the affected areas.

A flight control check should be considered according to aeroplane type *(see relevant manuals).* This check should be performed after de-icing/anti-icing.

8.2.4.5.8 Clear ice precautions

Clear ice can form on aeroplane surfaces, below a layer of snow or slush. It is therefore important that surfaces are closely examined following each de-icing operation, in order to ensure that all deposits have been removed.

Significant deposits of clear ice can form, in the vicinity of the fuel tanks, on wing upper surfaces as well as under-wing. Aeroplanes are most vulnerable to this type of build-up when:

a) Wing temperatures remain well below 0°C during the turnaround/transit.
b) Ambient temperatures between -2°C and +15 °C are experienced.
c) Ambient humidity is high and/or precipitation occurs while the aeroplane is on the ground.

This type of ice formation is extremely difficult to detect. However, frost or ice on the lower surface of either wing can indicate the presence of clear ice on the upper wing surfaces. Therefore when the above conditions prevail, or when there is otherwise any doubt whether clear ice has formed, a close examination shall be made immediately prior to departure, in order to ensure that all frozen deposits have in fact been removed.

NOTE 1: Clear ice can form at other temperatures if conditions a) and c) exist.

NOTE 2: Low wing temperatures associated with this type of build-up normally occur when large quantities of cold fuel remain in wing tanks during the turnaround/ transit and any subsequent re-fuelling does not cause a sufficient increase in wing temperature.

8.2.4.6 Flight control check

A functional flight control check using an external observer may be required after de-icing/anti-icing depending upon aeroplane type *(see relevant manuals).* This is particularly important in the case of an aeroplane that has been subjected to an extreme ice or snow covering.

8.2.4.7 Post De-icing/Anti-icing Check

An aeroplane shall not be dispatched after a de-icing/anti-icing operation until the aeroplane has received the following visual check by a trained and qualified person.

This check shall cover wings, horizontal stabilizer, vertical stabilizer and fuselage, plus all other parts of the aeroplane on which a de-icing/anti-icing treatment was performed according to the requirements identified during the contamination check.

The check shall be performed from points offering sufficient visibility of all prescribed surfaces *(e.g. from the de-icer itself or other equipment suitable for gaining access).* Any contamination found, shall be removed by further de-icing/anti-icing treatment and the check repeated.

Before take-off the commander must ensure that he has received confirmation that this Post De-icing/Anti-icing Check has been accomplished.

NOTE: For specific aeroplane types, additional requirements exist e.g. special clear ice checks, such as tactile checks on wings. These special checks are not covered by the Post De-icing/Anti-icing Check. Aeroplane operators shall make arrangements for suitably qualified personnel to meet these requirements.

Anti-icing Check, it may either be performed as a separate check or incorporated into the de-icing operation as defined below.

The de-icing provider shall specify the actual method adopted, where necessary by customer, in his winter procedures:

a) As the de-icing/anti-icing operation progresses the De-icing Operator will closely monitor the surface receiving treatment, in order to ensure that all forms of frost, ice, slush or snow *(except as may be allowed in the AFM and/or AMM)* are removed.

b) Once the operation has been completed, the De-icing Operator will carry out a close visual check of the surface where treatment commenced, in order to ensure it has remained free of contamination *(this procedure not required under 'frost only' conditions)*

c) Where the request for de-icing/anti-icing did not specify all of the following surfaces, i.e. wing, horizontal stabilizer, vertical stabilizer and fuselage, the surfaces omitted from the request shall also receive a close visual check at this time, in order to confirm that they have also remained free of contamination.

d) Any evidence of contamination that is outside the defined limits shall be reported to the Commander immediately.

8.2.4.8 Pre-take-off Check

The Commander shall continually monitor the weather conditions after the performed de-icing / anti-icing treatment. Prior to take-off he shall assess whether the applied holdover time is still appropriate and/or if untreated surfaces may have become contaminated.

This Check is normally performed from inside the flight deck.

8.2.4.9 Pre-take-off Contamination Check

This is a check of the critical surfaces for contamination.

This check shall be performed when the condition of the critical surfaces of the aeroplane cannot be effectively assessed by a pre-take-off check or when the applied holdover time has been exceeded.

This check is normally performed from outside the aeroplane.

The alternate means of compliance to a pre-take-off contamination check is a complete de-icing /anti-icing re-treatment of the aeroplane.

8.2.4.10 Communication Procedures

Communication between the Commander and the de-icing crew will usually be achieved using a combination of printed forms and verbal communication. For treatments carried out after aeroplane doors are closed, use of flight interphone (headset) or VHF radio will usually be required.

8.2.4.11 Communication prior to starting De-icing/Anti-Icing treatment

i) Before de-icing/anti-icing, the Commander shall be requested to confirm the treatment required *(areas to be de-iced, anti-icing requirements, special de-icing procedures).*

ii) Before fluid application starts, the Commander shall be requested to configure the aeroplane for de-icing/anti-*icing (surfaces, controls and systems, as per aeroplane type requirements).* The de-icing crew shall wait for confirmation that this has been completed before commencing the treatment.

iii) For treatments carried out without the flight crew present, a suitably qualified individual shall be nominated by the aeroplane operator to confirm the treatment required and to confirm correct configuration of the aeroplane.

8.2.4.12 Post De-icing/Anti-Icing Communication

An aeroplane shall not be dispatched for departure after a de-icing/anti-icing operation until the Commander has been notified of the type of de-icing/anti-icing operation performed *(Anti-icing Code).*

The Anti-icing Code *(section 8.2.4.13)* shall be provided by a qualified person at the completion of the treatment, indicating that the checked surfaces *(see section 8.2.4.7)* are free of ice, frost, snow, and slush, and in addition includes the necessary information to allow the Commander to estimate the holdover time to be expected under the prevailing weather conditions with reference to the HOT tables in *section 8.2.4.14* below.

8.2.4.13 Anti-Icing Codes

The following information shall be recorded and be communicated to the Commander by referring to the last step of the procedure and in the sequence provided below.

a) The fluid Type; i.e. Type I, II, III, IV.

b) The concentration of fluid within the fluid/water mixture, expressed as a percentage by volume.

c) The local time (hours*:* minutes)*, either*

- For a one-step de-icing / anti-icing: at the start of the treatment
Or
- For a two-step de-icing / anti-icing: at the start of the second step (anti-icing).

d) The date *(written: day, month, year).*

NOTE 2: Required for record keeping, optional for Commander Notification.

e) The complete name of the anti-icing fluid *(so called "brand name").*

NOTE 3: Optional; for Type II and IV fluids only.

f) The statement "Post de-icing/anti-icing check completed"

NOTE 4: For specific aeroplane types, additional requirements exist e.g. special clear ice checks, such as tactile checks on wings. Additional confirmation for these checks is required.

EXAMPLE

A de-icing/anti-icing procedure whose last step is the use of a mixture of 75% of a Type II fluid and 25% water, commencing at 13:35 local time on 20 February 2009, is reported and recorded as follows;

TYPE II 75/25 13:35 *(20 Feb 2010) ("complete name of anti-icing fluid")* "Post de-icing/anti-icing check completed".

If there is any subsequent departure delay, or further deterioration in the weather conditions, he should use this information, together with that in the Tables at *para. 8.2.4.14*, below, to form a realistic idea of whether further de-icing / anti-icing may be required.

8.2.4.14 Holdover time.

Holdover time is obtained by anti-icing fluids remaining on the aeroplane surfaces.

With a one-step de-icing/anti-icing the holdover time begins at the start of the treatment and with a two-step de-icing/anti-icing at the start of the second *step (anti-icing)*

Holdover time will have effectively run out when frozen deposits start to form/accumulate on treated aeroplane surfaces.

Due to their properties, Type I fluids form a thin liquid wetting film, which provides limited holdover time, especially in conditions of freezing precipitation. With this type of fluid no additional holdover time would be provided by increasing the concentration of the fluid in the fluid/water mixture.

Type II, III, and IV fluids contain a pseudo plastic thickening agent, which enables the fluid to form a thicker liquid wetting film on external aeroplane surfaces. This film provides a longer holdover time especially in conditions of freezing precipitation.

With this type of fluid additional holdover time will be provided by increasing the concentration of the fluid in the fluid/water mixture, with maximum holdover time available from undiluted fluid.

The Tables **1, 2, 3, 4, 18, 19** and **20** give an indication as to the time frame of protection that could reasonably be expected under the prevailing precipitation. However, due to the many variables that can influence holdover time, these times should not be considered as minimums or maximums as the actual time of protection may be extended or reduced, depending upon the particular conditions existing at the time.

The lower limit of the published time span is used to indicate the estimated time of protection during moderate precipitation and the upper limit indicates the estimated time of protection during light precipitation.

CAUTION: 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 aeroplane skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-take off check.

NOTE: A degraded Type II, Type III, or Type IV fluid may be used, provided the holdover time guidelines for Type I fluids *(Table 3 or 4 as applicable)* are used. A Type II, Type III, or Type IV fluid is considered to be degraded if the viscosity is below the minimum limit as provided by the fluid manufacturer.

Table 1 – Active Frost Holdover Times for SAE Type I, Type II, Type III and Type IV Fluids

FAA Holdover Time Guidelines **Winter 2019-2020**

TABLE 1: ACTIVE FROST HOLDOVER TIMES FOR SAE TYPE I, TYPE II, TYPE III, AND TYPE IV FLUIDS

Outside Air Temperature[1,2,3]	Type I
-1 °C and above (30 °F and above)	0:45 *(0:35)*[5]
below -1 to -3 °C (below 30 to 27 °F)	
below -3 to -10 °C (below 27 to 14 °F)	
below -10 to -14 °C (below 14 to 7 °F)	
below -14 to -21 °C (below 7 to -6 °F)	
below -21 to -25 °C (below -6 to -13 °F)	
below -25 °C to LOUT (below -13 °F to LOUT)	

Outside Air Temperature[2,3]	Concentration Fluid/Water By % Volume	Type II	Type III[4]	Type IV
-1 °C and above (30 °F and above)	100/0	8:00	2:00	12:00
	75/25	5:00	1:00	5:00
	50/50	3:00	0:30	3:00
below -1 to -3 °C (below 30 to 27 °F)	100/0	8:00	2:00	12:00
	75/25	5:00	1:00	5:00
	50/50	1:30	0:30	3:00
below -3 to -10 °C (below 27 to 14 °F)	100/0	8:00	2:00	10:00
	75/25	5:00	1:00	5:00
below -10 to -14 °C (below 14 to 7 °F)	100/0	6:00	2:00	6:00
	75/25	1:00	1:00	1:00
below -14 to -21 °C (below 7 to -6 °F)	100/0	6:00	2:00	6:00
below -21 to -25 °C (below -6 to -13 °F)	100/0	2:00	2:00	4:00
below -25 °C (below -13 °F)	100/0	No Holdover Time Guidelines Exist		

NOTES

1. Type I Fluid / Water Mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
2. Ensure that the lowest operational use temperature (LOUT) is respected.
3. Changes in outside air temperature (OAT) over the course of longer frost events can be significant; the appropriate holdover time to use is the one provided for the coldest OAT that has occurred in the time between the de/anti-icing fluid application and takeoff.
4. To use the Type III fluid frost holdover times, the fluid brand being used must be known. AllClear AeroClear MAX must be applied unheated.
5. Value in parentheses is for aircraft with critical surfaces that are predominantly or entirely constructed of composite materials.

CAUTIONS

- The responsibility for the application of these data remains with the user.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

Table 2 – Holdover Times for SAE Type I Fluid on Critical Aircraft Surfaces Composed Predominantly of Aluminium

FAA Holdover Time Guidelines — Winter 2019-2020

TABLE 2: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF ALUMINUM

Outside Air Temperature[1,2]	Freezing Fog or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets[3,4]	Light Snow, Snow Grains or Snow Pellets[3,4]	Moderate Snow, Snow Grains or Snow Pellets[3]	Freezing Drizzle[5]	Light Freezing Rain	Rain on Cold Soaked Wing[6]	Other[7]
-3 °C and above (27 °F and above)	0:11 - 0:17	0:18 - 0:22	0:11 - 0:18	0:06 - 0:11	0:09 - 0:13	0:02 - 0:05	0:02 - 0:05	
below -3 to -6 °C (below 27 to 21 °F)	0:08 - 0:13	0:14 - 0:17	0:08 - 0:14	0:05 - 0:08	0:05 - 0:09	0:02 - 0:05		
below -6 to -10 °C (below 21 to 14 °F)	0:06 - 0:10	0:11 - 0:13	0:06 - 0:11	0:04 - 0:06	0:04 - 0:07	0:02 - 0:05	CAUTION: No holdover time guidelines exist	
below -10 °C (below 14 °F)	0:05 - 0:09	0:07 - 0:08	0:04 - 0:07	0:02 - 0:04				

NOTES

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
2 Ensure that the lowest operational use temperature (LOUT) is respected.
3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 43) is required.
4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
5 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
6 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

CAUTIONS

- The responsibility for the application of these data remains with the user.
- 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 be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

Table 3 – Holdover Times for SAE Type I Fluid on Critical Aircraft Surfaces Composed Predominantly of Composites

FAA Holdover Time Guidelines — Winter 2019-2020

TABLE 3: HOLDOVER TIMES FOR SAE TYPE I FLUID ON CRITICAL AIRCRAFT SURFACES COMPOSED PREDOMINANTLY OF COMPOSITES

Outside Air Temperature[1,2]	Freezing Fog or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets[3,4]	Light Snow, Snow Grains or Snow Pellets[3,4]	Moderate Snow, Snow Grains or Snow Pellets[3]	Freezing Drizzle[5]	Light Freezing Rain	Rain on Cold Soaked Wing[6]	Other[7]
-3 °C and above (27 °F and above)	0:09 - 0:16	0:12 - 0:15	0:06 - 0:12	0:03 - 0:06	0:08 - 0:13	0:02 - 0:05	0:01 - 0:05	
below -3 to -6 °C (below 27 to 21 °F)	0:06 - 0:08	0:11 - 0:13	0:05 - 0:11	0:02 - 0:05	0:05 - 0:09	0:02 - 0:05		
below -6 to -10 °C (below 21 to 14 °F)	0:04 - 0:08	0:09 - 0:12	0:05 - 0:09	0:02 - 0:05	0:04 - 0:07	0:02 - 0:05	CAUTION: No holdover time guidelines exist	
below -10 °C (below 14 °F)	0:04 - 0:07	0:07 - 0:08	0:04 - 0:07	0:02 - 0:04				

NOTES

1 Type I fluid / water mixture must be selected so that the freezing point of the mixture is at least 10 °C (18 °F) below outside air temperature.
2 Ensure that the lowest operational use temperature (LOUT) is respected.
3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 43) is required.
4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
5 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
6 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

CAUTIONS

- The responsibility for the application of these data remains with the user.
- 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 be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

Table 4 – Generic Holdover Times for SAE Type II Fluids

FAA Holdover Time Guidelines — Winter 2019-2020

TABLE 4: GENERIC HOLDOVER TIMES FOR SAE TYPE II FLUIDS

Outside Air Temperature[1]	Fluid Concentration Fluid/Water By % Volume	Freezing Fog or Ice Crystals	Snow, Snow Grains or Snow Pellets[2,3]	Freezing Drizzle[4]	Light Freezing Rain	Rain on Cold Soaked Wing[5]	Other[6]
-3 °C and above (27 °F and above)	100/0	0:55 - 1:50	0:25 - 0:50	0:30 - 1:00	0:20 - 0:35	0:08 - 0:45	
	75/25	0:25 - 0:55	0:15 - 0:25	0:15 - 0:40	0:10 - 0:20	0:04 - 0:25	
	50/50	0:15 - 0:25	0:05 - 0:10	0:08 - 0:15	0:06 - 0:09		
below -3 to -8 °C (below 27 to 18 °F)	100/0	0:30 - 0:45	0:20 - 0:35	0:20 - 0:45	0:15 - 0:20		
	75/25	0:25 - 0:50	0:10 - 0:20	0:15 - 0:25	0:08 - 0:15		
below -8 to -14 °C (below 18 to 7 °F)	100/0	0:30 - 0:45	0:15 - 0:30	0:20 - 0:45[7]	0:15 - 0:20[7]	CAUTION: No holdover time guidelines exist	
	75/25	0:25 - 0:50	0:08 - 0:20	0:15 - 0:25[7]	0:08 - 0:15[7]		
below -14 to -18 °C (below 7 to 0 °F)	100/0	0:15 - 0:25	0:02 - 0:07				
below -18 to -25 °C (below 0 to -13 °F)	100/0	0:15 - 0:25[8]	0:01 - 0:03[8]				
below -25 °C to LOUT (below -13 °F to LOUT)	100/0	0:15 - 0:25[8]	0:00 - 0:01[8]				

NOTES

1. Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type II fluid cannot be used.
2. To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 43) is required.
3. Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
4. Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
5. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
6. Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.
7. No holdover time guidelines exist for this condition below -10 °C (14 °F).
8. If the LOUT is unknown, no holdover time guidelines exist below -24 °C (-11 °F).

CAUTIONS

- The responsibility for the application of these data remains with the user.
- 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 be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

Table 18 – Type III Holdover Times for All clear Aeroclear Max Applied Unheated on Low Speed Aircraft

FAA Holdover Time Guidelines — Winter 2019-2020

TABLE 18: TYPE III HOLDOVER TIMES FOR ALLCLEAR AEROCLEAR MAX APPLIED UNHEATED ON LOW SPEED AIRCRAFT[1]

Outside Air Temperature[2]	Fluid Concentration Fluid/Water By % Volume	Freezing Fog or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets[3,4]	Light Snow, Snow Grains or Snow Pellets[3,4]	Moderate Snow, Snow Grains or Snow Pellets[3]	Freezing Drizzle[5]	Light Freezing Rain	Rain on Cold Soaked Wing[6]	Other[7]
-3 °C and above (27 °F and above)	100/0	0:45 - 1:55	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40	0:25 - 0:50	0:14 - 0:25	0:05 - 0:40	
	75/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	50/50	N/A	N/A	N/A	N/A	N/A	N/A	CAUTION: No holdover time guidelines exist	
below -3 to -10 °C (below 27 to 14 °F)	100/0	0:50 - 1:40	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40	0:25 - 0:45	0:15 - 0:25		
	75/25	N/A	N/A	N/A	N/A	N/A	N/A		
below -10 to -16 °C (below 14 to 3 °F)	100/0	0:40 - 1:45	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40				

NOTES

1. These holdover times are for aircraft conforming to the SAE AS5900 low speed aerodynamic test criterion. Fluid must be applied unheated to use these holdover times. No holdover times exist for this fluid applied heated.
2. Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type III fluid cannot be used.
3. To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 43) is required.
4. Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
5. Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
6. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
7. Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail.

CAUTIONS

- The responsibility for the application of these data remains with the user.
- 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 be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

Table 19 – Type III Holdover Times for All clear Aeroclear Max Applied Unheated on High Speed Aircraft

FAA Holdover Time Guidelines — Winter 2019-2020

TABLE 19: TYPE III HOLDOVER TIMES FOR ALLCLEAR AEROCLEAR MAX APPLIED UNHEATED ON HIGH SPEED AIRCRAFT[1]

Outside Air Temperature[2]	Fluid Concentration Fluid/Water By % Volume	Freezing Fog or Ice Crystals	Very Light Snow, Snow Grains or Snow Pellets[3,4]	Light Snow, Snow Grains or Snow Pellets[3,4]	Moderate Snow, Snow Grains or Snow Pellets[3]	Freezing Drizzle[5]	Light Freezing Rain	Rain on Cold Soaked Wing[6]	Other[7]
-3 °C and above (27 °F and above)	100/0	0:45 - 1:55	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40	0:25 - 0:50	0:14 - 0:25	0:05 - 0:40	
	75/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	50/50	N/A	N/A	N/A	N/A	N/A	N/A		
below -3 to -10 °C (below 27 to 14 °F)	100/0	0:50 - 1:40	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40	0:25 - 0:45	0:15 - 0:25		
	75/25	N/A	N/A	N/A	N/A	N/A	N/A	CAUTION: No holdover time guidelines exist	
below -10 to -25 °C (below 14 to -13 °F)	100/0	0:40 - 1:45	1:20 - 1:45	0:40 - 1:20	0:18 - 0:40				
below -25 to -35 °C (below -13 to -31 °F)	100/0	0:25 - 1:00	0:45 - 1:00	0:20 - 0:45	0:10 - 0:20				

NOTES

1 These holdover times are for aircraft conforming to the SAE AS5900 high speed aerodynamic test criterion. Fluid must be applied unheated to use these holdover times. No holdover times exist for this fluid applied heated.
2 Ensure that the lowest operational use temperature (LOUT) is respected. Consider use of Type I fluid when Type III fluid cannot be used.
3 To determine snowfall intensity, the Snowfall Intensities as a Function of Prevailing Visibility table (Table 43) is required.
4 Use light freezing rain holdover times in conditions of very light or light snow mixed with light rain.
5 Includes light, moderate and heavy freezing drizzle. Use light freezing rain holdover times if positive identification of freezing drizzle is not possible.
6 No holdover time guidelines exist for this condition for 0 °C (32 °F) and below.
7 Heavy snow, ice pellets, moderate and heavy freezing rain, small hail and hail (Table 41 provides allowance times for ice pellets and small hail for SAE Type III fluids, applied unheated).

CAUTIONS

- The responsibility for the application of these data remains with the user.
- 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 be reduced when aircraft skin temperature is lower than outside air temperature.
- Fluids used during ground de/anti-icing do not provide in-flight icing protection.
- This table is for departure planning only and should be used in conjunction with pretakeoff check procedures.

8.2.4.15 Recent developments in ground de-icing techniques include the need to evaluate the prevailing weather conditions closely and adjust holdover times accordingly. Significant factors may be that:

a) the protection against icing (holdover time) afforded by the application of de-icing fluid can be shortened by high winds or jet blasts causing damage to the de-icing fluid film which forms to protect the aeroplane surface.

b) wing skin temperatures can be significantly lower than the OAT. It can therefore be a more representative guide to the de-icing requirements, de-icing fluid/water mixing ratio and subsequent holdover times.

c) When an aircraft is de-iced/anti-iced, and then runs out of 'hold-over time. Under no circumstances can an aircraft that has been anti-iced receive another coat of type II or IV fluid on top of the existing fluid. If the holdover times are exceeded, surfaces must first be de-iced with a mixture of hot water and de-icing fluid prior to another application of anti-ice fluid.

Aeroplane commanders are therefore to ensure that de-icing / anti-icing operations appropriate to the conditions are carried out on the ground before departure, and that pre-flight inspection indicates that all deposits of hoar frost, ice and snow have been removed before any attempt is made to take off. Any effect of ground de-icing on aeroplane performance must be taken into account.

A commander shall not commence take-off unless the external surfaces are clear of any deposit which might adversely affect the performance and/or controllability of the aeroplane except as permitted in the Airplane Flight Manual.

However commanders are reminded that **Gama Aviation has a zero ice policy on all its aircraft being operated**.

It is the responsibility of the aircraft Commander to ensure that the zero ice policy is adhered to. The authority of the aircraft Commander overrides that of any other person.

8.2.4.16 Technical Log Entries

The commander is to ensure that whenever de-icing has taken place, an appropriate entry has been made and signed in the aircraft technical log. This is to be in the format of the anti-icing

EXAMPLE: A de-icing/anti-icing procedure whose last step is the use of a mixture of 75% of a Type II fluid and 25% water, commencing at 13:35 UTC, is reported and recorded as follows:

TYPE II 75/25 13:35 (“complete name of anti-icing fluid”) "Post de-icing/anti-icing check completed".

NOTE: The date has been omitted as this information is already recorded on the Tech Log page

The image below shows a technical log with the appropriate information entered.

Form AOC 007

Revision 2
November 2006

Gama aviation — Business Aviation Centre, Farnborough Airport, Hants GU14 6XA	DATE	A/C TYPE	REG	FLT No. /CALLSIGN	SRP SERIAL No. 013367

PRE-FLIGHT COMPLETED	DATE .... TIME	*Captains pre-flight acceptance signature confirms correct **completion of pre-flight inspection, ground quality, de-icing, acceptance of aircraft / defect state and sufficient** fuel and oil for the planned flight.	Next check due at Hours .... Date	1 Commercial / Private 2 Commercial / Private 3 Commercial / Private 4 Commercial / Private
SIGNATURE			DATE / HOURS / LANDING	

Capt.	F/O	Cabin	F/E	OUT OF PHASE ITEMS

Arrival fuel carried forward from last sector record page — TOTALS BROUGHT FORWARD FROM LAST SRP — PSID — AFTER FLIGHT

Sector No.	Fuel Uplift Planned	LBS / KGS Actual	Departure Fuel	Oil Uplift L/R/APU	Ground De-icing	Captains Acceptance Signature*	SECTOR From	SECTOR To	Depart (UTC)	Arrive (UTC)	Sector Total Hours	Sector Total Landings	PSID Actual	Arrival Fuel	Defect Report	Captains Post Flight Signature & Defect Report
1					Yes / ~~No~~											
2					Yes / No											
3					Yes / No											
4					Yes / No											
									Total carried forward to next SRP						Last ARR fuel carried forward to next sector record page	

Defect No.	Defect Report Details	Action Taken Details	SIGNATURE	AUTHORITY	DATE
1		TYPE II 75/25 13:35 (Kilfrost ABC-K Plus) Post de-icing/anti-icing check completed.			
2					
3					
4					

CERTIFICATE OF RELEASE TO SERVICE

Certifies that the work specified except as otherwise specified was carried out in accordance with Part-145 and in respect to that work the aircraft / aircraft component is considered ready for release to service. Part-145 approval no. UK.145.00813.

8.2.4.17 Snow tam Metar and Braking Action decode

SNOWTAM METAR Decode

An eight-figure Runway State Group may be added to the end of the METAR

RR	RUNWAY DESIGNATOR
24	Runway 24
74	In case of parallel runways, 50 is added to the right runway designator
88	Information applies to all RWY
99	A previous RWY report is repeated

24	6	5	08	93
RR	T	E	DD	BB

T	TYPE OF DEPOSIT
0	Clear & Dry
1	Damp
2	Wet or Water Patches
3	Rime or Frost < 1mm
4	Dry Snow
5	Wet Snow
6	Slush
7	Ice
8	Compacted or Rolled Snow
9	Frozen Ruts or Ridges
/	Not Reported (e.g. due to RWY clearance in progress)

DD	DEPTH OF DEPOSIT
00	Less than 1mm
01 - 90	Depth in mm
92	100mm
93	150mm
94	200mm
95	250mm
96	300mm
97	350mm
98	400mm
99	RWY not operational due to contamination or due to clearance in progress
//	Depth of deposit not significant or not measurable

BB	BRAKING ACTION
01 - 90	Friction Co-efficient (e.g. 34 = 0.34)
91	Poor
92	Medium / Poor
93	Medium
94	Medium / Good
95	Good
99	Unreliable
//	Not Reported

E	EXTENT OF CONTAMINATION
1	10% or Less of RWY covered
2	11% to 25% of RWY covered
5	26% to 50% of RWY covered
9	51% to 100% of RWY covered
/	Not Reported (e.g. due to RWY clearance in Progress)

SPECIALS	
CLRD	Contamination ceases to exist (e.g. RWY has been cleased)
SNOCLO	Airport closed due to snow

BRAKING ACTION	POOR				POOR / MEDIUM				MEDIUM						MEDIUM / GOOD				GOOD		
	91				92				93						94				95		
Co-efficient μ	0	10	20	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	50	100

8.2.5 Aircraft Waste

Aircraft waste from a flight must be bagged up effectively and given to the handling agent to dispose of according to their own local processes. It is the responsibility of the handling agent to dispose of aircraft waste in accordance with EU Regulation (EC) No 1069/2009 and Local Regulations outside of the EU.

If no handling agents are present then crew must check with the airfield where it can be disposed of. If not possible then waste must be taken to the next base where an approved agent can dispose of the waste. It is the responsibility of the flight crew to ensure compliance with restrictions on disposal of international waste.

8.3 Flight Procedures

8.3.1 Flight Plan Annotation of VFR/IFR

Flights for the purpose of Commercial Air Transport should normally be routed via the most convenient, available airway network and in accordance with the instrument flight rules, irrespective of the forecast and actual weather conditions for the route.

When the departure or destination aerodrome is clear of controlled airspace, or there is no interconnecting airway structure, more direct flights may be planned. Under such circumstances, flights in accordance with the visual flight rules may be undertaken, provided only that the forecast and latest actual weather conditions indicate that at the proposed cruising altitudes, the requisite visibilities and clearances from cloud can be maintained. For all flights air traffic services must be used whenever available.

Certain flights (e.g. pleasure, or aerial photography flights) require the existence of good, visual meteorological conditions, but there is no reason why appropriate parts of their routes should not be flown under IFR.

The ATC flight plan is always to indicate clearly whether the flight is to be conducted under IFR or VFR. In cases where the rules governing the flight are expected to be changed en route, the change from IFR to VFR, or vice versa, is to be annotated on the flight plan, as is the position at which the change is planned to take place. If circumstances such as an unforecast deterioration in weather conditions indicate the need for a revised clearance, this is to be requested immediately from the appropriate ATC unit. Flight in visual meteorological conditions is to be maintained until the IFR clearance is received.

Gama aircraft shall not be operated VFR unless the current meteorological conditions allow the flight to continue clear of cloud and a minimum flight visibility of 5km.

VFR will be flown at a suitable height that when over congested areas, in an emergency, the aircraft can alight clear of persons and/or property.

When a pilot arriving at an airfield on an IFR flight plan wishes to continue visually he must obtain permission from ATC to cancel his IFR plan. The pilot must remain clear of cloud and maintain visual reference in order to affect an expeditious and safe approach. The pilot must have the aircraft stable and fully configured by 500 feet above the aerodrome level.

8.3.1.1 Certain customers may have additional operating restrictions. The following are specific criteria, required when operating on behalf of 'NetJets'.

An IFR flight plan will be filed for each operation. Each Flight crewmember shall ensure:

- Departure, enroute, and destination weather are at or above airport published minimums and the flight can be accomplished safely and comfortably;
- All applicable NOTAMS have been checked;
- All aircraft performance limitations will be met;
- The flight can be operated safely in compliance with all required regulations, NTA Vendor Standards, airport restrictions and limitations, and aircraft limitations;

- When completing a circle to land approach the Commander is to increase the manoeuvring category by one i.e. a Category C requirement becomes a Category D.

Note: All operations in areas of high terrain will require the Commander to have a Company brief in accordance with Gama Aviation standard procedures.

8.3.2 Navigation Procedures

Company aeroplanes may be fitted with a variety of navigation equipment. Irrespective of the particular fit, however, the general principal for all operations should be that all such equipment is checked for serviceable and normal operations before each flight. Once in flight, those equipment's which are not directly required for navigation along the selected route should be tuned to ground stations within range whose indications will enable the accuracy of the primary aids to be verified, or from which the bearing and distance indications will enable ground-speed checks or ETA adjustments to be made. The routine use of all fitted equipment will ensure that errors in performance or faulty operation may be detected, and rectification arranged at an early stage.

Reliance should not be placed on information derived from ground beacons until the appropriate coded signal has been identified and, in the case of two-pilot crews, confirmed by both pilots. When equipment other than VOR, ADF and DME, with cockpit computer and keyboard installations are in use, particular care is to be taken in ensuring that the correct numerical sequences are programmed when entering data from the navigation log (Plog) into the installation.

In two-pilot crews, one pilot should read aloud the co-ordinates, tracks or distances while the other pilot operates the keyboard and reads back the figures he has programmed as a cross-check of their accuracy. For single-pilot operations, a conscientious system of self-monitoring should be adopted to minimise the risk of errors. In flight, other available navigation equipment should be selected and used to confirm the accuracy of the primary aid, and to be readily available for use if the primary equipment gives indications of inaccuracy or malfunction. Above all, flight Crew Members must remain alert to the possibility of errors in programming or performance, and be prepared to revert to the use of raw data provided by such standard VOR, ADF and DME equipment as are available.

Navigation logs should be comprehensively completed en route, except when operating in busy terminal areas at lower altitudes, and ETAs should be kept amended to take account of significant changes. Note should be made of any diversion from the planned route, whether initiated by the commander or requested by air traffic control, with a brief description of the circumstances, the time the alteration was made, and any fuel re-planning calculations which were necessary. If difficulties are encountered in following a particular route, the more information which is recorded to assist a post-flight investigation, the greater will be the chances of overcoming the problems on future flights over the same route. It must be noted that when operating off the route indicated on the navigation log the listed safety altitudes may not be valid and caution must be exercised especially during climb out and at top of descent.

Note the following procedures:

(a) In the event of in-flight re-planning the Commander of an IFR flight shall not continue beyond the point from which a revised flight plan applies unless the expected weather conditions at the destination and/or the alternate aerodromes are at or above the planning minima detailed in paras 8.1.3

(b) A Commander of an IFR flight shall not continue beyond the decision point or the predetermined point unless the expected weather conditions at the destination and/or the alternate aerodromes are at or above the operating minima detailed in para 8.1.3.

(c) The Commander of an IFR flight shall not continue towards the planned destination aerodrome unless the latest information available indicates that at the ETA, the weather conditions at the destination, or at least one destination alternate aerodrome, are at or above the required aerodrome operating minima detailed in para 8.1.3.

Aeroplane operations in Minimum Navigation Performance Specification airspace (MNPS), POLAR airspace, airspace designated for Area Navigation (RNAV) and areas designated for RVSM, require authorisation/approval from the Authority. In addition the aeroplane requires a minimum level of specialist navigational equipment to operate in these areas, procedures for operations within the relevant areas are to be followed and crews require specific briefing and/or training. When operating in these specialist airspaces particular note must be taken of the procedures to be followed in the event of failure of the relevant equipment. Full details of all the instructions and procedures concerning RNP(required navigation performance) and operations within MNPS, POLAR, RNAV and RVSM airspace are to be found in Part C (Route and Aerodrome Instructions and Information).

Note: Aeroplanes operating within RVSM areas at F290 and above will require altimeter systems with airworthiness and operational approval.

8.3.2.1 From time to time requests maybe made to operate outside the area/region of normal operations Para 1.1.3.

To cater for these requests a risk assessment must be completed and Pilots area competency must be verified.

Specifically for operations outside of normal operations specified in Para 1.1.3 Pilots are reminded to pay particular attention to the automatic cross over between magnetic headings and true headings.

Aircraft manuals with respect to FMS behaviour above 72N and below 59S must be consulted to remind pilots of automatic switch overs and any anomalies that maybe encountered.

8.3.3 Altimeter Setting Procedures

8.3.3.1 Serviceability Checks

Altimeters are to be checked during the pre-flight phase as follows:

(a) both altimeters are to be set to the aerodrome QFE when available; they should indicate within ±50 feet of zero, and the readings should be within 50 feet of each other;

(b) with No.1 altimeter on QFE and No.2 on aerodrome QNH, the difference between the readings should be equivalent to the aerodrome altitude above mean sea level, to within 50 feet;

(c) set both altimeters to aerodrome QNH and check that they indicate within ±50 feet of the aerodrome elevation, and within 50 feet of each other;

(d) ensure during checks (a) to (c) above that rotation of the setting knob on each altimeter through ± 10 mb produces a corresponding movement of the height indication through approx. ± 300 ft in the appropriate direction.

Note: The altimeters are numbered such that No.1 is the handling pilot's primary instrument and the No.2 is the secondary, and not necessarily within the pilot's normal instrument scan. If a third altimeter is fitted it must be included in the serviceability checks.

8.3.3.2 Setting Procedures

Altimeters are to be set, and cross-checked whenever a new setting is applied, in accordance with the following table.

Flight Stage	No.1	No.2	Remarks
Before Take-off	QNH	QNH	Aerodrome setting
Climb and Cruise	QNH	QNH	If remaining below Transition Altitude(1)
Climb	1013.2	1013,2	Set standard on climbing through Transition Altitude. (2)(3)
En route	1013.2	1013.2	
Descent	1013.2	1013.2	When cleared to intermediate Flight Levels
Descent	QNH	QNH	When cleared to an altitude and no further flight Level reports are required by ATC
Initial Approach	QNH	QNH	Aerodrome QNH
Initial Approach	QNH	QNH	Aerodrome QNH
Missed Approach	QNH	QNH	Aerodrome QNH

Notes:

1 When en route, the QNH used should be the appropriate Regional value, unless operating below a Terminal Area (TMA) when the Zone QNH, or Aerodrome QNH of an associated aerodrome should be set.

2 When a third altimeter is fitted this must be set to the relevant QNH when at or below MOCA or MORA.

3 In UK Airspace only, set standard when cleared to a flight level

Metric Altimetry procedures and conversation tables Flight Level to Metres to Feet table.

China Metric Flight Levels			
Tracks 180 to 359		Track 000 to 179	
Metres	Feet	Metres	feet
600	2000	900	3000
1200	3900	1500	4900
1800	5900	2100	6900
2400	7900	2700	8900
3000	9800	3300	10800
3600	11800	3900	12800
4200	13800	4500	14800
4800	15700	5100	16700
5400	17700	5700	18700
6000	19700	6300	20700
6600	21700	6900	22600
7200	23600	7500	24600
7800	25600	8100	26600
8400	27600	8900	29100
9200	30100	9500	31100
9800	32100	10100	33100
10400	34100	10700	35100
11000	36100	11300	37100
11600	38100	11900	39100
12200	40100	12500	41100
13100	43000	13700	44900
14300	46900	14900	48900
15500	50900		

Gama Aviation
GAL275a China Levels - December 2014 Issue 3

8.3.3.3 Standard Altimeter Calls

The following standard calls are to be made during all Gama flight operations.

Cleared to a FL	Set STD, Altimeter Check
Approaching Cleared FL/Alt	1000 ft to go
	Altitude Capture
	Levelling at _____ FL
Passing 10,000 ft / FL100	Passing 10,000/FL100 for Cleared Alt/FL
Passing FL200	Passing FL200 for Cleared Alt/FL
Passing FL 300	Passing FL300 for Cleared Alt/FL
Passing FL 400	Passing FL400 for Cleared Alt/FL
Cleared to Altitude	Set QNH, Altimeter Check
Radio Altimeter	Check QNH set and Altitude validity
1000 ft above aerodrome	"Check"
500 ft above aerodrome	"Stable"/"Going around"
100ft above Decision Alt	"Check"
Approaching Decision Alt	"Visual" or "Nothing seen Decide"
"Decide" Call Response is:	"Continuing"/"Going around"

8.3.3.4 Temperature Error (See table para 8.3.3.5)

Pressure altimeters are calibrated to indicate true altitude under International Standard Atmosphere (ISA) conditions. Any deviation from ISA will therefore result in an erroneous reading on the altimeter. The altimeter error may be significant under conditions of extremely cold temperature and appropriate corrections should be applied.

8.3.3.5 QFE Operations

This procedure is to be accomplished when ATC altitude assignments are referenced to QFE altimeter settings.

Note 1: Do not use VNAV below transition altitude/level.
Altitudes in the navigation data-base are not referenced to QFE. The use of raw data for navigation is advisable.

Note 2: EGPWS terrain function must be inhibited for all QFE operations unless approved in the Aircraft Flight Manual.

Altimeters……………………………………………QFE/X-checked

Set altimeters to QFE when below transition height/level.

Note: If the QFE setting is beyond the range of the altimeters, QNH procedures must be used with QNH set on the altimeters.
LAND ALT Indicator…………………………………Set at zero

Airport Temp°C	Altitude above Altimeter source Elevation (ft) (normally destination elevation)													
	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0°C	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10°C	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20°C	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30°C	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40°C	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50°C	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500
	Values to be added to Published Altitudes (ft)													

(Above chart amended UK AIP AD.1.1 para 2.6.3 Dec 2012)

8.3.4 Altitude Alerting System Procedures

For the purpose of this paragraph, ‘altitude alerting systems’ include both those devices which, when set, give aural/visual warning of the approach to, or deviation from the selected altitude/flight level, and the more simple device which merely acts as a reminder, via a digital indicator, of the required altitude/flight level.

Whenever an altitude or flight level change is notified by the appropriate ATS unit, or the commander elects to vary his cruising altitude/flight level and advises the ATS unit accordingly, the altitude alerting system is to be reset to the new altitude/level.

Depending upon the aircraft type and crew composition, this will be completed by the handling or non-handling pilot, and in two-pilot crews, the new setting is to be cross-checked by the pilot who has not been responsible for resetting the system itself.

Note: Care must be exercised when re-setting altitude alerting devices which form part of the aeroplane’s Automatic Flight Control System (AFCS) in order to prevent any unplanned aeroplane excursion from its desired flight path.

8.3.5 Ground Proximity Warning System Procedures

Depending upon their type, maximum total weight authorised and/or maximum passenger capacity, company aeroplanes may or may not be equipped with a ground proximity warning system (GPWS). Whenever such a system is fitted, however, it is to be energised and used throughout the flight, unless it has become unserviceable and the MEL for the particular aeroplane type permits it to remain so for a specified period. The following paragraphs are intended as a guide to the purposes and use of GPWS generally; specific technical details of particular equipment will be included in Part B for the aeroplane type.

8.3.5.1 GPWS is intended to provide warning of unintentional closure with the ground as a result of which remedial action can be taken by the flight crew.
It is not infallible, but an immediate and positive response must be made to all its alerts and warnings. During GPWS response action high pitch angles may result. Investigation of the reason for the alert/warning must take second place. Alerts and warnings are defined as follows:

(a) Alert – a caution generated by the GPWS equipment.

(b) Warning – a command generated by the GPWS equipment which may be:
- (i) genuine, i.e. in accordance with its technical specification;
- (ii) nuisance, i.e. although the equipment is operating as intended, the pilot is following an authorised, safe procedure;
- (iii) false, i.e. the equipment is not operating as designed and the warning is spurious.

Irrespective of their nature, all alerts and warnings are to be reported to the company on Civil Aviation Authority Form CA 1718 so that the circumstances may be investigated and the reliability of the equipment established. Flight crews must beware of becoming slow to react to GPWS alert/warnings purely on the basis of previous suspect performance.

8.3.5.2 The following table illustrates the relationship between alerts, warnings and modes.

GPWS Mode Number	GPWS Mode Number	Basic Equipment		Advanced Alert	
		Alert	Warning	Alert	Warning
1.Excessive Descent Rate			‘Whoop Whoop Pull Up’	‘Sink Rate’	‘Whoop Whoop Pull Up’
2.Excessive Terrain Closure			‘Whoop Whoop Pull Up’	‘Terrain Terrain’	‘Whoop Whoop Pull Up’
3.Altitude loss after T/O or G/A			‘Whoop Whoop Pull Up’	‘Don’t Sink’	‘Whoop Whoop Pull Up’
4.Unsafe terrain clearance while not in the configuration for landing	4A. Proximity to terrain Gear not locked down		‘Whoop Whoop Pull Up’	‘Too low Gear’	‘Whoop Whoop Pull Up’
	4B. Proximity to terrain Flaps not in a landing position		‘Whoop Whoop Pull Up’	‘Too Low Flaps’	‘Too Low Terrain’ (see Note Below)
5.Descent below glide slope		‘Glide Slope’		‘Glide Slope’	
6.Descent below “minimums”				‘Minimums’	

NOTE: Although some manufacturers of GPWS equipment may show in their literature ‘Too Low Terrain’ to be an alert, the view of the Authority is that the response to this should be as for a warning.

8.3.5.3 Basic GPWS

As indicated in the above Table, basic GPWS equipment gives warnings, rather than alerts, in all modes except Mode 5, Descent Below Glideslope. In this mode, activation will cause the aural warning ‘Glideslope’ to be repeated, and the flight crew must take immediate action to regain the glideslope as quickly as possible, until the alert ceases. Whenever a warning is received, the immediate response must normally be to level the wings and initiate a maximum gradient climb to the minimum safe altitude (MSA) for the sector being flown, (but see para 8.3.5.5, below).

8.3.5.4 Advanced GPWS

The more advanced GPWS equipment indicates the mode of operation and provides alerts as well as warnings (see para 8.3.5.2, above). The immediate action on receiving an alert will vary according to the stage of flight and aeroplane configuration, but should involve correcting the condition for which the alert was valid. No attempt should be made to recover the original flight path until the cause of the alert has been positively established and eliminated. Whenever a warning is received, however, the immediate response must be to level the wings and initiate a maximum gradient climb to the (MSA) for the sector being flown, except as in para. 8.3.5.5, below.

8.3.5.5 Warnings – Discretionary Action by Commander

The response to a warning, as outlined in paras 8.3.5.3 and 8.3.5.4, above, may be limited to that appropriate to an alert only if:

(a) the aeroplane is being operated by day in conditions which enable it to remain 1nm horizontally and 1000 feet vertically from cloud, and in a flight visibility of at least 5nm; and
(b) it is immediately obvious to the commander that the aeroplane is in no danger in respect of its configuration, proximity to terrain or current flight manoeuvre.

8.3.5.6 Limitations

Unenhanced GPWS equipment does not have a forward looking facility so that little or no warning may be given if the aeroplane is approaching sharply rising terrain. Alerts and warnings in Modes 1 and 2 are only given when the aeroplane is less than 2,500 feet above the local terrain. If no corrective action is taken, a maximum of some 20 seconds will elapse between initial receipt of the alert/warning and contact with the ground, and this will be lessened if the rate of descent is excessive, or there is rising ground beneath the aeroplane.

8.3.5.7 Unwanted Warnings

Unwanted (i.e. false or nuisance) warnings may be received during normal, safe operations when, for example, the aeroplane is being vectored by ATC and is descending in an area of hilly terrain. A Mode 5 (glideslope) alert may be triggered when the aeroplane is being flown outside the validity area of the glideslope signal, such as when manoeuvring visually to land on a non-instrument runway following an approach to the ILS runway.

An alert/warning will also be triggered if the approach is flown with the flaps set to a different position from that normally used for landing. Provided that flight crews remain fully aware of these limitations of the equipment, however, and follow the recommended procedures immediately on receipt of GPWS alerts and warnings, its use may well avoid an otherwise inadvertent closure, or contact, with the ground. It is emphasised that even if a warning is anticipated or suspected to be false or nuisance, immediate and aggressive action is required by the crew unless it is beyond doubt that para 8.3.5.5 can be complied with.

8.3.6 Traffic Alert and Collision Avoidance System Type II

Airborne Collision and Avoidance Systems (ACAS) provide flight crew with an independent back-up to visual search and the ATC system by alerting the crew to collision hazards, independent of any ground-based aids which may be used by air traffic control for such purposes. TCAS II (Traffic Alert and Collision Avoidance System Type II) with a minimum of software version 7.1 is the specific equipment which is currently available to meet this requirement, as detailed in the following paragraphs.

It is company policy that that where fitted and serviceable, TCAS must be used in flight in a mode that enables Resolution Advisories (RAs) to be produced unless doing so would not be appropriate for the conditions existing at the time.

8.3.6.1 ACAS II

Provides collision avoidance manoeuvre advice in the vertical plane, in either of two forms:

(a) Traffic Advisories (TAs), which indicate the approximate position relative to the subject aeroplane, either in azimuth only, or azimuth and altitude, of nearby transponding aircraft which may become a threat;

(b) Resolution Advisories (RAs) which instruct flight crew of manoeuvres or manoeuvre restrictions in the vertical plane to resolve conflicts with aircraft transponding SSR Mode C altitude.

If a TA or an RA is received, the following action should be taken:

(a) TA - a TA is intended to alert the crew that an RA, requiring a change in flight path, may follow. A visual search should immediately be concentrated on that part of the sky where the TA indicates the conflicting traffic to be. If the potential threat cannot be seen and gives cause for concern, air traffic control assistance should be requested in deciding whether a change of flight path is required. If the potential threat is seen, and considered to pose a definite risk of collision, the pilot should manoeuvre his aeroplane as necessary to avoid it, making sure that the area into which he is manoeuvring is clear. Once clear of the potential threat, and any other subsequent conflicts, the pilot should resume his previously cleared flight path and advise ATC of any deviation from his clearance.

(b) RA - an RA is intended to instruct pilots on the manoeuvre they must carry out in order to achieve or maintain adequate separation from an established threat. The required manoeuvre must be initiated immediately, and Crew Members not involved in its execution should ensure that the sky ahead is clear of other traffic and continue the visual search for the established threat. Once the ACAS II indicates that adequate separation has been achieved and that there is no longer a conflict, the aeroplane should be promptly returned to its intended flight path, and ATC informed.

Notes:

1 Manoeuvres should never be made in a direction opposite to that given in an RA.

2 If an instruction to manoeuvre is received simultaneously from an RA and from ATC, and the instructions conflict, the instruction given by the RA must be followed.

All aeroplanes registered in the United Kingdom, wherever they may be, and all aeroplanes wherever registered when flying in the United Kingdom, powered by one or more turbine jets or turbine propeller engines and either having a maximum take-off weight exceeding 15,000 kg or which in accordance with the certificate of airworthiness in force in respect thereof may carry more than 30 passengers shall be equipped with, and operate, ACAS II.

Note: The same mandate applies to airspace of ECAC states.

It is emphasised that ACAS II relies upon information received from transponder equipped aircraft by aircraft which are similarly fitted. RAs will only be generated if both the receiving aircraft and the potential intruder are transponding in altitude Mode 'C'. The equipment is not capable of resolving with complete accuracy the bearing, heading or vertical rates of intruding aircraft; pilots should not therefore attempt to manoeuvre solely on the basis of TA information. Pilots must be aware of the limitations of the particular equipment, as the full range of TAs and RAs may not be produced beyond the minimum and maximum altitudes specified for its operation.

Even if RAs are suspected of being nuisance or false advisories, they must be treated as genuine.

Whenever, as a result of an ACAS II warning, an aeroplane has been manoeuvred such that it has departed from its air traffic control clearance, the appropriate ATC unit is to be informed as soon as possible of the departure, and of the return to the previously cleared flight conditions. Whenever an aeroplane has departed from an air traffic control clearance in compliance with an RA, the pilot is to report the circumstances to the Company and/or authority in compliance with the company occurrence reporting scheme.

Standard phraseology for ACAS RAs

On a RA warning….Gama 123 TCAS RA.

On clear of the conflict….Gama 123 Clear of conflict, returning to FL…/….'ft.

8.3.7 Policy and Procedures for In-Flight Fuel Management and Cross Checking

The commander must ensure that fuel checks are carried out at regular intervals throughout the flight. On flights of more than one hour duration, such checks are to be carried out at not more than hourly intervals. On flights of less than one hour, an intermediate check is to be made at a convenient time when the cockpit workload is low. At each check, the remaining fuel must be recorded and evaluated so as to compare actual consumption with planned consumption, check that the fuel remaining will be sufficient to complete the flight and determine the expected fuel remaining on arrival at the destination.

If an in-flight fuel check reveals that the expected fuel remaining on arrival at the destination will be less than the required alternate fuel plus final reserve fuel (refer para 8.1.7.2 (d) and para 8.1.7.2 (e)), the Commander should consider adjusting aircraft speed, or obtaining a more direct routing, or possibly changing a flight level and/or selecting a closer destination alternate.

When a maximum delay is not known and an EAT is not received, it is permissible to continue towards the destination when a fuel check shows that there will be less than diversion plus reserve fuel. This is as long as it is possible to reach at least two aerodromes at which a landing is assured with at least the reserve fuel remaining at touchdown. Two independent runways within a flying time of two hours may be considered to be equivalent to two aerodromes, provided that the Commander assesses traffic patterns and meteorological conditions. When a maximum delay is known or an EAT is given, the flight can continue to destination or to hold, regardless of the number of runways so long as landing at destination is assured with at least the reserve fuel remaining at touchdown.

A landing is ‘assured’ if the Commander decides that a landing can be completed in the event of any forecast deterioration in the weather and any single failures of ground and airborne equipment.

A ‘re-clearance’ in flight is when a flight cannot depart with total fuel calculated, despatch may be achieved by nominating a suitable en-route aerodrome as the destination with the intention of re-planning in flight to the original destination. The nominated destination aerodrome is both suitable and available with the weather conditions for landing.

Pilots must annotate the navigation logs with the aerodrome en-route that is used for this planning purpose, to record weather for the original destination and en-route destination and to highlight any re-planning calculations. ATC flight plans should be filed to the intended destination provided the Commander considers there is a good chance that the flight will be able to fly to that point using re-clearance techniques.
Fuel will be normal despatch requirements for planning purposes but at the re-clearance point the fuel must be the sum of TRIP, DIVERSION, CONTINGENCY and RESERVE fuel.

The commander will declare an emergency when the actual usable fuel on board is less than final reserve fuel.

8.3.8 Adverse and Potentially Hazardous Atmospheric Conditions

8.3.8.1 Thunderstorms

Although flight through areas of thunderstorm activity should be avoided wherever possible, provided that the recommended techniques are employed, such flight may be carried out where no alternative course of action is possible.

Recommended Technique for Flying Through Areas of Thunderstorm Activity.

Irrespective of the equipment fitted the latest meteorological forecasts and actual weather reports should be used to plan routes along which the risk of a thunderstorm encounter is low.

If, despite these precautions, the commander finds himself committed to flying through an area of thunderstorm activity, the following procedures are recommended.

(a) Approaching the thunderstorms area

(i) Ensure that Crew Members' and passengers' safety belts or harnesses are firmly fastened and any loose articles are secured.

(ii) One pilot should control the aeroplane and the other monitor the flight instruments and electrical supplies continuously.

(iii) Select an altitude for penetration whilst ensuring adequate terrain clearance.

(iv) Set the power to give the recommended speed for flight in turbulence, adjust the trim and note its position so that any excessive changes due to autopilot or Mach trim can be quickly assessed.

(v) Ensure that the pitot heaters are switched on.

(vi) Check the operation of all anti-icing and de-icing equipment and operate all these systems in accordance with manufacturer's or operator's instructions.

(vii) Disregard any radio navigation indications subject to interference from static, e.g. ADF.

(viii) Turn the cockpit lighting fully on and lower the crew seats and sun visors to minimise the blinding effect of lightning flashes.

(ix) Follow the manufacturer's or operator's recommendations on the use of the flight director, auto-pilot and manometric locks. If these are not stated, height, Mach, rate of climb or descent and airspeed locks should be disengaged but the yaw damper(s), if fitted, should be operative.

(x) Continue monitoring the weather radar in order to select the safest track for penetration.

(xi) In turbine powered aeroplane switch on the continuous ignition system considering any system limitations that may exist.

(xii) Avoid flying in close proximity to a thunderstorm whenever possible.

(b) Within the Storm Area

(i) Maintain control of the aeroplane whilst concentrating on maintaining a constant pitch attitude appropriate to climb, cruise or descent, by reference to the attitude indicators, avoid harsh or excessive control movements. Do not be misled by conflicting indications on other instruments. Do not allow large attitude excursions in the rolling plane to persist.

(ii) Attempt to maintain the original heading.

(iii) Do not correct for altitude gained or lost through up and down draughts unless absolutely necessary.

(iv) Maintain the trim settings and avoid changing the power setting except when necessary to restore margins from stall warning or high speed buffet.

(v) If trim variation due to the auto-pilot (auto-trim) are large the auto-pilot should be disengaged.

Movement of the Mach trim, where it occurs, is however necessary and desirable. Check that the yaw-damper remains engaged.

(vi) If negative ‘G’ is experienced, temporary warnings (e.g. low oil pressure) may occur. These should be ignored.

(vii) On no account climb in an attempt to get over the top of the storm.

(c) Air Traffic Control Considerations

A pilot intending to detour round observed weather when in receipt of an Air Traffic Service which involved ATC responsibility for separation, should obtain clearance from or notify ATC so that separation from other aircraft can be maintained. If for any reason the pilot is unable to contact ATC to inform the controller of his intended action, any manoeuvre should be limited to the extent necessary to avoid immediate danger and ATC must be informed as soon as possible.

(d) Take-off and Landing

(i) The take-off, initial climb, final approach and landing phases of flight in the vicinity of thunderstorms may present the pilot with additional problems because of the aeroplane’s proximity to the ground and the maintenance of a safe flight plan in these phases can be very difficult.

(ii) Do not take off if a thunderstorm is overhead or approaching.

(iii) At destination hold clear if a thunderstorm is overhead or approaching. Divert if necessary.

(iv) Avoid severe thunderstorms even at the cost of diversion or an intermediate landing. If avoidance is impossible, the procedures recommended in these paragraphs should be followed.

(v) Light aeroplane operators should ensure that their aeroplanes are adequately secured on the ground when severe thunderstorm activity is forecast or present.

8.3.8.2 Use of Weather Radar – Guidance to Pilots

Flight Altitude (1000s of ft)	Echo Characteristics			
	Shape	Intensity	Gradient of Change	Rate of change
0-20	Avoid by 10 miles echoes with hooks fingers, scalloped edges or other protrusions	Avoid by 5 miles echoes with sharp edges or strong intensities	Avoid by 5 miles echoes with strong gradients of intensity	Avoid by 10 miles echoes showing rapid change of shape, height or intensity
20-25	Avoid all Echoes by 10 miles			

25-30	Avoid all Echoes by 15 miles
Above 30	Avoid all Echoes by 20 miles

*Applicable to sets with Iso-Echo or a colour display. Iso-Echo produces a hole in a strong echo when the returned signal is above a pre-set value. Where the return around a hole is narrow, there is a strong gradient of intensity.

Notes:

1. If storm clouds have to be overflown, always maintain at least 5000 ft vertical separation from cloud tops. It is difficult to estimate this separation but ATC or Met information on the altitude of the tops may be available for guidance.
2. If the aeroplane is not equipped with radar or it is inoperative, avoid

   by 10 miles any storm that by visual inspection is tall, growing rapidly or has an anvil top.
3. Intermittently monitor long ranges on radar to avoid getting into situations where no alternative remains but the penetration of hazardous areas.
4. Avoid flying under a cumulus-nimbus overhang. If such flight cannot be avoided, tilt antenna full up occasionally to determine, if possible, whether precipitation (which may be hail) exists in or is falling from the overhang.

8.3.8.3 Ice and other contaminants — flight procedures CAT.OP.MPA.255

(a) The operator's established procedures for flights in expected or actual icing conditions are found in Part B Limitations section 1 and part B Abnormal Procedures section 3.

(b) The commander shall only commence a flight or intentionally fly into expected or actual icing conditions if the aircraft is certified and equipped to cope with such conditions.

(c) If icing exceeds the intensity of icing for which the aircraft is certified or if an aircraft not certified for flight in known icing conditions encounters icing, the commander shall exit the icing conditions without delay, by a change of level and/or route, if necessary by declaring an emergency to ATC.

8.3.8.4 Turbulence

If the weather conditions, cloud structure and route forecast indicate that turbulence is likely, all crewmembers should be pre-warned, and the passengers advised to return to, and/or remain in their seats, and to ensure that their seat belts/harnesses are securely fastened. Catering and other loose equipment should be stowed and secured until it is evident that the risk of further turbulence has passed. Consideration must be given to flying at the turbulence speed/Mach No recommended in the AFM.

8 3.8.5 Windshear

Pilots must remain alert to the possibility of wind shear, and be prepared to make relatively harsh control movements and power changes to offset its effects. Immediately after take-off, the pilot's choices of action will be limited, since he will normally have full power applied, and be at the recommended climb speed for the configuration. If the presence of shear is indicated by rapidly fluctuating airspeed and/or rate of climb/descent, ensure that full power is applied and aim to achieve maximum lift and maximum distance from the ground.

Similarly, if the shear is encountered during the approach, positive application of the power and flying controls should be used to keep the speed and rate of descent within the normal limits; if there is any doubt, the approach should be abandoned and action taken as in the after take-off case above. Whenever wind shear is encountered, its existence should be reported to air traffic control as soon as possible.

8.3.8.6 Jetstreams

Avoid flying along the edge of Jetstreams due to the possibility of associated turbulence. Pilots should be aware of the effect of increased fuel consumption due to unexpected significant head wind components that can be experienced. It may be possible to avoid jetstreams by changing route and/or altitude.

8.3.8.7 Clear Air Turbulence

Clear air turbulence may sometimes be avoided by increasing/decreasing the cruising level if operational considerations so permit. Monitoring of other aircraft reports also assists in avoidance.

8.3.8.8 Rain, Snow and Other Precipitation

(a) On the ground, manoeuvring may require the use of slower taxying speeds to allow for the reduction in braking performance in snow, slush or standing water. At the same time, higher power settings may be required to overcome the drag caused by such contaminants, and great care should be taken to avoid jet blast or propeller slipstream from blowing unsecured ground equipment or contaminants into nearby aircraft.

When taxying, account may need to be taken of banks of cleared snow and their proximity to wing – and propeller-tips or engine pods. It may be advisable to delay the completion of such vital actions as flap selection to minimise the danger of damage to such surfaces, or the accumulation of slush on their retraction mechanisms. Greater distances should be observed between successive aircraft to avoid damage from jet blast or propeller wash.

(b) On the runway, directional control may be adversely affected by surface contamination; take-off distance may be increased due to slower acceleration; accelerate-stop distance may be increased for the same reason, and because of poor braking action and aquaplaning, landing distance will be increased for similar reasons.

If landing on a contaminated runway is unavoidable, any crosswind component should be well below the normal dry runway figure. Touchdown should be made firmly and at the beginning of the touchdown zone, the nosewheel lowered as early as possible, and any retarding devices such as spoilers, lift dump or reverse thrust used before beginning to apply wheel brakes, in order to give the wheels time to spin up. If anti-skid braking systems are fitted and serviceable, they should be used immediately and to the maximum degree.

(c) Heavy precipitation can quickly lead to high levels of runway contamination so runway clearance/drainage rate must be closely monitored in order to assess if a diversion is necessary. When encountered whilst in flight, heavy precipitation can be associated with significant downdrafts and wind shear. On some aeroplanes there are specific procedures in the AFM for the engine and electrical generation handling and these must be observed.

8.3.8.9 Sandstorms

Avoid flying in active sandstorms whenever possible. When on the ground, aeroplanes should ideally be kept under cover if dust storms are forecast or in progress. Alternatively, all engine blanks and cockpit covers should be fitted, as well as the blanks and 'gloves' for the various system and instrument intakes and probes. These should be carefully removed before flight to ensure that accumulations of dust are not deposited in the orifices which the covers are designed to protect.

8.3.8.10 Volcanic Ash (also refer to AOC.OP.051-Volcanic Ash Procedure)

The atmospheric repercussions of volcanic activity can be particularly hazardous to aeroplanes. Flight through volcanic ash can cause extreme abrasion to all forward facing parts of the aeroplane, to the extent that visibility through the windshields may be totally impaired, aerofoil and control surface leading edges may be severely damaged, airspeed indications may be completely unreliable through blocking of the pitot heads and engines may becomes so choked as to cause power interruptions or even shut-downs.

The NOTAM system now details known areas of volcanic activity where ash may be present in the atmosphere. Flight into such known areas is to be avoided, particularly at night or in daytime forecast IMC conditions when ash clouds may not be seen.

Reported instances of flight into such activity indicates that the weather radar will not pick up any returns so the only avoidance methods are by NOTAM or visual contact. In the event of inadvertent penetration of ash cloud, the major immediate problem is to keep all or some of the engines running and find the shortest route out of the cloud, which may be downwards.

8.3.8.11 Mountain Waves

These form in the lee of a range of mountains when a strong wind is blowing broadside on (within about 30°) to the range. They are usually in the form of standing waves, with several miles between peaks and troughs; they can extend to 10 or 20 000 feet above the range and for up to 200 or 300 miles downwind.

Encounter with mountain waves can be recognised by long-term variations in aeroplane speed and pitch attitude in level cruise. Variations may be large. Altitude can usually be maintained by the autopilot height-lock, but in severe cases, it may be necessary to change power if speed alters dangerously. Bear in mind that at cruise height the margin between low and high speed limits can be relatively small.

The effect of mountain waves reduces with increased height. At normal cruise altitudes, mountain waves are usually free from clear-air turbulence, unless associated with jet-streams or thunderstorms.

Near the ground in a mountain wave area, however, severe turbulence and wind shear may be encountered. This region is known as a lee wave rotor, and is caused by flow separation behind the mountain range. Take-off or landing is not advisable in a strong lee-wave rotor, and should not be attempted. If severe turbulence is encountered at low level in the lee of a mountain range, the quickest way out is up. If unable to climb, the next best is directly away from the range.

8.3.8.12 Significant Temperature Inversions

All ambient temperature variations have an effect on aeroplane performance. Inversions will usually affect performance adversely. The significance of this will vary according to aeroplane type and operating mass. Examples of inversion effects include those shown below.

a. Large temperature inversions encountered shortly after take-off can seriously degrade an aeroplane’s climb performance, particularly at high operating mass. Similarly if the aeroplane is operating to a maximum landing mass limited by go-around climb performance considerations, the required gradient may not be achieved.

b. The maximum cruising altitude capability of the aeroplane can be significantly reduced if a temperature inversion of even small magnitude exists in the upper levels. This may prevent an aeroplane reaching its preferred cruising altitude. Should an aeroplane encounter an area of inversion once in the cruise at limiting altitude its buffet margins may be so eroded that a descent is necessary.

c. Temperature inversions at lower levels in the atmosphere are frequently associated with deteriorating visibility and can prevent the clearance of fog for prolonged periods.

8.3.9 Wake Turbulence

The physical characteristics of aircraft are such that their passage leaves an area of disturbed air in their wake. This ‘wake turbulence’ tends to increase with the size and power of the aircraft, and can reach dangerous proportions in relation to smaller, following aircraft. The dangers are obviously greatest during the critical stages of flight on take-off or landing, and all commanders are reminded of the need to allow adequate interval between their own and preceding heavier aircraft for any such turbulence to dissipate.

8.3.9.1 Weight parameters (maximum take-off mass in kg)

Table 1 Mass Categories for Wake Vortex separations

Category	ICAO and Flight Plan (kg)	UK Departures (kg)	UK Arrivals (kg)
Heavy (H)	≥136,000	≥162,000	≥162,000
Medium (M)	>7,000 & >136,000	>40,000 & <162,000	N/A

Upper Medium (UM)	N/A	N/A	>104,000 & <162,000
Lower Medium (LM)	N/A	N/A	>40,000 & ≤104,000
Small (S) UK only	N/A	>17,000 & ≤40,000	>17,000 & ≤40,000
Light (L)	≤7,000	≤17,000	≤17,000

8.1.9.2 Wake Turbulence Spacing Minima

Although air traffic controllers will normally warn departing or arriving aircraft of the need to observe particular intervals when following aircraft of a higher wake turbulence category. It is important for Pilots to note that **'ATC does not have the discretion to reduce separation minima'**. Commanders should apply the following separations:

Separation Minima - Final Approach

Leading Aircraft	Following Aircraft	Spacing Minima Distance (nm)	
		ICAO	UK
A380-800	A380-800	#	4
A380-800	Heavy	6	6
A380-800	Upper and Lower Medium	7*	7*
A380-800	Small	N/A	7
A380-800	Light	8	8
Heavy	A380-800	#	4
Heavy	Heavy	4	4
Heavy	Upper and Lower Medium	5*	5
Heavy	Small	N/A	6
Heavy	Light	6	7
Upper Medium	A380-800	#	#
Upper Medium	Heavy	#	#
Upper Medium	Upper Medium	3	3
Upper Medium	Lower Medium	N/A	4
Upper Medium	Small	N/A	4
Upper Medium	Light	5	6
Lower Medium	A380-800	#	#
Lower Medium	Heavy	#	#
Lower Medium	Upper Medium	N/A	#
Lower Medium	Lower Medium	#	#
Lower Medium	Small	N/A	3
Lower Medium	Light	5	5
Small	A380-800	N/A	#

Small	Heavy	N/A	#
Small	Upper Medium	N/A	#
Small	Lower Medium	N/A	#
Small	Small	N/A	3
Small	Light	N/A	4
Light	A380-800	#	#
Light	Heavy	#	#
Light	Upper Medium	#	#
Light	Lower Medium	#	#
Light	Small	#	#
Light	Light	#	#

Notes:

*ICAO does not split the medium category.

Signifies that separation for wake turbulence reasons alone is not necessary.

For the purposes of separation in the approach phase at UK aerodromes the B757, B707, DC8, IL62, VC10 and IL62 will be treated as upper medium.

The minima specified in the above table are to be applied when:

a) an aircraft is operating directly behind another aircraft at the same altitude or less than 1000 ft below; or

b) an aircraft is crossing behind another aircraft at the same altitude or less than 1000 ft below; or

c) both aircraft are using the same runway or parallel runways separated by less than 760 m (2500 ft).

Separation Minima - Departures

<table>
<tr><th>Leading Aircraft</th><th colspan="2">Following Aircraft</th><th>Minimum separation at time aircraft are airborne</th></tr>
<tr><td rowspan="2">A380-800</td><td>Heavy (including A380-800)</td><td rowspan="2">Departing from the same position

or</td><td>2 Minutes</td></tr>
<tr><td>Medium (Upper and Lower)
Small
Light</td><td>3 minutes</td></tr>
</table>

Heavy	Medium (Upper and Lower) Small Light	from a parallel runway separated by less than 760m (2500 ft)	2 Minutes
Medium (Upper and Lower) or Small	Light		2 Minutes

Leading Aircraft	Following Aircraft		Minimum separation at time aircraft are airborne
A380-800	Heavy (including A380-800)	Departing from an intermediate point on the same runway or from an intermediate point of a parallel runway separated by less than 760m (2500 ft)	3 Minutes
A380-800	Medium (Upper and Lower) Small Light		4 minutes
Heavy (Full length take-off)	Medium Small Light		3 Minutes
Medium or Small (Full length take-off)	Light		3 Minutes

The minima specified in the above table are to be applied when:

a) the same runway;

b) parallel runways separated by than 760m (2500 ft);

c) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300m (1000 ft) below;

d) parallel runways separated by 760m (2500 ft) or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300m (1000 ft) below.

If the projected flight paths are expected to cross when operating on a runway with a displaced landing threshold a separation of 3 minutes will be required when a departing Light, Small or Medium (upper and lower) aircraft follows a A380-800 arriving or the reverse as appropriate. Only 2 minutes is required between a Heavy and an A380-800.

Operations on crossing and diverging runways or on parallel runways less than 760m (2500 ft) are to be treated as single runways as indicated above.

Separation Minima – Intermediate Approach

The following wake turbulence separation criteria minima will be applied in the intermediate segment of an approach:

- A minimum wake turbulence separation of 5 nm shall be applied between a Heavy (excluding A380-800) and a Medium (upper and lower) or Small aircraft following or crossing behind at the same level or less than 1000 ft below;
- A minimum wake turbulence separation of 6 nm shall be applied between a Heavy (excluding A380-800) and a light aircraft following or crossing behind at the same level or less than 1000 ft below;
- A minimum wake turbulence separation for aircraft following the A380-800 at the same level or less than 1000 ft below shall be as per Final Approach criteria.

Opposite direction runway operations.

A minimum of 3 minutes shall be applied between a light, small or medium (upper and lower) aircraft and a A380-800 aircraft when the A380-800 aircraft is making a low or missed approach and the lighter aircraft is:

- utilising an opposite direction runway for take-off; or
- landing on the same runway in the opposite direction, or on a parallel opposite direction runway separated by less than 760m (2500 ft).

A separation of 2 minutes is required between a Medium (upper and lower), Small or Light aircraft and a Heavy aircraft, and between a Medium (upper and lower) or Small aircraft and a Light aircraft whenever the heavier aircraft is making a low or missed approach and the lighter aircraft is:

- taking-off on the same runway in the opposite direction;
- landing on the same runway in the opposite direction, or on a parallel opposite direction runway separated by less than 760m (2500 ft).

8.3.10 Crew Members at their Stations

8.3.10.1 Flight Crew

Flight Crew Members are to occupy their assigned duty stations from the time the aeroplane first starts to move at the beginning of its flight until it is established in the level cruise, and from the time it begins its descent on approaching the destination until the aeroplane is stationary on its allocated parking stand at the end of the flight. In level cruise, any one flight Crew Member may, with the permission of the commander, leave his assigned station for an agreed purpose and period. The Crew Member will be responsible for the following:

- liaise with passengers and check on their safety and comfort;
- Identify and supply catering requirements;
- Make sure that tables and all loose items are cleared away and stowed for landing.

8.3.10.2 Sterile Cockpit

On all flights a Sterile Cockpit should be observed during the critical phases of flight, during this time duties and conversations should be restricted to only those that are directly required to operate the aircraft. The critical phases of flight are as follows:

1. During the taxi out for take-off.
2. From entering the runway for take-off until passing 10 000ft.
3. During flight when approaching 1000ft to level off.
4. During any non- normal procedure.
5. When the aircraft is below 10 000ft during the decent.
6. During taxi in after landing.

The following are examples of duties that should be avoided during these phases of flight:

1. Non-essential radio call concerning passengers, catering or handling requests.
2. Non critical paperwork.
3. Mass and balance corrections.
4. Idle chatter that is not directly related to the operation of the aircraft.

Communication with the flight crew during these critical phases should be limited to only items that could affect the safety of the flight examples of which follow;

1. Any outbreak of fire inside the cabin or from an engine.
2. Burning smell or smoke in the cabin.
3. Fluid leakage.
4. Exit door unable to be armed/disarmed
5. Localised extreme cabin temperature changes.
6. Evidence of airframe icing.
7. Cabin or Galley equipment malfunction which could endanger passengers.
8. Suspicious object or security threat.
9. Disruptive passenger.
10. Abnormal vibration or noise.
11. Medical emergency.
12. Drop down of the oxygen masks.

8.3.11 Use of Crew/Passenger Safety Belts/Harnesses

8.3.11.1 Crew

(a) During take-off and landing, and whenever the commander considers it necessary in the interests of safety, Crew Members shall be at their assigned crew stations, properly secured by the safety belts and harnesses provided.

(b) During other phases of the flight, each flight Crew Member on the flight deck shall keep his seat belt fastened while at his station.

8.3.11.2 Passengers (*refer to 8.3.15.1*)

(a) The Commander shall ensure that each person on board is briefed before take-off on how to fasten and unfasten his safety belt/harness.

(b) Before take-off and landing, and whenever he considers it necessary in the interests of safety, the commander shall ensure that each passenger on board occupies a seat with his safety belt/harness properly secured.
(c) Multiple occupancy of aeroplane seats is not permitted other than by one adult and one child less than two years of age who is properly secured by a child restraint device.

8.3.12 Admission to Flight Deck CAT.GEN.MPA.135

Where the crew compartment is separate from the passenger cabin, passengers are not normally to be permitted to move forward to the flight crew area, except in the single-pilot case noted at para 8.3.13.1, below. At the commander's discretion and in suitable atmospheric conditions in level flight cruise, individual passengers may be allowed to move forward and view the flight deck. Both pilots must remain seated at the controls and have their seat belts fastened at all such times.

Provided only that the safety of the aeroplane will not be compromised, authorised inspectors from the Competent Authority(see S1 para 2.4) are permitted to enter and remain on the flight deck in flight when suitable facilities exist (e.g. unoccupied second pilot's seat, 'jump' seat), for the performance of his official duties.

Staff members, both on and off duty, may be carried on a flight deck, when suitable facilities exist, at the discretion of the aeroplane commander.

The Commander will ensure that:

(a) all persons carried on the flight deck are made familiar with the relevant safety and operational procedures;
(b) admission to, and carriage on, the flight deck does not compromise safety.

The Commander has the absolute authority to refuse admission to and/or carriage on the flight deck for whatever reason.

8.3.13 Use of Vacant Crew Seats

The occupancy of a vacant flight crew seat on the flight deck or crew seat in the cabin by a person who is not a member of the operating flight crew is permitted providing the following conditions detailed below are complied with:

(a) any applicable AFM limitation is observed:
(b) the person is assessed as able to operate self help exits in compliance with para 8.2.2.1(a)(i) above;
(c) the person has the permission of the Director of Flight Operations and/or the aeroplane commander;
(d) the person is in possession of a valid passenger/staff ticket;
(e) the aeroplane commander ensures that the person is properly briefed on safety procedures and equipment, and relevant operating procedures;
(f) the aeroplane commander emphasises the importance of avoiding contact with, or operation of, any control or switch;
(g) multiple seat occupancy is not permitted.

8.3.14 Incapacitation of Flight Crew Members

Incapacitation can be gradual or sudden, subtle or overt, partial or complete and may not be preceded by any warning.

8.3.14.1 Partial or Gradual Incapacitation

The following procedures are to be used if a pilot suffers any medical symptoms in flight which might impair his ability to handle the aeroplane such that, if he were in a two pilot crew, he would hand over control. These symptoms include severe pain (especially sudden severe headache or chest pain), dizziness, blurring or partial loss of vision, disorientation, vomiting or diarrhoea. The procedures must be followed even if the pilot has apparently recovered, as temporary symptoms are often a warning of more severe illness to follow, and self diagnosis is notoriously unreliable.

(a) Two pilot crew

If the affected pilot is handling the aeroplane, he is immediately to inform the other pilot and hand over control to him. The destination, base or appropriate agency, is to be informed of the problem and a diversion made to the nearest suitable landing place, bearing in mind the nature and severity of the symptoms and the availability of medical facilities.

The affected pilot is not to take control again for the remainder of the flight and is to lock his shoulder harness to prevent him falling on to the controls if the illness becomes more severe. The affected pilot is not to fly again as a Crew Member until he has been medically examined or, in the case of diarrhoea or vomiting, has had no symptoms for 24 hours.

(b) Single pilot crew

It is very important that a single pilot should react early to any illness in flight before it becomes severe enough to affect his handling of the aeroplane and an immediate radio call is essential. The first consideration must be for the safety of the aeroplane and passengers, therefore, the availability of medical assistance must carry less weight when choosing the nearest suitable diversion.

8.3.14.2 Sudden or Complete Incapacitation

Complete incapacitation may be subtle or overt, and may not be preceded by any warning. While incapacitation may occur at any stage of flight, fatal collapse among flight crew has most commonly occurred in the critical stages of approach and landing when ground proximity presents a direct hazard. Where the pilot handling the aeroplane is incapacitated, an accident is inevitable, unless the other pilot detects the collapse and is able to assume control in sufficient time.

Detection of the incapacitation in the subtle case may be indirect, i.e. only as a result of the pilot not taking some expected action. If, for example, the pilot conducting the approach to land collapses without any overt sign and the body position is maintained, the other pilot will not be aware of his colleague’s collapse until the expected order of events becomes interrupted.

8.3.14.3 Two pilot crew

In the context of pilot incapacitation it is essential that Crew Members closely monitor the aeroplane's flight path in the critical stages of take-off, initial climb, final approach and landing, and immediately question any deviation from the norm.

Normal crew duties require that during all stages of the flight, pilots and other Crew Members call the handling pilot's attention to any deviation from the normal flight path or ATC clearance. Adherence to this procedure should assist early detection of the incapacitation of the handling pilot.

Where the pilot handling the aeroplane has collapsed, the other pilot will assume control. Taking control presupposes that the collapsed pilot's body does not interfere with the essential primary flying controls and for this reason the requirement to wear full harness whilst occupying a pilot seat is a safeguard.

Once incapacitation has been detected, the first requirement is to ensure that the affected pilot does not interfere with any controls. It is therefore essential that his harness should be locked and, if possible, the seat slid back.

Consideration should be given, if practical, to the briefing and use of passengers for this task, but caution must be observed due to the risk of the seat moving forward when it becomes unlocked. The next priority is to re-plan the flight, including consideration of diverting to the nearest suitable destination.

Medical advice indicates that immediate first aid is not essential or necessary in cases of sudden incapacitation. Therefore, any attempts at first aid should be delayed until after the immediate operational problems have been dealt with.

8.3.14.4 Summary

Assuming that two pilots are carried, the recovery from a detected incapacitation of the handling pilot shall follow the sequence below:

(a) the fit pilot must assume control and return the aeroplane to a safe flight path;
(b) the fit pilot must take whatever steps are possible to ensure that the incapacitated pilot cannot interfere with the handling of the aeroplane. These steps may include involving passengers to restrain the incapacitated pilot.
(c) the fit pilot must land the aeroplane as soon as practicable to ensure safety of the occupants.

8.3.14.5 The 'Two Communication' rule

The 'Two communication' rule of thumb should be invoked to assist in detecting incapacitation. This states that a flight Crew Member should suspect the onset of incapacitation any time when a pilot does not respond appropriately to a second verbal communication associated with a significant deviation from a standard operating procedure or flight profile.

8.3.15 Cabin Safety Requirements - Procedures

8.3.15.1 Cabin Preparation

A member of the flight crew will be responsible for cabin safety from the time the aeroplane is accepted for flight, until all the passengers have been offloaded at the end of the flight, however the Commander will always retain the ultimate responsibility for passenger safety at all times.

(1) Cabin Preparation for Flight.
The flight crew member responsible for cabin safety is to confirm that the passenger compartment contains the requisite emergency equipment in the appropriate stowage(s); and in accordance with the table of Pre-departure Safety Checks shown below.

Pre-departure Cabin Safety Checks

Item	Check
Emergency Exits	Door areas should be clear and available for emergency use during boarding of passengers
Passenger Seats	Fitted with a serviceable seat belt, seat backs stay in the upright position
Passenger Seat Belts	Seat belts are in good condition.
Infant Seat Belts	Correct quantity, correct stowage and are in good condition
Passenger Cabin Tables	Tables folded and stowed
Safety Instruction Card	Each passenger seat has a safety instruction card visible and is accessible to the passenger.
Crew Life Jacket	In the correct stowage, valid date and in good condition
Passenger Life Jacket	There is one life jacket per passenger seat and spare (according to configuration). Life Jackets must have a valid date and be in good condition
Infant Life Jacket	Correct quantity, correct stowage, valid date and in good condition
BCF Extinguishers	Correct stowage and quantity, valid date, gauge reading correct
Smoke Goggles	Correct stowage and quantity and in good condition
Fire Axe	Correct stowage and quantity and in good condition
First Aid Kit / Box	Correct stowage and quantity, valid date and sealed
Torches	Correct stowage
Demonstration Equipment	Readily available for use in appropriate area, all items intact and in good condition

Toilet	Serviceable

Missing or inoperative items or systems must be reported to the Commander for appropriate action to be taken.

Engineering are responsible for ensuring that aircraft are presented for service with the correct complement of safety equipment and that all items are serviceable.

All items of safety equipment used during the flight must be entered in the Aircraft Technical Log and be rectified/replaced before the next departure unless a MEL alleviation is allowed.

Prior to take off the passengers will be briefed as detailed in accordance with para 8.3.16 *Passenger briefing (a) Before take - off requirements.*

(i) **Securing the Cabin and Galleys for Take-off and Landing** (*refer to 8.12*)
Once passengers have been boarded and are seated, and the safety announcement has been given, the following must be checked:

- passenger seats must be in the upright position, with the armrests in the correct position;
- passenger tables folded away;
- seat belts must be fastened;
- hand baggage must be stowed correctly and securely in the appropriate stowage and must not obstruct aisles, emergency exits and items of cabin safety equipment;
- cabin dividers (if installed) are opened/secured;
- window blinds are open; and
- electronic items should be switched off.
- Once the ‘NO SMOKING’ sign is illuminated, a check should be made to ensure all cigarettes have been extinguished.

Position of Seat Backs, Armrests
For take-off, landing and during turbulence, all seat backs must be in the vertical position, with the armrests in the normal rest position (i.e. not stowed out of the way). In the event of an emergency, a vertical seat allows the passenger to adopt the brace position easily and provides maximum structural support.

Position of Tables
Tables must be stowed.

Passenger Seat Belts
All passengers over the age of 2 must occupy a seat and must be able to secure themselves in it by the means of a seat belt.

Passenger seat belts must be fastened for taxi, take-off, landing and whenever the “Fasten Seat Belt” sign is illuminated. Passengers must be advised to keep their seat belts fastened at all times during the flight in case of unexpected turbulence.

The method of fastening and unfastening the seat belt must be explained and demonstrated in the pre-flight safety briefing.

Infant Restraint Devices
Infants are defined as persons who have not yet reached their second birthday.

An infant must be secured by means of an infant restraint device: either an infant seat belt, or a forward facing car type seat that has a harness and that can be securely strapped to a passenger seat.

- **Infant Seat Belts** The belt must be secured to the passenger seat belt by passing one end of the passenger seat belt through the loop of the infant seat belt. The passenger seat belt must then be fastened. The infant seat belt is then fastened and adjusted around the infant. In the event of an evacuation the passenger seat belt will be unfastened and the infant seat belt will release itself from the passenger seat belt.

- **Car Type Seats** Children/Infants may be secured in a car type seat but it must not be located in a seat adjacent to an emergency exit. The child seat must be forward facing and must be secured to the aircraft seat by the lap strap. It must remain in position for the duration of the flight.

  When securing the car type seat to the passenger seat the adult lap strap buckle must not lie directly over any part of the frame or under structure of the car type seat when tightened. If the child seat is capable of reclining it must be placed in the upright position for take-off, landing and in the event of an emergency situation. If the seat has a table it must be removed at such times.

  To summarise, infant restraint and age limits are as follows:

Age	Restraint
Less than 6 months	Extension seat belt
6 months – less than 2 years	Extension seat belt or car type safety seat
2 years – less than 3 years	Car type safety seat or passenger seat and seat belt
3 years or more	Passenger seat and seat belt

Infant seat belts may also be used as an extension seat belt when a normal seat belt is not long enough. When attached to the existing seat belt it lengthens the seat belt thus accommodating the fuller figure. Passengers requiring an extension seat belt must not be seated by an emergency exit.

Passenger and Crew Baggage

All items of passenger baggage must be stowed in a locker or compartment that has been specially designed for the storage of baggage. Baggage must not normally be stowed in toilets, immediately forward or aft of bulkheads, or in such a manner that will impede access to emergency equipment.

Crew personal effects must be stowed in approved areas. Particular care must be taken to ensure that doors and exits, including operating handles, are not obstructed. Emergency equipment must remain accessible.

Hand Baggage
All hand baggage brought into the cabin must be securely stowed beneath a passenger seat or in an approved stowage. Hand baggage must be of suitable size and weight for the stowage. Hand baggage may not be placed behind passengers' legs, as this would impede a rapid evacuation.

Hand baggage may not normally be stowed in a toilet. Hand baggage must be kept clear of doors and exits as it could cause an obstruction in the event of an evacuation.

Window Blinds
Window blinds, whether on aircraft doors or in the main cabin, must be open for take-off and landing.

Galleys and Galley Equipment
All galleys and galley equipment must be secured for take-off, landing and during turbulence.

Stowage of Catering Supplies
All catering supplies, blankets, pillows, newspapers etc. are to be securely stowed in approved areas for take-off and landing.

All catering boxes must be secured with container latches.

Exit and Escape Paths
The cabin aisles and exit areas must be kept free from any obstruction at all times. Particular care must also be taken to ensure that all items of emergency equipment remain unobstructed at all times.

Cabin Lights
All cabin lights (including galley lights – if applicable) must be dimmed for take-off and landing during darkness.

Prior to take-off, the cabin lights should not be dimmed until the cabin has been secured.

After landing and whilst taxiing, the cabin lights must remain dimmed until the aircraft has reached its allocated parking stand.

Passengers should be advised that it is normal procedure that lighting is dimmed for take-off and landing during darkness.

(2) In Flight Requirements
Passengers are to be advised as necessary throughout the flight whenever conditions require the fastening of seat belts or the cessation of smoking if this had been permitted. The use of any available cabin warning signs should be used supplemented by drawing the nearest passenger's attention to any requirement to tighten lap straps and secure any catering in case of turbulence.

Provided that he can be spared from the flight deck, and is authorised by the Commander a first officer or second Flight Crew member may visit the cabin at an appropriate time to check that these requirements have been carried out and paying particular attention to the following:

1. all safety equipment stowage's are accessible and free from obstruction;
2. passengers who are smoking have extinguished their cigarettes properly and placed them in a suitable receptacle; and
3. passengers are not using prohibited electronic items e.g. mobile phones and radios.

No person may be in any part of the aeroplane that is not designed for their accommodation unless the commander has granted temporary access for safety reasons or to examine cargo/stores.

(3) **Preparation for Landing**
Passengers must be briefed *(in accordance with para 8.3.16(c) below)* and the cabin prepared *(as in accordance with para 8.3.15.1(1)(i) above)*.

After Landing *(see para 8.3.16)*
Passengers will be briefed in accordance with 8.3.16 Passenger briefing (d) after landing requirements.

8.3.15.2 Seating Passengers to best assist and not hinder an evacuation

Passengers must be seated where, in the event of an emergency evacuation is required, they may best assist and not hinder evacuation from the aircraft. *(Refer to para 8.2.2.1, 8.10.11.2, 8.11.6.1, 8.11.9 for procedures and considerations.)*

Seating Restrictions
Restrictions apply to seats adjacent to exits where there is a possibility that certain passengers could obstruct a rapid evacuation, impede crew duties or obstruct access to emergency equipment.

Certain categories of passenger may not be allocated to seats adjacent to self-help exits or emergency exit rows. *(refer to 8.2.2.1(a))*

Seating of Able Bodied Passengers (ABPs) Adjacent to Unsupervised Exits
(refer to 8.2.2.1)
Seats that form the access route from the cabin aisle to the exits should only be allocated to passengers who appear capable of operating or assisting with the operation of the exit.

8.3.15.3 Passenger Embarkation and Disembarkation

Embarkation
During Passenger embarkation unless the weight and balance for the flight and passenger category *(para 8.2.2.1 (a))* will be such that the random occupation of seats is permissible, during boarding passengers should be shown, or conducted to their allocated seats by a crew member.

Disembarkation
After landing, and prior to disembarkation passengers must be advised to remain seated, with safety belts/harnesses fastened until the aeroplane has come to rest, and to refrain from smoking until they have entered a clearly defined smoking area.*(refer to para 8.3.15.6)*

Before disembarking passengers, there must be a member of ground staff, handling agent or flight crew available to escort passengers away from the aircraft.

Once passengers have disembarked, a crew member must check that:
1. no passenger belongings have been left behind;
2. all equipment is returned to the correct stowage's (e.g. infant seat belts).

8.3.15.4 Refuelling/defueling with passengers embarking, on board or disembarking.

If circumstances require that refuelling or defueling operations take place while passengers are embarking, are on board, or are disembarking, the procedures detailed in *para. 8.2.1.3* are to be followed.

8.3.15.5 The carriage of Special Category Passengers (SCP's):
(refer to section 8.2.2.1)

Notes:
- **Blind passengers** must be guided to their seat, thus allowing them to count the number of rows from the door. A personal passenger safety briefing must be given and the passenger must be allowed to feel all the appropriate emergency equipment. *(refer 8.3.16.2)*

- **Unaccompanied Minor (UM)** Unaccompanied minors are children, under the age of 12, who are travelling without an accompanying adult. An unaccompanied minor can be transported provided that a written and signed authority is delivered to the Commander.

  The statement must:
  1. be signed by the relevant parent(s) or guardian(s);
  2. give the name of the person who will be responsible for meeting the child at the destination aerodrome; and
  3. include acceptance of any economic consequences caused by any possible failure of the arrangement.

8.3.15.6 Smoking on Board (Refer to 8.12.20)

Smoking is not permitted when:
- passengers are boarding or disembarking the aircraft;

- the “NO SMOKING” signs are illuminated;
- standing in the aisle(s);
- the aircraft is being refuelled;
- during take-off and landing;
- when oxygen is use or being administered;
- if there is a leak or a suspected leak in the aircraft fuel or hydraulic systems; or
- when the aircraft is on the ground.

In flight, passengers must be asked to refrain from smoking if moving around the cabin.

They may only smoke whilst seated and an approved receptacle must be available in which to place extinguished cigarettes.

8.3.15.7 Handling of Infectious diseases.

(See also section 8.2.3 Commander may refuse embarkation)

Passengers with a severe infectious disease (e.g. severe respiratory infections, tuberculosis, pneumonia) will not be accepted for travel without a certificate from an appropriate medical practitioner confirming their fitness to fly. Passengers with meningitis or infected with any virus resulting from a pandemic such as SARS or H1N1 (”Swine Flu”) will not be accepted for travel.

Should a crew member suspect that a passenger may be carrying an infectious disease or illness they should immediately inform the Commander and the operator immediately.

The Commander may refuse embarkation in accordance with para 8.2.3 unless previous arrangements have been made and the correct certification is available which is acceptable to both the Flight crew and the operator.

In the event that these conditions are not met and embarkation is refused, the airport authorities must be informed the reasons for refused embarkation. Additionally, crew who may have been in contact with or close proximity to the passenger must seek urgent medical advice immediately and prior to further flight. In all cases the operator must be informed.

8.3.16 Passenger Briefing Procedures CAT.OP.MPA.170

Passenger Briefing

Passenger briefings should contain the following:
(Also refer to 8.3.16.1 for expanded Passenger briefing Information.)

a) Before take-off

(1) Passengers should be briefed on the following items if applicable:
 (I) Smoking regulations;
 (II) Seat backs to be in the upright position and table stowed;
 (III) Location of emergency exits;
 (IV) Location and use of floor proximity escape path markings, if applicable;
 (V) Stowage of carry on hand baggage;
 (VI) Restrictions on the use of portable electronic devices; and
 (VII) The location and the contents of the safety briefing card;
 and,

(2) Passengers should receive a demonstration of the following:
  (I) The use of safety belts or restraint systems, including how to fasten and unfasten the safety belts or restraint systems;
  (II) The location and use of oxygen equipment, if required. Passengers should also be briefed to extinguish all smoking materials when oxygen is being used; and
  (III) The location and use of life-jackets, if appropriate.

b) After take-off

(1) Passengers should be reminded of the following, if applicable:
  (I) Smoking regulations; and
  (II) Use of safety belts or restraint systems including the safety benefits of having safety belts fastened when seated irrespective of seat belt sign illumination.

c) Before landing

(1) Passengers should be reminded of the following, if applicable:
  (I) Smoking regulations;
  (II) Use of safety belts or restraint systems;
  (III) Seat backs to be in the upright position and table stowed;
  (IV) Re-stowage of carry on hand baggage; and
  (V) Restrictions on the use of portable electronic devices.

d) After landing

(1) Passengers should be reminded of the following:
  (I) Smoking regulations; and
  (II) Use of safety belts and/or restraint systems.

e) Emergency during flight

(1) Passengers should be instructed as appropriate to the circumstances.

f) Exit/Emergency Exit briefing

Passengers seated next to an exit / emergency exit must be given an additional briefing on the operation of the exits, and provided with a passenger exit briefing card describing the operation of the exits.

The following briefing should be given to passengers seated next to an exit or emergency exit:

"I would like to make you aware that you are seated adjacent to an emergency exit. You may be required to operate this exit (point) in an emergency. Please study the operation of the exit on the safety card and the additional exit briefing card prior to departure."

Prior to departure, the crew must ensure that the passenger(s) have understood the content of the card.

8.3.16.1 Expanded Passenger briefing Information

The following should be considered when undertaking the Passenger Safety brief as required in para 8.3.16 above.

1) Pre-board Briefing Concerning Dangerous Goods

Except as otherwise provided for in para 9.1. *and* 9.6 dangerous goods must not be carried in or as passenger or crew checked or carry-on baggage. Security type attached cases incorporating dangerous goods, e.g. lithium batteries or pyrotechnic material, are totally forbidden.

2) Pre-Take-off Briefing

Passengers' attention is to be drawn to the briefing cards, which they should be advised to read, and they are in any case to be verbally briefed on:

(a) restrictions on smoking, with particular reference to its prohibition when oxygen is required to be used. Smoking is not permitted at anytime when the aircraft is on the ground, or at anytime during flight when the 'no smoking' sign is illuminated..

(b) position of seat-backs and stowage of tables;

(c) location and use of emergency exits*; (refer to Exit/Emergency Exit briefing 8.3.16 f))*

(d) location and use of floor proximity emergency escape path markings; where fitted;

(e) stowage of carry-on baggage;

(f) restrictions on the use of portable electronic devices, including the use of mobile phones.*(refer to section 8.12.22 on rules covering PED's)*

3) Pre-Take-off Demonstration

The following items are to be demonstrated:

(a) the use, fastening and unfastening of safety belts/harnesses;

(b) the use of oxygen masks in flight when the cruising level will be above flight level 250, or the minimum flight altitude on any parts of the route is more than 14 000 feet;

(c) the location and use of the life-jackets if any part of the take-off or approach path will be over water or when any part of the flight will be over water at a distance of more than 50 nm from the shore. This demonstration can take place prior to boarding the aeroplane.

4) In Flight

Passengers are to be advised as necessary throughout the flight whenever conditions require the fastening of seat belts or the cessation of smoking.

If an emergency occurs during flight the passengers are to be briefed on such emergency action as may be appropriate to the circumstances.

5) Before Landing

Before landing, passengers are to be advised that:

(a) all cigarettes etc., should be extinguished;

(b) seat belts/harnesses should be fastened;

(c) seat backs should be returned to the upright position, and tables stowed;

(d) carry-on baggage should be secured;

(e) restrictions on the use of electronic devices including mobile telephones.

6) After Landing

After landing, passengers are to be advised to remain seated, with safety belts/harnesses fastened until the aeroplane has come to rest, and to refrain from smoking until they have entered a clearly defined smoking area.

7) Alternative Passenger Briefing
(Regular Passengers with training as described see AMC1.1 CAT.OP.MPA.170)

This is not a Gama Policy at this time.
Full Passenger Safety Briefings are provided for ALL flights.

8) Carriage of Infants

During the pre-flight briefing the adult carer must be told that in the event of a decompression masks will drop down from the overhead panel, and that the adult should use the mask from the empty seat behind or in front of her.

The adult must be cautioned to fit her mask first before fitting the infant mask. The adult's attention should also be drawn to the brace position shown on the passenger safety card.

Aircraft shall be equipped with a life-jacket for each person on board or equivalent flotation device for each person on board younger than 24 months, stowed in a position that is readily accessible from the seat or berth of the person for whose use it is provided.

8.3.16.2 Additional Briefings

Visually Impaired Passengers *(refer to 8.3.15.2/5)*

Whether the passenger is totally blind or partially sighted, they must be given a personal briefing of all the safety and equipment procedures.

The briefing should include the following:

1. where the emergency exits are located - allowing the passenger to physically count the number of rows to the exit may help with this;
2. the method of fastening and unfastening the seat belt;
3. how to use the drop down oxygen masks in the event of decompression; and
4. where their life jacket is stowed and how to put it on.

It would also be helpful to advise the passenger where their hand luggage has been placed and that they should ask for assistance should they require something from it.

Turbulence Briefing

When turbulence is anticipated or is being experienced, passengers must be advised of the following:

1. seat belts and/or harnesses to be fastened;
2. seat backs to be upright.

In cases of severe turbulence, tables must be stowed and any refreshments/in-flight catering returned to its stowage. Passengers' hand baggage must also be secured.

Refuelling/Defueling Briefing *(Refer to 8.2.1.3)*

When refuelling or defueling is to take place with passengers on board, passengers must be advised of the following:

1. the restriction on smoking;
2. seat belts and / or harnesses to be unfastened; and
3. any restrictions on the use of portable electronic devices.

Transit Briefing

When on the ground in transit, passengers must be reminded of the following:

1. the restriction on smoking;
2. use of seat belts and/or harnesses; and
3. any restrictions on the use of portable electronic devices.

8.3.17 Cosmic and Solar Radiation Detection Equipment Requirements

The radiation to which crewmembers may be exposed come from either natural or artificial sources. Natural sources are, for example, cosmic radiation, environmental radiation, the human body or radiation from rocks and building materials. Artificial radiation comes mainly from the radiation used in medicine.

Radiation exposure related to aviation, concerning crewmembers comes from cosmic rays, which penetrate the earth's atmosphere. The levels of exposure to cosmic radiation are variable according to altitude and latitudinal *position (e.g. increasing latitude towards the poles),* as illustrated in the following table:

Altitude in Feet	Hours Exposure for effective dose of 1 millisievert (MSV)		
	Kilometres equivalent	Hours at 60˚ North	Hours at Equator

27’000	8.23	630	1330
30’000	9.14	440	980
33’000	10.06	320	750
36’000	10.97	250	600
39’000	11.89	200	490
42’000	12.80	160	420
45’000	13.72	140	380
48’000	14.63	120	350

**Cosmic radiation levels are also variable according to the solar cycle, therefore the above table is for illustration purposes only and cannot be used to calculate precise exposure.*

Exposure
Crewmembers are generally exposed to more cosmic radiation than people remaining on ground. However, these amounts are not necessarily higher than those experienced through ordinary fluctuations in natural radiation levels or such as living in areas with high natural radiation levels.

Due to the type and area of operation and the time spent travelling at the respective altitudes, it is unlikely that crewmembers will be exposed to any dangerous levels of cosmic radiation. However, since crewmembers are likely to be exposed to a level higher than 1mSv in a 12 month period, exposure must be assessed by checking all flight records of the crewmember concerned and evaluating the flights flown, taking into account area of operation, altitude and latitude.

All efforts must be made to keep exposure levels below 6mSv per year. If it is believed that any crewmember will exceed the 6mSv limit in one year, an individual record noting the accumulative levels of exposure to cosmic radiation must be kept and all efforts must be made during crew scheduling to ensure that the crewmember concerned is exposed to the lowest dose of cosmic radiation possible.

All crewmembers should be made aware of the health risks of high exposure to cosmic radiation.

Pregnant Crewmembers

Pregnant women must keep the doses of cosmic radiation they are exposed to under control. Duty scheduling must be informed of any pregnant crewmembers as soon as possible, to ensure that doses of cosmic radiation are kept to minimum and less then 1mSv for the remainder of her pregnancy. Pregnant crewmembers concerned about exposure to cosmic radiation, are entitled to be relieved of flight duties if they desire so.

Monitoring of Cosmic Radiation

The Council of the European Union adopted Directive 96/29 Euratom [1] (the Directive) on 13 May 1996. Article 42 of the Directive imposes requirements relating to the assessment and limitation of air crew members' exposure to cosmic radiation and the provision of information on the effect of cosmic radiation. Member States were required to implement the Directive by 13 May 2000.

Gama maintains a system of record keeping which is defined in procedure AOC.OP.601(Operations Administrator Procedure, Section 4). Refer to this detailed procedure for further information relating to the monitoring of crew exposure to radiation.

Individuals may request access to their records and to be able to obtain a copy to pass on to a new employer, should they change employment.

8.3.18 Use of Auto-pilot and Auto-throttle

Automation has contributed substantially to the sustained improvement of flight safety. Automation increases the timeliness and precision of routine procedures reducing the opportunity for errors and the associated risks to the safety of the flight. Nevertheless, automation has its limits. Critically, in complex and highly automated aircraft, flight crews can lose situational awareness of the automation mode under which the aircraft is operating or may not understand the interaction between a mode of automation and a particular phase of flight or pilot input. Such confusion can lead to the mismanagement of the energy state of the aircraft or to the aircraft deviating from the intended flight path.

The operator recognises the need for all pilots to be fully familiar with the use of automation installed on its current range of aircraft for reasons of safety in many operating environments such as in busy terminal areas during departures and arrivals, in RVSM airspace and for passenger comfort. It is also recognises that maintaining a pilots basic manual aircraft handling skills and techniques are a requisite to ensure safety of flight in the event of equipment failures.

The current training programs are designed to enhance pilots' use of automation and to provide them with practice so that in the event of equipment failure the aircraft can be continued to be operated safely at any stage of the flight. Details of all training can be found in the Part D (Training manual). Procedures for each aircraft type may be found in the Part B specific type sections together with aircraft manufacturers Flight Manual requirements, appropriate check lists and company SOP's concerning the use of auto pilots and auto throttles operations. Pilots are required to operate in accordance with these procedures.

8.3.18.1 Use of Headsets

Headsets with a boom microphone shall be used as the primary device to listen to the voice communications with Air Traffic Services. They must be worn by all flight deck crewmembers at all times when operating on the ground and below FL200 when in the air or any other time when deemed necessary by the aircraft Commander.

Flight deck communication shall be via intercom. If an intercom is not working and subject to the limitations in the MEL, headsets shall still be worn with one ear exposed in order to communicate with the other crewmember.

8.3.19 Radio Communication

All the Company aircraft are equipped with at least two VHF radios.

Radio 1 on the left side is the master radio and will be used at all time to maintain communications with ATC units.

Radio 2 on the right side is used for obtaining ATIS and communicating with handling agents etc. **Radio 2 must always be returned to 121.5 mHz** and monitored when not in use.

If a third radio is carried, then this may be used for monitoring 121.5 mHz however on some aircraft this may already be in use as a data upload frequency.

8.3.20 Emergency Locator Transmitter (ELT)

Aircraft operated by Gama Aviation must have the following:

1. One ELT of any type; or
2. One automatic ELT for those aircraft first issued with an individual C of A 1st July 2008.

Note: Any ELT carried must comply with the provisions of ICAO Annex 10, Volume III.

8.3.21 Erroneous ELT Activation

If any transmissions from the aircraft's ELT are detected, the UK Mission Control Centre at RAF Kinloss will immediately try to contact the registered owner of the aircraft. If inadvertent activation occurs contact Operations immediately or inform the ATC unit if actively in the air when this is first noticed (If activation occurs recycling the switch may reset the unit).

8.3.22 Threshold Crossing Height, normal and steep approaches

Bear in mind that all landing performance and runway analysis is predicted on crossing the runway threshold at a height of 50 feet.

Steep approach operations using glideslope angles or 4.5 degrees or more and with screen height of less than 60 ft but not less than 35 ft require prior approval of the competent authority.
CAT.POL.A.245 Perf A performance aircraft

CAT.POL.B.345 Perf B performance aircraft.

This altitude requirement is met adhering to the glide path on an ILS, but must be done visually on the approaches.

8.3.22.1 Approaches using VASI

Two-bar VASI installations provide on visual glide path, which is normally set at 3°. Three-bar VASI installations provide two visual glide paths. The lower glide path is provided by the rear and middle bars and is normally set at 3° while the upper glide path, provided by the middle and far bars, is normally 1/4 ° higher.

The higher glide path is intended for the use only by high cockpit aircraft to provide sufficient threshold crossing height. Although normal glide path angles are 3° performance aircraft are cautioned that use of VASI angles in excess of 3.5° may cause an increase in runway length required for landing and rollout.

Use of VASI, when available, is mandatory (IFR or VFR).

8.3.23. Mode S and Flight ID

All Gama Aviation aircraft are fitted with enhanced Mode S transponders, which, amongst other information, transmit the flight ID entered by way of the transponder control page. To avoid transmitting wrong information it is important to check during pre-flight that the correct call sign is used. This is identified in Box 7 of the ICAO Flight Plan.

8.3.24 Rates of Climb and Descent

In order to ensure interaction of current air/ground systems and associated safety nets *(including TCAS)*, the UK has introduced a maximum limit to the rate of climb and descent for aircraft operating under normal conditions within UK Controlled Airspace, in particular the following:

a) unless in an emergency never exceed 8,000 ft climb or descent rate;
b) when approaching a cleared flight level that the rate of closure is below 1,500 ft/min ideally between 500 ft and 1,000 ft/min *(especially when holding)*;
c) never overshoot or undershoot by 150 ft the cleared level/altitude.
d) To avoid any threat of stalling the aircraft in the climb, APFDS should be selected to an open vertical mode *(e.g. IAS/FLC)* and not normally selected to VS or Pitch mode.

   This is to clarify Company policy that pilots may manage the APFDS as they see fit and, **subject to the following proviso**, the use of VS may be a valid technique:-

When within 2000' of cleared level, selection of Vertical Speed (VS) mode to REDUCE a high rate of climb may be an acceptable technique only when there is an excessive ROC/D of more than 1500'/min and only when closing within two thousand feet of the cleared level. When climbing to the upper levels, moderating the ROC in this way should not be necessary as performance naturally decreases with altitude and the ROC in the upper levels should not be excessive in any event.

8.3.25 Operational Procedures

8.3.25.1 Terminology

The terms which are listed below are for the use within the context of EASA Operations

Each Part B refers to aircraft type specific performance. The Company uses a computer based performance engine to establish balanced field, second segment obstacle criteria and landing distances and must be referred to separately from this section.

a) Adequate Aerodrome. An aerodrome which the operator considers to be satisfactory, taking account of the applicable performance requirements and runway characteristics; at the expected time of use, the aerodrome will be available and equipped with necessary ancillary services such as ATS, sufficient lighting, communications, weather reporting, navaids and emergency services.

b) ETOPS (Extended Range Operations for two engine aeroplanes). ETOPS operations are those with two engine aeroplanes approved by the Authority (ETOPS approval), to operate beyond the threshold distance determined in accordance with CAT.OP.MPA.140(b) from an Adequate Aerodrome.

c) Adequate ETOPS en-route alternate aerodrome. An adequate aerodrome, which additionally at the expected time of use has an ATC facility and at least one instrument approach procedure.

d) En-Route Alternate (ERA) Aerodrome. An adequate aerodrome along the route, which may be required at the planning stage.

e) 3% ERA. An en-route alternate aerodrome selected for the purposes of reducing contingency fuel to 3%.

f) Equivalent Position. A position that can be established by means of a DME distance, a suitably located NDB or VOR, SRE or PAR fix or any other suitable fix between 3 and 5 miles from threshold that independently establishes the position of the aeroplane.

g) Critical phases of flight. Critical phases of flight are the take-off run, the take-off flight path, the final approach, the landing, including the landing roll, and any other phases of flight at the discretion of the commander.

h) Contingency Fuel. The fuel required to compensate for unforeseen factors which could have an influence on the fuel consumption to the destination aerodrome such as deviations of an individual aeroplane from the expected fuel consumption data, deviations from forecast meteorological conditions and deviations from planned routings and/or cruising levels/altitudes.

i) Separate Runways. Runways at the same aerodrome that are separate landing surfaces. 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.

j) Approved One-Engine-Inoperative Cruise Speed. For ETOPS, the approved one-engine-inoperative cruise speed for t

k) The intended area of operation shall be a speed, within the certified limits of the aeroplane, selected by the operator and approved by the regulatory authority.

l) ETOPS Area. An ETOPS Area is an area containing airspace within which an ETOPS approved aeroplane remains in excess of the specified flying time in still air (in standard conditions) at the approved one-engine inoperative cruise speed from an adequate ETOPS Route Alternate aerodrome.

m) Dispatch. ETOPS planning minima applies until dispatch. Dispatch is when the aircraft first moves under its own power for the purpose of taking off.

8.3.26 Electronic Navigation Data Management

Electronic Navigation Data Management must comply with the following:

a) An operator shall not use a navigation database which supports an airborne navigation application as a primary means of navigation unless the navigation database supplier holds a Type 2 Letter of Acceptance (LoA) or equivalent. Type 2 CAT Provider Certified IAW EU 2017/373 or equivalent.
b) If the operator's supplier does not hold a Type 2 LoA or equivalent, the operator shall not use the electronic navigation data products unless the Authority has approved the operator's procedures for ensuring that the process applied and the delivered products have met equivalent standards of integrity.
c) An operator shall not use electronic navigation data products for other navigation applications unless the Authority has approved the operator's procedures for ensuring that the process applied and the delivered products have met standards of integrity acceptable of the intended use of the data.
d) An operator shall continue to monitor both the process and the products according to the requirements.
e) An operator shall implements procedures that ensure timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.

Note: A copy of the Letter of Acceptance (LoA) can be found in the aircraft document folder.

8.3.27 Electronic Flight Bag (EFB)

The Company has fleet wide EFB approval.

Should both EFBs fail prior to flight crewmembers must print enroute charts and approach plates for departure, destination and designated alternate aerodromes and acceptable aerodromes meeting performance criteria that are no more than one-hour duration between each other for the entire planned route prior to dispatch.

All aircraft EFBs have a Mass and Balance/Performance App to enable analysis of Balanced Field and Obstacle criteria for the selected route airports and designated alternates.

This facility is in addition to the normal Part B requirements regarding Mass and Balance calculations.

The Company EASA approved EFB manual is the approved operating manual for EFB use.

8.3.28 RNAV - AREA NAVIGATION

The use of Area Navigation (RNAV) permits operations along ATS routes and instrument procedures which are not necessarily defined by ground based navigation aids.

B-RNAV is mandatory as the primary means of navigation in all ECAC en-route Airspace.

P-RNAV is the navigation specification that is required for RNAV procedures in Terminal Airspace within ECAC.

RNAV(GNSS) the navigation specification for RNAV approach procedures using GNSS in ECAC.

All Gama Aviation aircraft are B-RNAV approved subject to relevant OM-B procedure application and MEL limitations. The Gama Aviation aircraft are approved for P-RNAV operations subject to relevant Operations Manual Part B procedure application and MEL limitations.

NAVIGATION DATABASE MANAGEMENT

P-RNAV and RNAV (GNSS) approach operations require the use of a Navigation Database that is supplied by Universal Avionics, Honeywell and Rockwell Collins are an approved supplier which has been issued with EASA or FAA type 2 Letter of Acceptance.

RNP - REQUIRED NAVIGATION PERFORMANCE

RNP is a statement on navigation performance accuracy, essential to operations within a defined airspace.

RNP Airspace

Certain airspace, routes and procedures have been established where minimum Required Navigation (RNP) performance requirements are stipulated. Company aircraft must meet or exceed these performance requirements in order to fly in that airspace.

RNP-X

A designator is used to indicate the minimum navigation system requirements needed to operate in an area, on a route, or on a procedure (e.g. RNP-1, RNP-4). The designator invokes all of the navigation system requirements, specified for the considered RNP RNAV type, and is indicated by the value of X (in NM).

Examples of the use of RNP in European airspace:

RNP Type	Required Accuracy (95% Containment)	Description
0.3	± 0.3 NM	Supports initial/intermediate approach, 2D RNAV approach, and departure. Expected to be the most common application.
0.5	± 0.5 NM	Supports initial/intermediate approach and departure. Only expected to be used where RNP 0.3 cannot be achieved (poor navaid infrastructure) and RNP 1 is unacceptable (obstacle rich environment)
1	± 1.0 NM	Supports arrival, initial intermediate approach and departure; also envisaged as supporting the most efficient ATS route operations. Equates to P-RNAV
4	± 4.0 NM	Supports ATS routes and airspace based upon limited distances between navaids. Normally

		associated with continental airspace but may be used as part of some terminal procedures.
5	± 5.0 NM	An interim type implemented in ECAC airspace to permit the continued operation of existing navigation equipment. Equates to B-RNAV.

PERFORMANCE REQUIREMENTS

a) Navigation accuracy

Each company aircraft operating in RNP airspace shall have a total system navigation position error equal to, or less than, the RNP value for 95% of the flight time as detailed in the table above.

b) Functionality requirements

In addition to the accuracy, integrity, and continuity requirements, navigation systems must comply with functionality requirements covering:

i) FMS flight path definition and construction
ii) FMS functions
iii) Navigation database
iv) Navigation display
v) Autopilots and Flight Directors, etc.

B-RNAV

B-RNAV defines European RNAV operations which satisfy a required track-keeping accuracy of ±5 NM for at least 95% of the flight time (RNP-5).

OPERATING PROCEDURES

B-RNAV is mandatory for flights in ECAC airspace along the entire ATS route network above FL95. Some States also use B-RNAV on selected routes into, and out of, terminal airspace

a) The B-RNAV portion of the route is above Minimum Sector Altitude/Minimum Flight Altitude/Minimum Radar Vectoring Altitude (as appropriate), has been developed in accordance with established PANS-OPS criteria for en-route operations and conforms to B-RNAV en-route design principles.

b) The initial portion of departure procedures is non-RNAV up to a conventional fix beyond which the B-RNAV procedure is provided in accordance with the criteria given above.

c) The B-RNAV portion of an arrival route terminates at a conventional fix in accordance with the criteria given above and the arrival is completed by an alternative final approach procedure, also appropriately approved.

NAVIGATION SOURCES

The aircraft position can be determined by the following navigation sources:

a) DME/DME;

b) VOR/DME (within 62 NM VOR range);

c) INS (with radio updating or limited to 2 hrs use after last on-ground position update)

d) GNSS (with use limitations)

REQUIRED FUNCTIONS

The following system functions are the minimum required to conduct Basic RNAV operations with continuous indication of aircraft position relative to track to be displayed on a navigation display clearly visible by both flight crew.

a) Display of distance and bearing to the active (To) waypoint.

b) Display of ground speed or time to the active (To) waypoint.

c) Storage of waypoints; minimum of 4.

d) Appropriate failure indication of the RNAV system, including the sensors

CONTINGENCIES

Company flight crew will report the loss of B-RNAV capability to ATC immediately and in the event of such loss, follow conventional navigation. As a result of a failure or degradation of the RNAV system below RNP 5, an aircraft shall not enter the B-RNAV airspace, nor continue operations in accordance with the current air traffic control clearance. ATC must be advised and a revised clearance shall, whenever possible, be obtained by the pilot.

Subsequent air traffic control action in respect of that aircraft will be dependent upon the nature of the reported failure and the overall traffic situation. Continued operation in accordance with the current ATC clearance may be possible in many situations.

When this cannot be achieved, a revised clearance may be required to revert to VOR/DME navigation. Furthermore on each ATC frequency change, Company flight crew will report the situation by announcing “NEGATIVE-RNAV” on initial contact.

MEL

Company flight crew must consult the MEL when departing with inoperative navigation equipment to verify compliance with B-RNAV requirements.

In-flight Equipment Failure

Should a Company aircraft suffer an in-flight equipment failure then the consult the MEL in which lists the equipment required to be serviceable while operating actual B-RNAV procedures.

P-RNAV

General
Precision-RNAV defines European RNAV operations which satisfy a required track-keeping accuracy of ±1 NM for at least 95% of the flight time (RNP-1). P-RNAV procedures apply to operations including departures, arrivals, and approaches up to the point of the Final Approach Waypoint (FAWP). This may involve flight below Minimum Sector Altitude/Minimum Flight Altitude/Minimum Radar Vectoring Altitude.

Approval from the authority is required for the use of P-RNAV.

Navigation Sources

The aircraft position can be determined by the following navigation sources:

a) DME/DME;

b) VOR/DME;

c) INS (with radio updating or the length of time that a particular IRS can be used to maintain P-RNAV accuracy without external update is determined at the time of certification)

d) GNSS Some published procedures may require the installation of dual FMC Receiver Autonomous Integrity Monitoring – RAIM. RAIM, or an equivalent means of integrity monitoring as part of a multi-sensor navigation system, must be provided, where GNSS is used as the primary navigation source.

A P-RNAV route is flyable for GPS and/or DME/DME aircraft. P-RNAV (GPS) routes may only be used by GPS equipped aircraft while P-RNAV (DME/DME) routes may be used by either DME/DME or GPS aircraft.

In addition to the company approval, P-RNAV operation also requires the aircraft to be approved for RNP1 operation and the flight crew must be qualified and current. The technical certification status of Company aircraft can be obtained from the aircraft documentation.

All Company flight crew will receive appropriate training, briefings and guidance material in the operation of P-RNAV based SIDs and STARs. Simulator training is required, and should cover both normal and contingency procedures. Wherever practicable standard training events (simulator recurrent checks/proficiency checks) will include SIDs and STARs using RNAV based procedures. The Company training programme is described in Company Operations Manual Part D

NORMAL PROCEDURES

Company flight crew must ensure validity of the navigational database and check routings and waypoints against the published charts before commencing departure or arrival procedures.

Operating Procedures (P-RNAV SID)

Company flight crew must verify that the RNAV system is available and operating correctly prior to departure. Unless automatic updating of the actual departure point is provided, the flight crew must ensure initialisation on the runway either by means of runway threshold reference or a valid intersection reference update, as applicable. If GNSS is used, the signal must be acquired before the take-off roll. If GNSS is unserviceable, refer to the Contingency Procedures below. If initialisation is not achieved, the departure should be flown by conventional navigation means. Company flight crew should implement a transition to the P-RNAV structure once the aircraft has entered DME/DME coverage and has had sufficient time to achieve an adequate input. During the procedure, Company flight crew shall monitor the navigational reasonableness, by cross checks, with conventional navigation aids using the PFDs in conjunction with the Steering FMS. If applicable the flight crew will monitor to verify automatic updating of the INS/IRS systems to ensure that the period without updating does not exceed the permitted limit.

Company flight crew must exercise extreme caution with regard to terrain separation when accepting a “Direct to.....” clearance.

Operating Procedures (P-RNAV STAR)

Company flight crew should pay particular attention to segments which are below MSA/MRVA. NOTAMS must be checked to ensure that the required navigation aids are available. For RNAV systems without GNSS updating, a navigation reasonableness check is required during the descent phase before reaching the Initial Approach Waypoint (IAWP).

For GNSS based systems, absence of an integrity alarm is considered sufficient. If the check fails, a conventional procedure must then be flown. Conventional aids should be used to provide crosschecks where feasible. Route modifications in the terminal area may take the form of radar headings or 'direct to' clearances and the flight crew must be capable of reacting in a timely fashion. This may include the insertion of tactical waypoints loaded from the database.

Company flight crew will not manually entre entry or modify the loaded procedure using temporary waypoints or fixes not provided in the database.

Contingencies

Company flight crew must be aware of the need for contingency procedures in the case of:

a) Failure of on-board equipment.
b) Multiple system failures.
c) Failure of navigation sensors.
d) Coasting of inertial sensors beyond specified time.

Should any of the above occur then Company flight crew will immediately notify ATC of the loss of RNAV capability and the intended course of action. It should be remembered that P-RNAV procedures may take the aircraft below Minimum Sector Altitude/Minimum

Flight Altitude/Minimum Radar Vectoring Altitude and that it will be necessary to take expeditious action to ensure obstacle clearance.
In the event of communications failure, the flight crew should continue with the RNAV procedure in accordance with the published lost communication procedure.

In the event of loss of P-RNAV capability, the flight crew should navigate using an alternative means of navigation which may include the use of an inertial system. The alternative means need not be an RNAV system.

REPORTING

Incidents which affect or could affect the safety of P-RNAV operations or reflect any significant navigational discrepancy must be reported by means of a Company Safety Report as detailed in Operations Manual Part A Section 11. When it is identified that a particular route or procedure contains an error, it must also be reported directly to the Company Operations Department as soon as possible. The use of the route or procedure is prohibited until the error has been corrected. Information on any navigational discrepancy must be transmitted to the database supplier for rectification.

Examples may include, but are not limited to:

a) Navigation errors (e.g. map shifts) not associated with transitions from inertial navigation mode to radio navigation mode.
b) Incorrect data or navigation database coding error.
c) Unexpected deviations in flight path not caused by pilot input.
d) Significant misleading information without a failure warning.
e) Total loss or multiple navigation equipment failure.
f) Problems with ground navigational facilities.
g) Operating Procedures

RT PHRASEOLOGY

Company flight crew must be aware of the following phraseology in the event of not being able to conduct P-RNAV operations.

Flight crew	ATC	Circumstance
Unable (designator) Departure [or Arrival] Due RNAV Type		Unable to accept RNAV procedure for reasons of equipment or its operational use
Unable (designator) Departure [or Arrival] (reasons)		Unable to accept RNAV procedure for any other reason
Unable RNAV due equipment		Unable to accept RNAV clearance due to equipment failure
	Unable to issue (designator) Departure [or Arrival] Due RNAV Type	ATC unable to issue RNAV clearance based on equipment indicated in FPL/ CPL
	Unable to issue (designator) Departure [or Arrival] (reasons)	ATC unable to issue RNAV clearance for any other reason
	Advise if able (designator) Departure [or Arrival]	A means for ATC to confirm the ability of a pilot to accept a specific RNAV procedure

8.3.29 Radar Approaches

Radar service is automatically terminated at the completion of a radar approach.

The published MDA for straight-in approaches will be issued to the pilot before beginning descent.

When a surveillance approach will terminate in a circle-to-land manoeuvre, the pilot must furnish the aircraft approach category to the controller, the controller will then provide the pilot with the appropriate MDA

Precision Approach Radar (PAR):

A PAR approach is one in which a controller provides highly accurate navigational guidance in azimuth and elevation to a pilot.

PAR equipment may be used as a primary landing aid, or it may be used to monitor other types of approaches.

Pilots are given headings to fly, to direct them to, and keep their aircraft aligned with the extended centreline of the landing runway.

They are told to anticipate glidepath interception approximately 10 to 30 seconds before it occurs and when to start descent.

The published Decision Height is published in the approach plates and therefore will only be given if the pilot requests it.

If the aircraft is observed to deviate above or below the glidepath, the pilot is given the relative amount of deviation by use of terms "slightly" or "well" and is expected to adjust the aircraft's rate of descent/ascent to return to the glidepath.

Trend information is also issued with respect to the elevation of the aircraft and may be modified by the terms "rapidly" and "slowly"; e.g., "well above glidepath, coming down rapidly".

Range from touchdown is given at least once each mile.

If an aircraft is observed by the controller to proceed outside of specified safety zone limits in azimuth and/or elevation and continue to operate outside these prescribed limits, the pilot will be directed to execute a missed approach or to fly a specified course unless the pilot has the runway environment (runway, approach lights, etc.) in sight.

Navigational guidance in azimuth and elevation is provided to the pilot until the aircraft reaches the published Decision Height (DH).

Advisory course and glidepath information is furnished by the controller until the aircraft passes over the landing threshold, at which point the pilot is advised of any deviation from the runway centreline.

Radar service is automatically terminated upon completion of the approach.

A PAR Provides azimuth and glide slope (range and elevation).

Two antennas are used, one scanning the vertical and the other horizontal planes

- Limited to 10 NM range
- Limited to 20° azimuth
- Limited to 7° elevation

Crew Approach Briefing

- Aircraft must be fully configured for landing before FAF for a SRA *(or 1000ft for a PAR)*
- Crew to brief initial rate of descent
- MP to call out check heights from approach charts
- Crew to brief missed approach

8.4 Low Visibility Operations (SPA.LVO.100)

All take-offs with an RVR less than 400m are considered LVTOs. LVTO minima are determined by the facilities at the aerodrome in terms of the runway lighting system and scope of the RVR measurement equipment.

8.4.1 Operating Minima

Table 1 – Low visibility take-off (LVTO)

FACILITIES	RVR (m) *, **
Day: runway edge lights and runway centre line markings Night: runway edge lights and runway end lights or runway centre line lights and runway end lights	300
Runway edge lights and runway centre line lights	200
Runway edge lights and runway centre line lights	TDZ, MID, rollout 150 ***
High intensity runway centre line lights spaced 15 m or less and high intensity edge lights spaced 60 m or less are in operation	TDZ,MID, rollout 125 ***
Runway protection and facilities equivalent to CAT 111 landing operations are available and the aircraft is equipped either with an approved lateral guidance system or an approved HUD /HUDLS for take off	TDZ, MID, rollout 75

*: The reported RVR value representative of the initial part of the take-off run can be replaced by pilot assessment.

******: Multi-engine aeroplanes that in the event of an engine failure at any point during take-off can either stop or continue the take-off to a height of 1500 feet above the aerodrome while clearing obstacles by the required margins.

*******: The required RVR value to be achieved for all relevant RVR's
TDZ: touchdown zone, equivalent to the initial part of the take-off run
MID: midpoint

Note 1: Minimum RVR for take-off is 150m provided appropriate crew training has been completed. In addition:

- LVP's must be in force
- Hi Intensity runway centreline lights must be spaced 15m or less
- Hi intensity runway edge lights must be available spaced 60m or less
- A 90m visual segment is available from the cockpit at the start of the take-off run

Note 2: Jeppesen Guide gives minimum authorised RVR appropriate to airfield facilities.

8.4.1.1 Definitions: Non-precision and Category 1 Operations

(a) **Non-precision Approach** and Landing Operations. An instrument approach and landing which does not utilise electronic glide path guidance

(b) **Precision Approach** and Landing Operations. An instrument approach and landing using precision azimuth and glide path guidance with minima as determined by the category of operation;

(c) **Category 1** (Cat 1) Operation. A precision instrument approach and landing using ILS, MLS or PAR with a decision height of not lower than 200 ft and with an RVR not less than 550 m;

(d) **Final Approach**. That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified:

(i) At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

(ii) At the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:

a) A landing can be made; or

b) A missed approach procedure is initiated.

(e) **Categories of Aeroplane**;

(f) **Circling Approach.** Circling is the term used to describe the visual phase of an instrument approach to bring an aeroplane into position for landing on a runway which is not suitably located for a straight in approach;

(g) **Minimum Descent Altitude/Height (MDA/H).** A specified altitude/height in a non-precision approach or circling approach below which descent may not be made without visual reference;

(h) **Decision Altitude/Height (DA/H)** - A specified altitude/height (A/H) in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Notes:

1. Decision altitude (DA) is referenced to mean sea level (MSL) and decision height (DH) is referenced to the threshold elevation.
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 aeroplane position and rate of change of position, in relation to the desired flight path.

(i) **Cloud base.** The lowest reported cloud level (reported as FEW);

(j) **Cloud ceiling.** The vertical distance from the elevation of the aerodrome to the lowest part of any cloud visible from the aerodrome which is sufficient to obscure more than one half of the sky above the elevation of the aerodrome (reported as BKN).

(k) **Visual Reference**, Non-precision Approach*.* A pilot may not continue an approach below MDA/H unless at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) Elements of the approach light system;

(ii) The threshold;

(iii) The threshold markings;

(iv) The threshold lights;

(v) The threshold identification lights;

(vi) The visual glideslope indicator;

(vii) The touchdown zone or touchdown zone markings;

(viii) The touchdown zone lights;

(ix) Runway edge lights ; or

(x) Other visual references accepted by the Authority.

(l) **Visual Reference**, Category 1 Approach*.* A pilot may not continue an approach below the Category 1 DA/H unless at least one of the visual references described in 8.4.1.2(i), (i) to (ix) inclusive for the intended runway is distinctly visible and identifiable to the pilot.

(m) **Missed Approach Point** (MAPt). That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

(n) **Obstacle Clearance Altitude/Height** (OCA/H). The lowest altitude (OCA), or alternatively the lowest height above the elevation of the relevant runway threshold or above the aerodrome elevation as applicable (OCH), used in establishing compliance with appropriate obstacle clearance criteria.

(o) **Obstacle Clearance Limit** (OCL). The height above aerodrome elevation below which the minimum prescribed vertical clearance cannot be maintained either on approach or in the event of a missed approach.

(p) **Runway Visual Range** (RVR). The range over which the pilot of an aeroplane on the centreline of a runway can see the runway surface markings or the lights delineating the runway for identifying its centreline.

(q) **Reported RVR**. The RVR communicated to the commander of an aeroplane, by or on behalf of the person in charge of the aerodrome.

(r) **Visual Approach**. An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

Note: A visual approach may not be conducted when the RVR, or factored equivalent, is less than 800 metres.

(s) **Approach Ban** (commencement and continuation of approach)

(i) A pilot-in-command may commence an instrument approach regardless of the reported RVR/Visibility but the approach shall not be continued beyond the outer marker, or equivalent position (see Note below), if the reported RVR/Visibility is less than the applicable minima.

(ii) Where RVR is not available, the pilot-in-command may derive an RVR value by converting the reported visibility in accordance with para 8.1.3.7 Table 5 for non-precision and Category 1 approaches only.

(iii) If, after passing the outer marker or equivalent position in accordance with (i) above, the reported RVR/Visibility falls below the applicable minimum, the pilot-in-command may continue the approach to DA/H or MDA/H.

(iv) Where no outer marker or equivalent position exists, the pilot-in-command shall make the decision to continue or abandon the approach before descending below 1000 ft above the aerodrome on the final approach segment.

(v) A pilot may continue the approach below DA/H or MDA/H and the landing may be completed provided that the required visual reference is established at the DA/H or MDA/H and is maintained.

Note: The equivalent position referred to in (i) above can be established by means of a DME distance, a suitably located NDB or VOR, SRE or PAR fix or any other suitable fix that independently establishes the position of the aeroplane.

8.4.1.2 Operating Procedures

a) PREFLIGHT

Aircraft Status:

- Technical Logbook: Snags shall not affect equipment required for Operation

Crew Certification:

- All operating crew members must be qualified and current.

NOTAMS: Make sure that the destination airport meets requirements:

- RVR equipment availability.
- Radio NAV aid availability.
- Runway and approach lighting.

Weather:

- Destination forecast shall be at or above the company and crew operating minima.
- Alternate forecast shall be equal to or better than the planning minima.

RVR/Visibility (m)	Limitation
Below 150	Max crosswind of 15 knots
Departure Aerodrome Below Landing Minima	A take-off alternate will be nominated whenever the weather at the departure airport is lower than that required for the type of approach to be used in the event of a return due to a single failure occurring after take-off. Weather: • At or above the applicable landing minima (+ 1 hour of ETA) • Ceiling must be checked if only approaches are non-precision or circling Distance: • 1 hour S/E TAS if Non ETOPS • 2 hours S/E TAS if ETOPS Note: Consider unexpected events that could affect landing minima at take-off alternate
RVR/Visibility (m)	**Limitation**
Below 150	Max crosswind of 15 knots
Departure Aerodrome Below Landing Minima	Take Off Alternate Required Weather: • At or above the applicable landing minima (+ 1 hour of ETA) • Ceiling must be checked if only approaches are non-precision or circling Distance: • 1 hour S/E TAS if Non ETOPS • 2 hours S/E TAS if ETOPS Note: Consider unexpected events that could affect landing minima at take-off alternate

Fuel:

- Higher of the following should be carried:
  - Min 30 minutes taxi fuel.
  - Expected delays (taxiing / approach).

Performance:

- Normal T/OFF thrust is used.
- Payload permitting, use flap setting / wind component that gives the lowest take-off speeds.

- Contaminated runway operations are prohibited if the RVR falls below 400m

8.4.1.2.1 Departure Briefing

Before every departure, a briefing will be given to cover all the relevant aspects of that take-off and subsequent departure.

Details of this briefing are as follows:

Emergencies covering action in the event of:

- Fire during start.
- Fire and brake failure during taxy.
- Abandoned take-off.
- Emergency after V1.

Normal procedures covering:

- Runway Condition.
- Take-off weight and field performance.
- Power and Flap settings.
- Obstacle clearance and emergency turns.
- ATC clearance and SID.
- Setting up of radio aids and method of navigation.
- Noise Abatement.
- Take-off alternate and landing weight considerations.
- Completion of performance figures i.e. speeds, BFL etc.
- Wind speed and direction on the runway to be used.
- Noise abatement procedure (where applicable).
- Minimum safe altitude on departure.
- ATC clearance.
- Calculate WAT limits and RTOW (V1/VR/V2/VFS speeds).
- Radio aids to be used.
- Threat Error Management Brief

After covering the normal and emergency handling techniques before start-up, other briefings such as departure clearance should be given as the information becomes available.

The use of the phrase “Standard” avoids repetition during a series of flights, but it should be used with discretion, bearing in mind that airport conditions during a series of flights are constantly changing.

These items must be covered thoroughly before the first flight of the day or when there is a change of any Crew Member. Thereafter, they may be abbreviated using the term "Standard Emergency Briefing”.

All checks able to be completed on stand prior to taxi should be completed prior to calling for taxi instructions.

b)TAXI

- Ffamiliarise with taxi-way routing, sensitive areas and CAT II / III holding points.
- NOTAMS and charts should be consulted for airport status regarding closed taxiways, runways, construction etc.
- Min visibility for taxi is equivalent to an RVR of more than 75m (75 or less is insufficient).
- Max speed for taxi is 10 knots.
- PM (FO) should provide the required information (speed/heading etc.) in "rally navigator" style to PF (CAPT).
- Use EFB moving map to enhance positional awareness.
- Inform Ground/Tower when holding and at which hold
- Checklist action to be done with aircraft stationery and parking brakes ON.
- After lining up for take-off:
  - Cross check runway heading.
  - Make sure the aircraft is on the runway centre line.
  - Verify visibility minimums are met or exceeded
  - Verify by ILS Localizer and markings on runway centre line.
  - May also be verified through ND when there is parallel runway.
  - Inform Tower that you are rolling

c)TAKEOFF MINIMA

Low Visibility Take-off. A take-off when the reported RVR is less than 400m. For the take-off to be conducted the requirements below must be satisfied:

(i) When the reported RVR is less than 400m but not less than 150m then the commander must satisfy himself that:

A. The runway lighting and markings comply with Table and Notes below; and

B. Appropriate Low Visibility Procedures (LVPs) are in force.

(ii) When the reported RVR is less than 150m (200m Cat D aeroplanes) additional runway features, crew training, lateral guidance in the aeroplane for the lower RVRs and Authority approval are required.

- RVR/VIS minima required for LVTO is the <u>higher of state minimum or the</u>

following:

FACILITIES	RVR VIS (M)	
	Cat A, B, C	**Cat D**
Nil (Day Only)	500	
Below 400 LVP must be in use. (Reported RVR/VIS of initial part of takeoff run can be replaced by pilot assessment)		
RL and/or RCLM (For night operation at least RL & Runway end lights are required)	300	300
RL & CL	200	250
RL, CL & Multiple RVR Information (RVR is required for all relevant points except initial part of T/O run)	150	200
Approved Operators [1]	**150**	**150**

[1] Approved Operators:

- *Training in a simulator approved for this procedure.*
- *Low Visibility Procedures are in force.*
- *High intensity CL spaced 15m or less and HRL spaced 60m or less are in operation.*
- *The required RVR value has been achieved for all of the relevant RVR reporting points.*
- *A 90m visual segment is available from the cockpit at the start of the takeoff run.*

b)RVR ASSESSMENT

The crew should agree the number of lights visible. The number of lights times the charted spacing gives the “visual segment” which must always be greater than 90m, to which should be added the distance from the cockpit to the cutoff of view for the type. This gives the RVR.

If touchdown IRVR is not available, then this figure may be used to assess the legality of departure.

c)TAKEOFF REJECTION

- Losing visual references:
  - Below 80 knots – Take-off may be rejected.
  - Above 80 knots – Take-off should be continued.
- Localizer guidance is helpful in maintaining the runway center line. PM, if required should call left/right on localizer movement.
- Standard runway center line lights change:
  - From white to alternate red and white when approx. 3000 ft of runway is remaining.
  - To continuous red when only 1000 ft of runway is remaining.

8.4.1.2.2 Monitoring of Radio Aids

(a) Cross monitor possible - i.e. the ability to use one radio aid to cross check the information from another when multiple aids are available such as ILS with NDB/VOR etc. All radio aids are to be identified by at least one pilot and the primary aid is to be identified by all operating flight deck Crew Members.

(b) No cross monitor possible - When one radio aid alone is used then it must be identified by all operating flight deck Crew Members and the call sign must be monitored or re-identified as follows:

(i) ILS - The call sign must be re-identified:

A. When the aeroplane is established on the localizer;

B. Whenever warning flags have appeared and cleared;

C. Whenever indications are in doubt.

Note: Presence of an ILS call sign does not confirm the integrity of the glideslope signal.

(ii) VOR - The call sign must be re-identified:

A. When established on the inbound radial or when on final approach;

B. Whenever warning flags have appeared and cleared including passing an indicated overhead;

C. Whenever indications are in doubt.

(iii) NDB - The call sign is to be monitored by one operating flight deck crewmember throughout the approach and missed approach when relevant.

Even if a stopwatch timing facility is not obligatory for the type of approach being conducted it must be remembered that timing provides useful navigational information and can be used as a gross error check.

Missed Approach. An instrument approach must be discontinued if visual reference has not been attained or cannot be maintained and:

a) Warning flags indicate a failure;

b) The call sign of the primary aid ceases;

c) Indications are in doubt;

d) The aeroplane is displaced vertically and/or laterally beyond pre-determined limits;

e) On an SRA or PAR approach if communications cease.

8.4.1.2.3 Warning Flags

It is possible during certain ground station malfunctions for warning flags not to appear when the main signal is invalid. This emphasises the need for cross-monitoring when possible and being alert at all times to aeroplane anomalous behaviour, e.g. abnormal headings and rates of descent for the type of approach flown and current wind velocities.

8.4.1.2.4 Descent for Approach

An aeroplane must not descend below the appropriate safety altitude except:

a) By using an approved Instrument Approach procedure; or

b) When under positive radar control and the aeroplane commander is satisfied with the flight profile; or

c) When in continuing visual contact with the ground and able to ensure adequate clearance from all obstacles affecting the intended flight path.

Note: Descent when using ILS glideslope information as the sole means of vertical guidance must not be made below the relevant safety altitude until the aeroplane is established on the ILS localiser and is within 10 nm of touchdown.

The position of the aeroplane must be positively established prior to commencing descent and re-confirmed prior to descending below the relevant safety altitude.

Except in an emergency, or when there has been a significant change in reported weather conditions, no more than two successive approaches to an aerodrome may be carried out where both approaches have resulted in go-around.

8.4.1.2.5 Approach and Landing Briefing

This must be given by the handling pilot or aeroplane Commander before the aeroplane commences its initial descent for approach and should cover at least the following items:

- Weather at destination and alternate;
- Establish MSA, SSA and transition Level;
- Radio frequencies (include radio failure procedures);
- Airfield elevation;
- Setting of approach aids;
- Approach pattern profile;
- DHT, RVR and the use of Radio Altimeter;
- Go-around procedures
- The use of anti-icing;
- Setting of altimeters;
- Runway state, lighting, distance;
- Crew drills;
- MSA, SSA and safety altitudes;
- Let down procedure to be used in accordance with published charts;

- Navigation and Landing aids to be used;
- Minima;
- Missed approach procedure;
- Calculate Landing Performance Data;
- Use of Spoilers;
- Use of Anti-icing and ignition;
- Adverse runway conditions;
- Procedures in the event of a balked landing;
- Initial descent point navigational fix;
- Any aerodrome special briefing;
- Safety altitudes, MOCA, MORA and Sector safety Altitude (SSA) and Minimum Safe Altitude (MSA) from approach plate;
- The STAR or arrival route including transition level, holding facility, minimum holding altitude and speed restrictions;
- The Instrument Approach Plate (Chart) covering procedures, radio aids, and approach minima;
- The aerodrome chart covering touchdown elevation, QNH/QFE millibar/ hectopascal difference if relevant, expected visual cues on contact, runway conditions and expected runway exit;
- Aeroplane operation covering flap setting, anti-icing, approach speed and wind additives, continuous ignition, wipers, landing lights, reverse thrust and wheel brake settings;
- Planned alternate aerodrome and fuel requirement;
- Any additional items;
- Questions.

All pre-landing checks should be completed before the aeroplane descends below 1000 ft above the runway threshold excepting only type specific and/or late phase items such as landing lights, windscreen wipers etc. This is in order that the final stages of the approach can be adequately monitored.

During all descents and approaches the aeroplanes descent path must be carefully monitored. Both pilots should note when the aeroplane descends below the minimum safety altitude and also when indications first appear on the radio altimeter, if fitted. This is of particular relevance when conducting non-precision approaches where altitude/height versus range/fix checks are to be strictly observed.

Aerodromes without published Instrument Approach Procedures and/or Navaids. For operations to aerodromes where there are either no navigational aids or published procedures, specific instructions are detailed in part C.

8.4.2 Low Visibility Operations (CAT II / CAT III) (SPA.LVO.100)

8.4.2.1 Definitions

a) A Category II operation is a precision instrument approach and landing using ILS or MLS with:

(i) A decision height (DH) below 200 ft but not lower than 100 ft, and
(ii) A minimum RVR of 300m.

b) Category III operations are sub-divided as follows:

(i) A Category IIIA operation is a precision instrument approach and landing using ILS or MLS with:

A. A decision height lower than 100 ft; and
B. A runway visual range not less than 200m.

(ii) A Category IIIB operation is a precision approach and landing using ILS or MLS with:

A. A decision height lower than 50ft, or no decision height; and
B. A runway visual range lower than 200m but not less than 75m.

c) Low Visibility Take-off. A take-off when the reported RVR is less than 400m. For the take-off to be conducted the requirements below must be satisfied:

(i) When the reported RVR is less than 400m but not less than 150m then the commander must satisfy himself that:

A. The runway lighting and markings comply with para 8.1.3.3.(b) Table 2 and Notes; and

B. Appropriate Low Visibility Procedures (LVPs) are in force.

(ii) When the reported RVR is less than 150m (200m Cat D aeroplanes) additional runway features, crew training, lateral guidance in the aeroplane for the lower RVRs and Authority approval are required.

d) Low Visibility Procedures (LVPs). These are ground procedures at the aerodrome designed to prevent the entry of ground vehicles and taxying aircraft into areas protected for take-off and landing. In addition they protect the sensitive areas of the aerodromes ILS or MLS transmissions and regulate the flow of air traffic on the approach. ATC at the aerodrome will ensure these procedures have been implemented by the time:

(i) The cloud ceiling is 200 ft or less; or

(ii) The RVR has dropped to 600m or less.

e) Cloud Ceiling (Ceiling). The height of the base of cloud at the aerodrome which is sufficient to obscure more than half of the sky visible.

Table 1: Failed or downgraded equipment – Affect on landing minima Operations without a low visibility operations (LVO) approval *(AMC11 CAT.OP.MPA.110)*

<table>
<tr><th rowspan="2">Failed or downgraded equipment</th><th colspan="2">Effect on landing minima</th></tr>
<tr><th>CAT I</th><th>APV, NPA</th></tr>
<tr><td>ILS/MLS stand-by transmitter</td><td colspan="2">No effect</td></tr>
<tr><td rowspan="3">Outer Marker</td><td rowspan="3">Not allowed except if replaced by height check at 1 000 ft</td><td>APV – not applicable</td></tr>
<tr><td>NPA with FAF: no effect unless used as FAF</td></tr>
<tr><td>If the FAF cannot be identified (e.g. no method available for timing of descent), non-precision operations cannot be conducted</td></tr>
<tr><td>Middle marker</td><td>No effect</td><td>No effect unless used as MAPt</td></tr>
<tr><td>RVR Assessment Systems</td><td colspan="2">No effect</td></tr>
<tr><td>Approach lights</td><td colspan="2">Minima as for NALS</td></tr>
<tr><td>Approach lights except the last 210 m</td><td colspan="2">Minima as for BALS</td></tr>
<tr><td>Approach lights except the last 420 m</td><td colspan="2">Minima as for IALS</td></tr>
<tr><td>Standby power for approach lights</td><td colspan="2">No effect</td></tr>
<tr><td>Edge lights, threshold lights and runway end lights</td><td colspan="2">Day: no effect;
Night: not allowed</td></tr>
<tr><td>Centreline lights</td><td>No effect if F/D, HUDLS or auto-land

otherwise RVR 750 m</td><td>No effect</td></tr>
<tr><td>Centreline lights spacing increased to 30 m</td><td colspan="2">No effect</td></tr>
<tr><td>Touchdown zone lights</td><td>No effect if F/D, HUDLS or auto-land; otherwise RVR 750 m</td><td>No effect</td></tr>
<tr><td>Taxiway lighting system</td><td colspan="2">No effect</td></tr>
</table>

Table 2: Failed or downgraded equipment – effect on landing minima Operations with an LVO approval *(AMC7 SPA.LVO.100)*

<table>
<tr><th rowspan="2">Failed or downgraded equipment</th><th colspan="4">Effect on landing minima</th></tr>
<tr><th>CAT IIIB (no DH)</th><th>CAT IIIB</th><th>CAT IIIA</th><th>CAT II</th></tr>
<tr><td rowspan="2">Edge lights, threshold lights and runway end lights</td><td rowspan="2" colspan="2">No effect</td><td>Day: no effect</td><td>Day: no effect</td></tr>
<tr><td>Night: RVR 550 m</td><td>Night: not allowed</td></tr>
<tr><td rowspan="2">Centre line lights</td><td>Day: RVR 200 m</td><td rowspan="2">Not allowed</td><td>Day: RVR 300 m</td><td>Day: RVR 350 m</td></tr>
<tr><td>Night: not allowed</td><td>Night: RVR 400 m</td><td>Night: RVR 550 m (400 m with HUDLS or auto-land)</td></tr>
<tr><td>Centre line lights spacing increased to 30 m</td><td colspan="2">RVR 150 m</td><td colspan="2">No effect</td></tr>
<tr><td rowspan="2">Touchdown zone lights</td><td rowspan="2">No effect</td><td>Day: RVR 200 m</td><td colspan="2">Day: RVR 300 m</td></tr>
<tr><td>Night: RVR 300 m</td><td colspan="2">Night: RVR 550 m, 350 m with HUDLS or auto-land</td></tr>
<tr><td>Taxiway light system</td><td colspan="4">No effect</td></tr>
</table>

Failed or downgraded equipment	Effect on landing minima			
	CAT IIIB (no DH)	CAT IIIB	CAT IIIA	CAT II
ILS/MLS stand-by transmitter	Not allowed	RVR 200 m	No effect	
Outer marker	No effect if replaced by height check at 1 000 ft			
Middle marker	No effect			
RVR assessment systems	At least one RVR value to be available on the aerodrome	On runways equipped with two or more RVR assessment units, one may be inoperative		
Approach lights	No effect	Not allowed for operations with DH >50 ft		Not allowed
Approach lights except the last 210 m	No effect			Not allowed
Approach lights except the last 420 m	No effect			
Standby power for approach lights	No effect			

8.5 ETOPS REFER TO SPA.ETOPS.100 ETOPS

8.5.1 Specific Approval

Gama Aviation does not have Specific approval to operate ETOPS.

An approval is required if a two-engined aircraft is operated over a route which contains a point further from an adequate aerodrome, under standard conditions in still air.

Gama Aviation operate a number of aircraft. The majority of the aircraft are turbo jets and are classified as Performance A, also the Company operates twin propeller driven aircraft and these are classified as Performance B.

The Turbo Jets and the propeller aircraft currently being operated commercially have a maximum approved passenger seating configuration of less than 19 seats~~. and are under a take-off mass less than 45,360 kgs.~~

This allows these aircraft to be operated at a distance of 120 minutes at the one-engine-inoperative cruise speed *(refer to the AFM.)*

For the propeller aircraft *(Performance B)* the distance of 120 minutes at the one-engine-inoperative cruise speed or 300 nm whichever is the less.

The following conditions must be used during the planning process:

- ISA;
- Turbojet aircraft at FL 170;
- Propeller aircraft at FL 80; or
- one-engine-inop gross rate of climb levels that can be achieved and maintained which ever is the less.

The following table is the Company Aircraft and the nominated TAS attained for planning purposes at the one-engine-inoperative cruise speed:

Aircraft Type	One-Engine-Inoperative Speed
Hawker 850XP	280 TAS
Challenger 604	300 TAS
King Air B200 *(prop)*	189 TAS
BD700	340 TAS
Cessna 560	300 TAS
Cessna 510	280 TAS

Note: If the AFM does not supply a figure then the speed used will be the speed attained when the power is set at MCT with the other engine inop.

The Aircraft mass must not be less than that resulting from following:

- Take-off at sea level at maximum take-off mass; and
- All engines climb to the optimum long range cruise altitude; and
- All engines cruse at the long range cruise at this altitude, until the time elapsed since take-off is equal to the 120 minutes.

8.6 Use of Minimum Equipment and Configuration Deviation Lists

8.6.1 Unserviceability

Occasions arise when certain items of installed aeroplane equipment may be unserviceable without adversely effecting the aeroplane's fitness for a particular flight, or the required level of safety. The Company holds a permission from the Competent Authority which allows its aeroplane to operate with such items unserviceable, subject to the requirements of its Minimum Equipment List (MEL).

The MEL is based on, but may not be less restrictive than the Master MEL which has been produced for the type by the aeroplane manufacturer, and approved by the Authority.

8.6.2 Minimum Equipment List (MEL)

As its name implies, the MEL lists all the equipment, systems and installations which must be serviceable before a particular flight is undertaken. Items which may be unserviceable are indicated, together with any additional limitations which may apply to flights with such items inoperative.

The MEL provides the commander with the authority to operate the aeroplane with specified items of equipment unserviceable, but it must be emphasised that, irrespective of the provisions of the MEL, he is not obliged to operate with a particular defect or defects if in his opinion these unserviceability's could adversely affect the safety of a proposed flight. Further, the MEL must take into account the area of operation including whether the aeroplane is being despatched from base or an outstation.

8.6.3 Configuration Deviation List (CDL)

Similarly to the MEL the Configuration Deviation List (CDL) lists the aeroplane panels and doors that may be missing for a particular operation and pictorially indicates areas of damage to the aeroplane skin/structure that is considered acceptable for flight.

8.6.4 Specific MEL

MEL's for company aeroplanes are contained in Part B, Section 9 for the specific aeroplane type together with an example of the CDL. The main CDL is to be contained with the aeroplane technical log.

8.7 Non-commercial Operations (Complex Aircraft)

Some flights are operated for which an Air Operators Certificate is not required. These flights are to be considered as non-commercial flights. All non-commercial operations will be designated 'G' on filed flight plans. Non-commercial operations will be required to comply with all normal flight procedures as described in this Operations Manual with certain permitted exemptions as listed in the Part NCC manual.

8.7.1 When carrying company personnel only.

When being carried in a non-revenue environment, flights of this nature will be operated in accordance with the full requirements of the company operations manual.

8.7.2 Training flights.

These flights will only be carried out with a current and authorised instructor/examiner and in accordance with the requirements of the company's training manual and instructions. See also 8.7.8

8.7.3 AMC1 SPO.SPEC.MCF.100 Maintenance check flights

When required and only when authorised by the company these flights will be carried out by suitably experienced and approved crew. In some cases, specific authorisation will be required from the appropriate aviation authority. The flight will be conducted in accordance with any flight test schedule, issued by the authority or the company.

The company operates a policy of only allowing necessary technical personnel to be carried on such a flight, for the purpose of completing the test or required observation only. See also 8.7.8

Level A & B Maintenance Check Flights (MCF) may be carried out in accordance with the Maintenance Check Flight Manual. The process for determining the requirement for a Maintenance Check Flight is determined by the Maintenance Schedule and notified to the DFO by the CAM on Form FRM-MG-207 Refer to the CAME for detailed procedures.

SPO.SPEC.MCF.105 Flight Programme
The Flight Programme Flight programme and procedures & Flight Profile constraints are referenced in OMD Section 3.1.1.

SPO.SPEC.MCF.110 Maintenance Check Flight Manual
The operational procedures for the conduct of Maintenance Check Flights are contained within the Maintenance Check Flight Manual.

SPO.SPEC.MCF.115 Flight Crew Requirements
Flight crew conducting Maintenance Check Flights must have completed the necessary training required which may include simulator training and observation of a MCF, as well as the required minimum number of hours on type as pilot in command. Refer to OMD Appendix for Crew Training course syllabus.
A pilot in command of a MCF must have carried out a Level A MCF within the preceding 36 months and recency is regained once performing an MCF as an observer or pilot monitoring or acting as pilot in command of an MCF in a simulator.

SPO.SPEC.MCF.125 Crew Composition
The composition of crew may consist of additional tasks specialists the requirements for which are determined by the specific task requirements and subject to approval.

Prior to conducting a Maintenance Check Flight (MCF), a risk assessment will be undertaken in accordance with the process outlined in the Safety Management Manual (SMM). Where a MCF is intended to check the proper functioning of a suspect system/equipment or where that system/equipment is identified as potentially unreliable, appropriate mitigation measures are to be agreed prior to the flight in order to minimise risks to flight safety.

8.7.4 Delivery flights.

These flights will where possible be operated in accordance with the operations manual, however it is realised that some variation may be needed from time to time, depending on the circumstances. Specific considerations will be applied to each case. The company policy is to always take into account the safety case during its considerations. See also 8.7.8

8.7.5 Ferry flights

Only appropriate and authorised crew with previous ferry experience for the route to be flown will normally be allocated to such tasks. Each requirement will be reviewed based on the specific requirements of the ferry route to be undertaken.
See also 8.7.8

8.7.6 Demonstration flights

The purpose and reasons behind the requirement to conduct a demonstration flight varies considerably. The general intent is to operate these flights in accordance with the operations manual. The status of this type of flight should be carefully considered. The flight brief should highlight where variations are likely to occur. The crew must be fully aware of the flight status. See also 8.7.8

8.7.7 Positioning flights

When company or non-company personnel on board the flight will be conducted in accordance with the full requirements of the company operations manual, as detailed in para 8.7.1 above.

8.7.8 Exemptions for Part NCC operations.

Refer to Part NCC Manual Section 2.5

8.7.9 Land After Hold Short Operations (LAHSO).

Gama Aviation (UK) Ltd does not approve LAHSO operations.

8.8 Oxygen Requirements

8.8.1 Supplemental oxygen Non-pressurised Aeroplanes (CAT.IDE.A.235)

Non-pressurised aeroplanes shall not be operated at altitudes exceeding 10,000 feet unless supplemental oxygen is provided to meet the following requirements:

(a) supply for all members of the flight crew for the entire flight time above a pressure altitude of 10,000 feet;

(b) supply for all required cabin Crew Members for the entire flight time at pressure altitudes above 13,000 feet and for any period exceeding 30 minutes at pressure altitudes above 10, 000 feet but not exceeding 13,000 feet;

(c) supply for all passengers for the entire flight time above a pressure altitude of 13,000 feet;

(d) supply for 10% of the passengers for the entire flight time after 30 minutes above a pressure altitude of 10,000 feet but not exceeding 13,000 feet;

(e) when a cabin Crew Member is required to be carried, a dedicated supply of therapeutic oxygen for 2% of the passengers or one person, whichever is the greater.

Supplemental Oxygen for Non-Pressurised Aeroplanes

(A)	(B)
SUPPLY FOR	DURATION AND PRESSURE ALTITUDE
1. All Occupants of the Flight Deck	Entire flight time at Pressure Altitudes above 10,000 ft
2. All required cabin Crew Members	Entire flight time at pressure altitude above 13,000ft And Any period exceeding 30 minutes at pressure altitudes above 10,000ft but not exceeding 13,000 ft.
3. 100% of the passengers (see note)	Entire flight time at pressure altitude above 13,000ft
4. 10% of passengers (see note)	Entire flight time after 30 minutes at pressure altitude of greater than 10,000ft but not exceeding 13,000ft.

Note: 1. For the purpose of this table 'passengers' mean actual passengers carried and includes infants under the age of 2 years.

Note 2. Gama currently does not operate with Cabin Crew.

8.8.2 Supplemental Oxygen - Pressurised Aeroplanes (CAT.IDE.A.235)

Oxygen requirements for aeroplanes which are intended to operate at altitudes above 10,000 feet, and which are designed to maintain cabin pressure altitudes below 10,000 feet are as outlined in the following sub-paragraphs.

8.8.2.1 Flight Crew (AMC2 CAT.IDE.A.235)

Each member of the flight crew on flight deck duty shall have:

(a) an oxygen mask located within his immediate reach while at his duty station, (this may be the same mask as required under (a) above, excluding the portable apparatus); if the aeroplane is operating above 25,000 feet, the mask shall be of the quick donning type;

(b) in the event of cabin pressure failure, sufficient oxygen for the entire flight time when the cabin pressure altitude exceeds 13,000 feet and the entire flight time when the cabin pressure altitude exceeds 10,000 feet but does not exceed 13,000 feet after the first 30 minutes at those altitudes. This is subject to a minimum supply of oxygen of 30 minutes for aeroplanes certificated to fly at altitudes not exceeding 25,000 feet, and 2 hours for aeroplanes certificated to fly at altitudes greater than 25,000 feet;

(c) the commander shall ensure that flight Crew Members engaged in performing duties essential to the safe operation of an aeroplane in flight use supplemental oxygen continuously after 30 minutes when cabin pressure altitude exceeds 10,000 feet and at all times when the cabin pressure altitude exceeds 13,000 feet;

(d) The Operator (Gama Aviation) shall ensure that when a flight is conducted above FL 410, at least one pilot at the pilot station wears an oxygen mask at all times.

(e) On all CAT flights when a flight crew member vacates their seat at any flight level above FL350 the remaining crew member must wear an oxygen mask for the duration of the absence.

Cabin Crew

When cabin Crew Members are required to be carried, the following supplies are to be available:

(a) when operating above 25,000 feet, sufficient spare outlets and masks, and/or portable oxygen units with masks for use by all required cabin members, so distributed through the cabin as to ensure immediate availability of oxygen to each one irrespective of his/her location at the time of failure;

(b) sufficient oxygen for the entire flight time when the cabin pressure altitude exceeds 13,000 feet, but not less than 30 minutes, and the entire flight time when the cabin pressure altitude is greater than 10,000 feet but does not exceed 13,000 feet after the first 30 minutes between these altitudes.

8.8.2.3 Passengers

The following supplies are to be available to all passengers:

(a) when operating above 25,000 feet, a dispensing unit attached to an oxygen supply for each passenger, wherever seated, with 10% more dispensing units and outlets than the number of seats, distributed evenly through the cabin.

(b) supply for all passengers carried for the entire flight time when the cabin pressure altitude exceeds 15,000 feet, or for 10 minutes, whichever is the greater;

(c) supply for 30% of the passengers for the entire flight time when the cabin altitude exceeds 14,000 feet but does not exceed 15,000 feet;

(d) supply for 10% of the passengers for the entire flight time when the cabin altitude exceeds 10 000 feet, but does not exceed 14,000 feet after the first 30 minutes at these altitudes;

(e) for aeroplanes not certificated to fly above 25,000 ft the oxygen supply requirements in (b)(c) and (d) above apply and may be reduced to the entire flight time between 10,000 and 13,000 ft cabin pressure altitudes for all required cabin Crew Members and for at least 10% of the passengers if, at all points along the route to be flown, the aeroplane is able to descend safely within 4 minutes to a cabin pressure altitude of 13,000 ft;

(f) if the aeroplane is certificated to fly at altitudes exceeding 25,000ft, and a cabin Crew Member is required to be carried, a supply of undiluted first aid oxygen for passengers who, for physiological reasons, might require oxygen following a cabin depressurisation; the supply should be sufficient for 2% of the passengers, but not less than that for one person, for the entire flight time at cabin pressure altitudes exceeding 8,000 ft after depressurisation.

Oxygen - Minimum Requirements for Supplemental Oxygen for Pressurised Aeroplanes (Note l)

Table 1

(A)	(B)
SUPPLY FOR	DURATION AND CABIN PRESSURE
1. All occupants of the flight deck seats on flight deck duty	Entire flight time when the cabin pressure altitude exceeds 13000 ft and entire flight time when the cabin pressure altitude exceeds 10000 ft but does not exceed 13000 ft after the first 30 minutes at those altitudes, but in no case less than: (i) 30 minutes for aeroplanes certificated to fly at altitudes not exceeding 25000 ft (Note 2) (ii) 2 hours for aeroplanes certified to fly at altitudes more than 25000 ft (Note 3)
2. All required cabin Crew Members	Entire flight lime when cabin pressure altitude exceeds 13000 ft but not less than 30 minutes (Note 2), and entire flight time when cabin pressure altitude is greater than 10000 ft but does not exceed 13000 ft after the first 30 minutes at these altitudes
3. 100% of passengers (Note 5)	Entire flight time when the cabin pressure attitude exceeds 15000 ft but in no case less than 10 minutes.(Note 4)l
4. 30% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 14000 ft but does not exceed 15000 ft.
5. 10% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 10000 ft but does not exceed 14000 ft after the first 30 minutes at these altitudes

Note 1: The supply provided must take account of the cabin pressure altitude and descent profile for the routes concerned.

Note 2: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplanes maximum certificated operating altitude to 10000 ft in 10 minutes and followed by 20 minutes at 10000 ft.

Note 3: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplanes maximum certificated operating altitude to 10000 ft in 10 minutes and followed by 110 minutes at 10000 ft. The oxygen required in CAT.IDE.A.245(a) may be included in determining the supply required.

Note 4: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the aeroplanes (maximum certificated operating altitude to 15000 ft in 10 minutes).

Note 5: For the purpose of this table 'passengers' means passengers actually carried and includes infants

Note 6: Note. Gama currently does not operate with Cabin Crew.

8.8.3 Crew Protective Breathing Equipment – Pressurised Aeroplanes CAT.IDE.A.245

8.8.3.1 Protective Breathing Equipment requirements for pressurised aeroplanes are as follows:

(a) Flight Crew
Each member of flight crew on flight deck duty shall have equipment to protect his eyes, nose and mouth and to provide oxygen for a period of not less than 15 minutes; if the flight crew is more than one and a cabin Crew Member is not carried, a portable protective breathing apparatus to protect the eyes, nose and mouth of one member of the flight crew, and to provide oxygen for not less than 15 minutes must also be available on the flight deck and be easily accessible for immediate use by each member of the flight crew in his duty station.

b) Cabin Crew
When cabin Crew Members are required to be carried, the following Protective Breathing Equipment shall be available:

(i) portable protective breathing equipment to protect the eyes, nose and mouth of each required cabin Crew Member, and to provide oxygen for not less than 15 minutes, installed adjacent to each required cabin Crew Member duty station;

(ii) Where a hand fire extinguisher is required to be installed in the cabin, an additional portable protective breathing apparatus is to be carried, and located at/or adjacent to the fire extinguisher except that, where the fire extinguisher is located inside a cargo compartment, the Protective Breathing Equipment must be stowed outside, but adjacent to, the entrance to that compartment.

8.8.4 Crew Protective Breathing Equipment, Non-pressurised Aeroplanes – Future Requirement

8.9 Specific Aircraft Operational Procedures

8.9.1 Noise Abatement Procedures aeroplanes - CAT.OP.MPA.130

8.9.1.1 Objectives

No special noise abatement procedures are required for the Company aircraft. Noise abatement procedures will follow PANS-OPS ICAO standards and industry recommendations. At certain airports special procedures may be required and will be identified locally i.e. airport Notams, AirPilot etc. or defined in Jeppesen Route Manuals.

Procedures must not only meet the requirements for known parameters of aircraft performance, they must also provide adequate safety margins. The same procedures should be applicable to all airports and their runways thereby creating standardization.

Gama Aviation will encourage simple techniques in order for crewmembers to want to participate in keeping noise to a minimum.

8.9.1.2 Approach Aids

Approach aids of various types can aid noise abatement procedures at an airport.

8.9.1.3 Aircraft Operating at Airports

At many airports where there is mix of high and low performance aircraft on the same runway this may contribute to higher noise levels, i.e. excessive go-arounds, excessive flights over sensitive areas with high drag and high power settings *(flaps and gear extended),* derogation of the pilots ability not complying with noise abatement, and finally excessive holding before take-off.

8.9.1.4 ATC Management

ATC management should conduct regular procedure reviews and implement new noise initiatives and awareness programmes, i.e. using the phrase ‘use noise abatement procedures’ etc.

8.9.1.5 Manufacturers

Manufacturers have development programmes and a determination to reduce noise levels. Power settings recommended should be meeting safety criteria.

The following conditions are applicable and are on every manufacturers design table:

- Whilst approaching to land there must be sufficient engine RPM to permit rapid acceleration of the operative engine in the event of engine failure;
- There must be sufficient engine RPM to permit rapid acceleration in the event of a go-around;
- Sufficient engine RPM in the event of icing conditions and component equipment.

8.9.1.6 Take-off

Sufficient engine thrust to achieve 1,000 FPM.

8.9.1.7 Departure Procedures for Distant Noise Abatement Objectives

The procedures are as follows:

- Climb at maximum practical rate at V2 + 20 KIAS indicated airspeed to 1,500 ft above airfield level (AAL) with take-off flap setting;
- At 1,500 feet AAL, accelerate to final segment speed *(VFS or equivalent)* and retract flaps. Reduce to a quiet climb power setting *(i.e. MCT or equivalent)* whilst maintaining at least 1,000 fpm maximum climb rate and airspeed not to exceed 190 kts until reaching 3,000 ft AAL. Above 3,000 ft re-instate climb power gradually and resume normal climb schedule;
- Observe all airspeed limitations and ATC instructions.

Note: Aircraft performance will differ with type and take-off conditions; therefore pilots are to comply with the AFM if procedures require specific techniques.

8.9.1.8 Departure Procedures for Close in Noise Abatement Objectives

The procedures are as follows:

- Climb at maximum practical rate at V2 + 20 KIAS indicated airspeed to 500 ft above airfield level (AAL) with take-off flap setting;
- At 800 feet AAL, reduce to a quiet climb power setting *(i.e. MCT or equivalent)* whilst maintaining at least 1,000 fpm maximum climb rate and V2 + 20 KIAS until reaching 1,500 ft AAL. At 1,500 feet AAL, accelerate to final segment speed *(VFS or equivalent)* and retract flaps. Maintain at least 1,000 fpm maximum climb rate and airspeed not to exceed 190 kts until reaching 3,000 ft AAL.
- Above 3,000 ft re-instate climb power gradually and resume normal climb schedule;
- Observe all airspeed limitations and ATC instructions.

Note: Aircraft performance will differ with type and take-off conditions; The Commander must determine whether take-off thrust should be reduced prior to, during, or after flap retraction. Pilots are to comply with the AFM if procedures require specific techniques.

8.9.1.9 Approach and Landing Noise Abatement Procedures

The procedures are as follows:

- Inbound flight path should not require more than 20° bank angle to follow noise abatement track;
- Observe all airspeed limitations and ATC instructions;
- Initial inbound altitude for noise abatement areas will be a descending path from 2,500 ft AAL or higher. Maintain minimum airspeed *(1.3 Vs + 20 KIAS)* with gear retracted and minimum approach flap setting;

- At the final approach fix (FAF) or not more than 4 miles from runway threshold, extend the landing gear. Final landing flap configuration should be delayed at pilot's discretion to enhance noise abatement.
- During landing, use minimum reverse thrust.

Crewmembers should be aware that unnecessary use of reverse thrust when landing can also be a source of noise. Therefore, except when eliminating residual thrust *(i.e. Company Beechcraft King Air 200s),* the use of minimum re-verse thrust necessary for safety is recommended, consistent with safety for runway conditions and available length.

8.9.1.10 Training

Gama Aviation will include Noise Abatement training during 'Recurrent and LPC/OPC training'.

8.9.1.11 Company SOPs

Refer to aircraft specific Part Bs with regard to normal operating SOPs.

8.9.1.12 Use of APU on the ground *(noise restrictions)*

It is a Company requirement to restrict the use of the APU at airports to a maximum period of 30 minutes.

Commanders are to check locally for any further noise restrictions at airports.

8.9.2 Approach Flight Technique *(CAT.OP.MPA.115)*

8.9.2.1 Introduction

Using established approach criteria on a continuous descent with a constant, predetermined vertical path is seen to have a direct improvement to safety and the avoidance of controlled flight into terrain (CFIT).

The avoidance of power and attitude changes close to the ground can prevent de-stabilizing approaches.

The advantages are as follows:

- The technique utilizes SOPs;
- Reduces the infringement of obstacle-clearance segments;
- The technique is similar to precision approaches;
- Aircraft attitude obtained better visual clues;
- Reduce pilot workload;
- Profile is fuel efficient;
- Profile reduces noise;
- Procedural integration;
- Stabilized approach.

An approach must be flown along a predetermined vertical slope which follows a designated or nominal vertical profile without level off on any segment from the final approach fix altitude/height to a point 50 ft above the landing threshold or where the flare must be carried out for the type of aircraft flown.

Note:

Designated Vertical Profiles is a continuous vertical approach profile which forms part of the approach design.

Nominal Vertical Profile is a vertical profile which can be flown as a constant descent and the pilot can use chart published range/distance Vs height criteria to achieve this.

The following applies:

1. NDB/NDB DME;
2. VOR/VOR DME;
3. LLZ/LLZ DME;
4. VDF/SRA;
5. RNAV/LNAV.

The limits to conduct this type of approach will be between 8nm and 3nm, anything less than 3nm will require approval by the authority.

The optimum angle is 3° with a maximum of 3.77° (400 ft/nm) for constant descent and a maximum 4.5° for Category A and B aircraft.

The approach is to be flown using navigation equipment and navigational aids to achieve a vertical path and track *(i.e. using Flight Management Systems (FMS))* and crew procedures for monitoring altitude/height cross checks and Required Navigational Performance values (RNP).

8.9.2.2 Circling Approach

Circling approach *(visual manoeuvring)* criteria with respect to the stability of the descent path to the runway should apply.

This will be flown to a specified minimum circling altitude then commence a circling approach to another runway at least 90° off the centre line from the final approach. This must be a recognized procedure.

Visual reference is required to the landing threshold. Obstacle clearance must be maintained and the aircraft should remain in a position to carry out a landing. The aircraft must remain within the circling area.

Approaching the Final Approach Path the aircraft should be configured for landing. A stable approach must be achieved.

A circling approach is a visual flight manoeuvre. A number of factors may have an effect on this manoeuvre *(layout, Met Conditions etc).* Discuss aircraft configuration for this manoeuvre regarding Gear, Flaps etc. It should be flown at the minimum manoeuvring speed for the specified flap setting with the landing gear down.

If a crew is unable to maintain the visual requirements, the missed approach specified for that particular procedure must be followed. An initial climbing turn toward the landing runway and overhead were he/she must establish the aircraft climbing on the missed approach track.

A good brief is required covering the possible effects of manoeuvring if visual reference is lost.

8.9.2.3 Stabilized approach

A stabilized approach is when:

1. tracking on a required approach path and Profile, and
2. configured and attitude maintained, and
3. the required descent rate and speed is obtained, and
4. appropriate thrust/power and trim are set.

Company stabilised approach criteria are as follows;

- At 1000ft above aerodrome level the aircraft MUST be fully configured for landing.
- At 500ft above aerodrome level the aircraft MUST be in a stabilised flight configuration.

The following criteria constitute a stabilised approach:

- Landing Gear Down;
- Landing Flap Set;
- Final Approach Speed to include any gust factor increase.
- Vertical Speed < 1000ft/min (1)
- Bank Angle < 10º (2);
- On Approach Profile (3);
- Thrust Applied (4).

1. With a strong tail wind and/or a steeper than normal (3º) approach path, it may be that a stabilized ROD in excess of 1000ft/min is required. Clearly in this exceptional case the approach should be continued as long as the ROD is necessary and appropriate.

2. When having completed a manoeuvre to land from a circling approach, 300ft will be the lowest height above the runway with wings level, other than any adjustment which might be required to maintain the runway centre line.

3. Approach Profile – ILS within ½ dot LOC and 1 dot G/S. Non-precision/ Circling/ Visual and on nominated approach path.

4. A stable thrust setting which is appropriate to the reminder of the approach.

Note: If the above criteria are not met at the prescribed altitudes a mandatory missed approach must be undertaken and an ASR filed.

The monitoring pilot must be aware of the following:

- Radio Altitude;
- EGPWS/Terrain Awareness;
- Limits of rate of descent/Glideslope;
- Limits to the number of approaches;
- Vertical profile;
- Obstacle criteria/performance;
- Bank angle;
- Power management;
- Configuration;
- Completing check lists before final descent.

Circling approaches require careful consideration as some aircraft types require final landing flap selection once established on final and with a circling minima of less than 1000ft above aerodrome level the requirement to be fully configured at 1000ft is clearly not applicable. The requirement to be fully configured and stable by 500ft above aerodrome level is still applicable. This situation should be covered in the arrival brief and agreed and understood by all operating crew members prior to the commencement of the approach.

8.9.2.4 Missed Approach Point

Missed approach point (MAPt) must be adhered to as depicted on the charts.

8.9.2.5 Training

The Company will require the demonstration of a constant descent final approach (CDFA) during recurrent training and will be included in the training syllabus – techniques specific to type will be practiced and Crew Resource Management (CRM) between crews will be observed.

The Company continues to use Jeppesen as the provider for approach path design and minima criteria.

8.9.2.6 Landing in the Touchdown Zone

All aircraft must touchdown within the TDZ marking area. If a touchdown has not been achieved by the end the TDZ markings, a missed approach must be flown.

8.9.3 Aircraft Pre-Flight and Post Flight Procedures

The following procedures are to be followed on all the Company aircraft. Some of the Company aircraft identify the checks in the Flight Manual and on others, the checks are in Ground Handling Manuals.

Commanders are to check their aircraft appropriate procedures.

The Commander is to complete a walk around the aircraft and satisfy that he has completed the Pre-flight in accordance with the relevant manual.

The Commander must be Company approved to complete this check. His/Her continued authorisation will be deemed issued when successfully renewing their Annual Line Check. The Line Training Captains shall be trained in the conduct of pre-flight inspections by a B1 licensed engineer every 3 years. This training is to be recorded on form FRM-MG-960.

When completing a check all Commanders are to sign and date the appropriate section at the top left corner of the Tech Log marked Pre-flight Check. A Commander may delegate this check to another qualified individual *(i.e. engineer)* and if this happens then the engineer will sign this section. Any check must be completed again if the aircraft does not depart within three hours.

The signature required before each sector is certifying that the aircraft is serviceable for dispatch in accordance with the MEL, Transit Check, etc.

In some cases the engineers may conduct a Pre-flight check in order that an aircraft is continually available for service at short notice. They will sign the Tech Log in the 'Defects' section with 'Pre-Flight Check completed'. This signature does not alleviate the need for the Commander to conduct his own pre-flight check and sign the top Pre-flight box.

8.9.3.1 Post Flight Checks

Some of the Company aircraft *(i.e. Hawker)* require a specific Post Flight check to be carried out.

In order to comply with the maintenance and Company 'best practice' procedures the following will apply:

- After the final sector it is required that the Commander *(or authorised person i.e. engineer)* completes a Post flight check and signs and dates the Tech Log in the 'Defects' section with 'Post Flight Check completed'.

This is not in the 'Certificate to Release to Service' section as this is no longer required due to the differences of aircraft types and the removal from the Company Maintenance Programmes.

The Post flight Check is identified in some aircraft Flight Manuals or Ground Handling Documents.

For those aircraft that do not have specific Post flight procedures then the Commander must follow the following Company 'Best Practice' procedure:

8.9.3.2 Post Flight Checklist

<u>External Fuselage</u>
Inspect - External Fuselage for damage.

<u>Nose Landing Gear</u>
Inspect - For damage and signs of fluid leaks;
- Tyres for damage or wear.

<u>Equipment Bays</u>
Inspect - No sign of fluid leaks;
- No sign of hot gas leakages from ACS pipes and ducts;

- Hydraulic indicators *(if applicable);*
- Fire bottle indicators *(if applicable);*
- Power breakers *(if applicable);*
- APU drains *(if applicable).*

Main Landing Gear

Inspect
- For damage and signs of fluid leaks;
- Tyres for damage or wear;
- The extension of brake-wear indicators.

Wings

Inspect
- External structure, ailerons, spoilers/ airbrakes and flaps;
- No fuel leaks;
- No damage to top and bottom of flaps *(lowered flaps if in runway ice conditions);*
- Vortex generators etc. are secure and not missing;
- Fuel vents clear;
- Static discharge wicks in place.

Tail Unit

Inspect
- Horizontal and vertical stabilizers including elevators and rudder;
- Correct number of static discharger wicks.

Engines/APU

Inspect
- No signs of fluid or gas leaks;
- No signs of hydraulic leaks;
- No signs of oil leaks;
- No damage to fan blades and turbine blades;
- Oil/fuel filter by-pass indicators not activated *(if applicable)*;
- Oil tank contents replenish if necessary.

Flight Compartment

Inspect
- Aircraft lighting;
- Drain water systems if temperature is below 0ºC *(if applicable);*
- Toilet service.

Aircraft Closure

Install
- Aircraft Chocks/Locks/Pins and Covers.

8.10 Cabin procedures

8.10.1 Expanded SEP Section

This Section contains information relating to the Company Aircraft. Unless otherwise stated, the information in this section is common to all the operators' aircraft.

All aircraft are twin-engine, short-range business jet and propeller aircraft manufactured by a number or Company's i.e. Bombardier and Raytheon etc.

Under all normal circumstances, access to and from the aircraft is through an Airstair Entrance Door. Under emergency conditions, passengers can evacuate via the Airstair Entrance Door on the left hand side (top half only on the Lear aircraft) or via the Emergency Exit Window located on the right hand side (some larger aircraft may have more than one Emergency Exit Window.

8.10.2 Aircraft Dimensions

Refer to Ops Manual Part B or the Aircraft Flight Manual.

8.10.3 Cabin Configuration

8.10.3.1 Safety Equipment

An inventory of the safety equipment installed on the aircraft, and its location, is shown in the Operations Manual Part B's.

8.10.3.2 Flight Crew Seating

The Flight Deck seats can accommodate two crew members, the Commander and the Co-Pilot.

Fore and aft adjustment is provided by the release lever located under the seat. When the lever is lifted the seat can be moved. The seat can be raised or lowered to suit the individual by lifting the release lever located under the seat. If there is no weight on the seat, it will rise until it reaches its highest position. When weight is applied to the seat, and the lever is lifted, the seat will move downward until the lever is released or it reaches its lowest point of vertical travel.

A knob/lever in the seat back provides lumbar support adjustment.

The armrests pivot at the aft end and can be raised to facilitate entry to and egress from the seat; the angle/height is adjustable.

Each seat is fitted with an inertia reel safety harness that consists of an inertia reel, two shoulder straps and a seat belt buckle.

8.10.3.3 Passenger Seating and Seats

Passenger seating consists of a number of seats subject to type i.e. eight to nineteen seats for most of the Company aircraft (refer to AFM). Some seats face forward and some face rearward. Some of the Company aircraft have bench seats where passengers sit sideways (refer to the diagrams in the Operations Manual Part Bs - type specific).

Passenger seats are fitted with controls for position and recline, some have adjustable inboard armrests and a seat belt/shoulder harness.

Some aircraft depending on certification offer each passenger, a passenger seat equipped with a single strap shoulder harness, which is routed through the top of the seat back and terminates in a triangular metal fastener. The strap runs from the inboard shoulder to the outboard hip area and is secured by hooking the metal fastener around the securing stud on the male half of the seat belt buckle (refer type differences).

Inertia reels (if fitted), built into the passenger chair keeps the harness strap snug, but allowing considerable freedom of movement. In the event of sudden forward movement, the inertia locking device will secure the strap in place.

Note 1: The inboard armrests must be in the UP or selected in the DOWN position for take-off and landing.

Each seat is equipped with a life jacket stowed beneath the seat, in a specific compartment or under the seat cushion (refer aircraft specifics).

The seat cushion is attached to the seat by fasteners or velcro, and can be raised by pulling the front of the cushion firmly upwards.

Note 2: Where a passenger is not able to leave the seat and lift the cushion without assistance, the crew must remove the life jacket from its stowage before flight, and place within the passenger's easy reach.

8.10.3.4 Seat Belts

Each seat must have a serviceable seat belt and shoulder harness.

The seat belt can be lengthened by:

1. turning the male half of the buckle at a right angle to the belt;
2. pulling the male half in the direction away from the anchored end of the belt; and
3. locking into place by sliding the male half into the female half of the buckle.

The seat belt is tightened by pulling the short end of the belt through the male half of the buckle until a snug fit is achieved. The buckle is released by pulling/pushing release button on the female buckle half and pulling the male half of the buckle free.

8.10.4 Lavatory

The lavatory is normally installed in the rear of the aircraft, and may include a small baggage area. Some aircraft have a door to the rear in order to access the rear baggage hold.

The hinged lid must be raised to gain access to the toilet. A toilet tissue dispenser is contained in a compartment located in the area of the toilet cabinet. The toilet flush is electronically controlled by a switch/button clearly marked.

8.10.4.1 Internal Baggage Compartment

An internal baggage compartment area is sometimes located in the rear of the cabin, immediately opposite the lavatory or in the front opposite the entrance door. Nylon webbing is provided for the restraining of loose items.

8.10.4.2 Curtains and Partitions

Sliding doors or a curtain are provided between the cockpit and the cabin as well as the cabin and the toilet/ baggage area. The doors are closed by sliding the two partition type door panels to the centre of the fuselage, where they are held closed by magnetic strips (curtains are pulled across). These partitions must be stowed in the OPEN position for take-off and landing.

8.10.5 Crew Duties (Cabin)

8.10.5.1 Normal Responsibilities

Flight Crews are responsible for the following:

1. pre-flight equipment checks;
2. pre-flight security check;
3. ensuring passengers are correctly seated;
4. ensuring passenger hand baggage is correctly stowed in approved locations;
5. pre-flight safety briefing to passengers;
6. securing of cabin before take-off;
7. securing of cabin before landing;
8. post-flight security check; and
9. completion of any documentation required by immigration and customs authorities.

8.10.5.2 Other Responsibilities

Flight Crews are also responsible for the following:

1. making appropriate provision for PRMs, children and infants;
2. making appropriate arrangements when refuelling with passengers on board;
3. administration of First Aid to passengers when required; and
4. securing of the cabin during turbulence and at other times in-flight when required by the captain.

8.10.5.3 Responsibilities in Emergency Situations

Flight Crews are responsible, in emergency situations, for the following:

1. Emergency Evacuation (Ground) - Directing passengers to the Airstair Entrance Door, the primary exit, or, if this is not suitable, to the Emergency Exit Window - the secondary exit;
2. Ditching - Directing passengers to the Emergency Exit Window - the primary exit, ensuring that the Airstair Entrance Door remains closed, it is an unusable exit for ditching;
3. Decompression;
4. Fire and Smoke.

8.10.6 Emergency Equipment Locations (refer to Part B type specific)

1. Fire Extinguishers;
2. First Aid Kit;
3. Smoke Goggles;
4. Torches;
5. Life Jackets/Infant life jackets/life rafts and infant cots,
6. Portable Breathing Equipment
7. Fire gloves
8. Breakout axe
9. Oxygen masks.

8.10.7 Electrical Systems

8.10.7.1 Normal Lighting System

8.10.7.1.1 Flight Deck

White dome lights provide general cockpit flood lighting. Each pilot has a map light.

Electro-luminescent lighting illuminates the flight deck panels, and instrument lighting may be individually controlled.

8.10.7.1.2 Cabin

Cabin lighting consists of passenger reading lights, fluorescent lights, a threshold light (located forward of the Airstair Door), and a baggage compartment light.

Cabin Baggage/Lavatory Compartment Lighting, courtesy/reading lights are positioned in the roof of this area, operated by push-button switches in the same manner as the normal passenger reading lights.

8.10.7.2 Emergency Lighting System

The emergency lighting system is independently controlled of the main lighting system and is activated manually whenever the DC system is inoperative (refer to AFM).

The lighting supplied consists of:

1. the cabin fluorescent lights; and
2. cockpit instrument flood lighting;
3. A fixed exit sign identifies the emergency exits;
4. This exit sign is self-illuminating/fluorescent;
5. There is also a self-illuminating exit sign incorporated in the over-wing emergency exit;
6. Floor lighting (if fitted).

8.10.7.3 Circuit Breakers

Circuit breakers are used as a means of automatically disconnecting the electrical supply to electrical equipment when excess current is detected or manually when required.

In flight, if a circuit breaker associated with domestic equipment trips, it should not be reset. On the ground only, should a circuit breaker trip automatically, only one reset should be attempted. Should the circuit breaker trip a second time, no further resets should be made. All cases of circuit breakers tripping should be recorded in the Technical Log.

8.10.7.4 Torches

The aircraft is equipped with two large torches. The two torches are located in the flight deck on each side of the pilots' seats, for easy and immediate access. They are for immediate emergency use, and also available for other purposes such as writing up technical log entries or load sheets, walk around in the dark.

Whenever night flying is possible or anticipated, the torches should be checked.

8.10.8 Oxygen Systems

Oxygen is supplied by a gaseous system, which is stored in a bottle under pressure.
A push/pull handle (ARM PULL) or lever controls the shut off valve located at the oxygen supply bottle.

With the handle/lever in the shut position, the supply of oxygen is not available. With the handle/lever in the open position, oxygen is available to the primary line (provided the bottles are not empty), which services the crew oxygen outlet in the flight deck, the first aid oxygen outlet in the toilet (cabin in some aircraft) and the drop down oxygen in the cabin.

The CABIN DEPLOY PULL handle/Push button can be used to override the automatic deployment system and drop the masks manually.

8.10.8.1 Cabin Oxygen System

The passenger oxygen masks are stowed in compartments in the cabin ceiling upper panels down each side of the cabin.

Oxygen will not flow until the individual mask has been pulled down.

Masks will drop down automatically, when the cabin altitude exceeds approximately 14,500 feet (refer to type specific AFM), or when the system is operated manually by the Flight Crew.

A single oxygen mask is also located in the ceiling in toilet areas.

Note: Once the masks have dropped down they should only be re-stowed by an engineer.

8.10.8.1.1 Manual Opening of the Oxygen Mask Compartment

Oxygen mask compartments in the cabin ceiling upper-centre panel can be opened manually should they fail to open automatically.

8.10.9 Oxygen Mask Compartment Arrangement

8.10.9.1 Flight Crew Oxygen

A quick donning mask (stowed on the side coaming of each flight crew position, in the roof or the lower sides of the flight deck) is provided for the use of each flight crew member.

To don the mask:

1. Extract the mask from the stowage compartment by grasping the exposed part of the mask and pulling upwards: the compartment doors will open automatically;
2. Squeeze the two red “ears” on the sides of the mask: this will inflate the mask harness and enable quick and easy donning of the mask;
3. When the mask is in the correct position, release the red “ears”, and the mask harness will deflate and hold the mask in position.

The demand regulator has three modes of operation:

NORMal:

- automatically supplies and air-oxygen mixture appropriate for altitudes between 8,000 and 30,000 ft;
- At cabin altitudes between 30,000 and 35,000 ft the regulator delivers 100% oxygen only upon demand;
- At cabin altitudes above 35,000 ft the regulator delivers 100% oxygen at positive pressure.

100%:

- At cabin altitudes below 35,000 ft the regulator delivers 100% oxygen only upon demand;
- At cabin altitudes above 35,000 ft the regulator delivers 100% oxygen at positive pressure.

EMERgency:

Regardless of the cabin altitude the regulator delivers 100% oxygen at positive pressure.

In the **NORM**al position air from the cockpit is mixed with the oxygen supplied through the mask - this reduces the rate of depletion of the oxygen system and is more comfortable to use than the 100% mode. However, in the event of smoke or fumes in the cockpit, the 100% mode must be selected in order to prevent the pilot breathing in contaminated air. For this reason the selector should always be set and left in the 100% position when the masks are not being used.

8.10.10 Communication Systems

8.10.10.1 Public Address

The public address system operates between the flight deck and cabin only – there is no provision for PA calls to be made from the cabin.

Passenger Information Signs

Passenger signs are clearly visible throughout the cabin facing forward and rearward depending on seat configuration.

8.10.11 Exits

8.10.11.1 Location of Exits

Under normal circumstances, access to and from the aircraft is through the Airstair Entrance Door. Under emergency conditions, passengers can evacuate via the Airstair Entrance Door or via the Emergency Exit Window in the cabin. There may be more than one emergency exit in the cabin.

The exits may be opened from inside or outside the aircraft. If the Airstair Entrance Door is opened or incorrectly locked, a warning system annunciator will illuminate and provide the flight crew with a visual indication on the flight deck.

8.10.11.2 Passenger Operation of Exits

During the pre-flight safety briefing, passengers seated next to the exits must be instructed on the operation of the exits, and provided with an additional passenger exit briefing card which they are asked to read, and subsequently confirm their understanding of the contents.

8.10.11.3Airstair Entrance Door

The passenger door is located on the forward left side of the fuselage and is equipped with an integral Airstair. It is a non-plug type door, which is hinged at the bottom (hinged at the top on the Lear aircraft as well – split door). In the closed and locked position, the outer skin conforms to the profile of the fuselage.

The door locking mechanism is operated by rotating a handle from the outside, and by lifting or lowering a lever from the inside.

As the handle is rotated, rotating latches on each side of the door engage lugs on the doorframe to secure the Airstair Door. These can be inspected from inside the aircraft when the door is closed.

A release button or a locking handle incorporated in the inside operating lever acts as a safety device to help prevent accidental door opening.

A hydraulic damper ensures that the door will swing down slowly when it opens. Whilst the door is open, it is supported by a plastic encased cable or handrail. Additionally, the cable/handrail is utilised when closing the door from the inside.

The outside door handle can be locked with a key, whilst the aircraft is on the ground.

8.10.11.4 Opening Airstair Entrance Door From Outside

Make sure the security lock is unlocked before attempting to open door. Depress the left-hand-side of the handle so that it is no longer flush with the fuselage skin. Rotate the handle anticlockwise (i.e. upwards) to unlock the door, return to the central position, flush with the fuselage and allow the door to open/drop gently.

Note: There are a number of design mechanisms that slightly differ but the principle of operation remains the same.

8.10.11.5 Opening Airstair Entrance Door From Inside

Rotate the handle in the door or Lift the handle upwards to unlock the door, holding the cable/handrail, give the door a firm push against the upper step – the door will now swing down slowly.

8.10.11.6 Closing Airstair Entrance Door From Outside

Hold the base of the door and push up to the closed position. Depress the left-hand-side of the handle so that it is no longer flush with the fuselage skin. Grasp the handle with one hand and rotate it clockwise (i.e. downwards) as far as it will go – the door will move into the fully closed position, now, rotate the handle anticlockwise back to the central position.

8.10.11.7 Closing Airstair Entrance Door From Inside

Grasp the handrail/cable and pull the Airstair door up against the airframe. Grasp the handle if applicable with one hand and move it downwards as far as it will go – continuing to pull inward on the door. The door will move into the closed position. Check that the rotating latches have all properly latched with the doorframe lugs. The split door of the Lear requires closing the bottom half first, rotating the handle to the opposite side and then pulling the top half of the door down and rotating the handle to the right inserting the locking pins/lugs.

8.10.11.8 Emergency Exit Window

The Emergency Exit Window is generally located on the right side of the fuselage at the rear end of the passenger cabin (refer AFM). It is an inward opening, non-hinged plug type door which removes completely from the frame when the latches are released. It is placarded. ‘EXIT-PULL’.

After an emergency landing, the Emergency Exit Window provides a secondary escape route to the Airstair Entrance Door. However, after a ditching, the Emergency Exit Window provides the primary escape route out of the aircraft, because owing to the aircraft flotation characteristics, the Emergency Exit Window will remain above the waterline (the top half of the main Airstair Door may be used in the event of a ditching).

When evacuating from the exit, passengers should exit the cabin onto the wing, inflate their life jackets as they leave and drop into the water. Life jackets must not be inflated until outside the aircraft as inflated life jackets will impede a successful evacuation.

8.10.11.9 Emergency Exit Window – Operation

The release control, which can be operated from outside or inside the aircraft, consists of:

1. Inside – a self-illuminating handle marked EXIT PULL positioned centrally above the window;
2. Outside – a flush mounted PUSH IN handle, the release controls are interconnected.

8.10.11.10 To open the Emergency Exit Window from the inside

Stand in the central aisle facing the window (it is not practical to open the exit while remaining seated). Hold the window at the top with one hand, and with the other pull the release handle fully inwards and down. This will unseat the exit and will release any remaining pressure in the cabin. The exit will now fall inwards. Beware the exit is heavy! Pull the exit completely into the cabin. When the exit has been completely removed, place it out of the way in the baggage area or discard it by throwing it onto the wing, as is most appropriate.

8.10.11.11 Emergency Exit Window – Locking Pin

When the aircraft is left unattended in an unsecured area, the Emergency Exit Window can be locked against external operation by inserting a locking pin internally (refer to AFM).

It is essential that this pin be removed before flight.

8.11 Emergency Cabin Procedures

This chapter sets out information and procedures for dealing with emergency situations in the cabin.

8.11.1 Requirements

In the event of an emergency evacuation, the crew is assigned certain duties to facilitate the rapid and safe egress of passengers from the passenger cabin. These duties include:

- briefing passengers;
- securing the passenger cabin;
- opening any door / exit and aiding the evacuation of passengers; and
- assisting ground emergency services as required.

The procedures in this Chapter include generic instructions for crew communication, cabin preparation and crew duties for the rapid evacuation of an aircraft and the handling of passengers in the event of a forced landing, ditching or any other emergency.

8.11.2 Scope

No instructions, however, can cover all emergency conditions. These procedures are to cover the most likely situations. If at any time they do not apply, or are inadequate, then the crew member must use his /her own common sense and be prepared to modify standard procedures in the best interests of flight safety.

It must also be considered that in a crash landing or ditching, crew members and /or equipment may become disabled. All crew, therefore, must be thoroughly familiar with the location and operation of all emergency equipment and must be prepared to assume the duties of others.

8.11.3 Definition of Types of Emergencies

There are two basic types of emergency situations, which may result in the need to evacuate passengers.

8.11.3.1 Planned

A planned emergency is one where there is time to prepare the passengers and cabin for the landing and evacuation. Bomb scares, landing gear faults or aircraft system failures may fall into this category.

8.11.3.2 Planned Crash Landing or Ditching

This is a premeditated action caused by a major abnormal situation on the aircraft that prevents it from continuing the flight to a place where a normal landing can be made.

8.11.3.3 Unplanned

This is an unexpected emergency, whilst in-flight or on the ground, which requires an immediate landing, ditching or stopping of the aircraft and the evacuation of passengers with no time to spare. The success of an evacuation depends entirely on the competence and initiative of the crew.

8.11.3.3.1 Unplanned Crash Landing

This type of emergency can take place immediately after take-off or immediately prior to, or after, landing. It is the most critical case and a successful evacuation will depend on the competence and initiative of the crew.

8.11.3.3.2 Unplanned Ditching

This type of emergency can occur when either the airfield is adjacent to water or a rejected take-off or an overrun after landing occurs and the aircraft is forced to land on water. Or it can occur when an emergency occurs in-flight over water and there is insufficient time, or it is not possible, to fly to land.

8.11.4 Crew Co-Ordination

Emergency situations require close liaison between crew members. The degree of urgency of the situation, the order of priorities and the management of the emergency itself must be discussed.

Should there be extra crew members on board they must be involved and briefed to help with cabin preparation and should ideally be re-located to a seat adjacent to an exit. The action of any extra crew members must not hinder or interfere with the activities and drills of the operating Flight Crew.

8.11.5 Notification of Emergencies

8.11.5.1 Planned Emergencies

The NHP will visit the cabin and brief passengers on the following:

- the nature of the emergency (without going into detail);
- the flight crew's intentions;
- the amount of time before landing;
- a reminder of the brace position (if required); and
- the brace signal (if required).

8.11.5.2 Unplanned Emergencies

As most unplanned emergencies occur during take-off and landing, passengers will be strapped in and the cabin secure.

There may be little or no warning of the immediate emergency so it may not be possible to give a full warning – as a minimum the following command should be given:

"THIS IS AN EMERGENCY – BRACE, BRACE, BRACE"

Initiation of Evacuation - The Commander will normally give the evacuation order verbally or via the evacuation alarm (if fitted) unless he is incapacitated.

8.11.6 Assistance of Able-Bodied Persons

8.11.6.1 Selection

The following criteria for choice should be considered when selecting passengers to act as Able-Bodied Passengers (ABPs) in an emergency situation:

<u>Males</u>

1. Physically able persons willing to assist;
2. People with the ability to understand instructions (preferably in English);
3. Judgement should be used when selecting ABPs. If any hesitation or reluctance is shown, immediately select another ABP;
4. They must also be instructed how to take over the evacuation should the Flight Crew become incapacitated;
5. Content and Method of Briefing;
6. Each nominated ABP must be briefed on the operation of the door/exit.

They must also be told that they should:

1. act on the command of a crew member; or
2. act on their own initiative in the complete absence of any crew member.

Re-Seating of ABPs

If passengers seated by emergency exits are not prepared to assist in an evacuation, then they must be moved and replaced with individuals who are willing to help.

Special Instructions to Ensure Maximum Effectiveness of ABPs.

ABPs may also be appointed to sit next to blind or deaf passengers, passengers with reduced mobility, unaccompanied minors, children, parents with infants and passengers who may difficulty evacuating without assistance e.g. pregnant or obese persons.

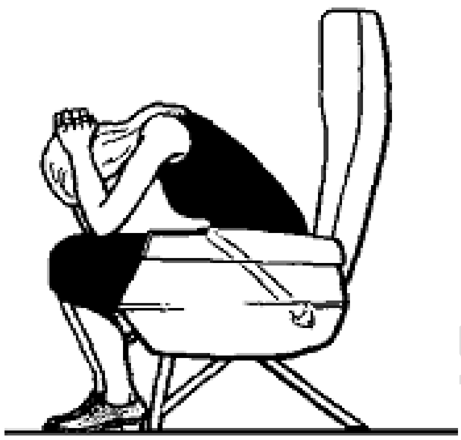
Crew members must always ensure that the ABP fully understands the instructions that have been given. To ascertain whether they have understood or not, the ABP should be asked to repeat the instructions to the crew member.

8.11.7 Brace Positions

In the event of an accident, research has shown that passengers are better protected if they adopt a brace position. The brace position to be assumed depends on whether the passenger is seated in a forward or rearward facing seat.

Seat belts must be fastened as tight as possible. Seat backs must be upright and tables returned to their stowage. High-heeled shoes must be removed.
Passenger Brace Positions

8.11.7.1 Standard Brace Position



Seat back must be upright and seat belt fastened, feet must be placed flat on the floor and slightly rearwards with knees together. Upper body should be bent forward as far as possible with the chest close to the thighs and knees and hands should be placed one on top of the other and on top of the head with the forearms tucked in against each side of the face.

Those passengers facing rearward must sit upright and place their hands under their thighs.

Passengers that sit on benches will observe on some recently certified aircraft that pull out barriers are fitted thus preventing the passengers legs form being thrown forward. Bulkheads or the back of seats can achieve some protection.

Adult and Infant Brace Position

Seat back must be upright and both adult and infant seat belts fastened. Place the feet flat on the floor and slightly rearwards with the knees together. Lay the child across the lap with one arm supporting the child's head. The adult should lean forward over the child and protect his own head with the other arm.
Timing of Brace Command

The brace signal will normally be given over the PA system (if fitted). In a planned emergency, the brace signal will already have been discussed and decided by the Commander. The signal will normally be:

"BRACE, BRACE, BRACE"

In the event no PA system being available, an alternative brace signal will have to be implemented - it may be the flashing of the emergency lights or the flashing of the "No Smoking" signs.

The brace signal will be given just prior to landing.

If there is insufficient time to follow the normal brace procedures, the Flight Crew will shout into the cabin:

"GET YOUR HEADS DOWN - GET YOUR HEADS DOWN"

8.11.8 Crowd Control

8.11.8 1 Passenger Management

Crowd control is a vital part of dealing with an emergency evacuation. It is essential that passengers are quickly and positively directed, using assertive commands, towards the nearest available exit.
The control of passenger movement begins when they have been instructed to undo their seat belts and move to their nearest exit.

The key to positive crowd control is spontaneous, accurate and assertive performance of emergency procedures. The commands given to passengers as they reach an exit must be short, concise and phrased in a positive manner.

Examples of commands that can be used are:

"Unfasten Your Seat Belts"
"Come This Way"
"Jump, Jump"
"Evacuate"
"Go Back"
"Go Forward"

8.11.8.2 Possible Passenger Reaction

Research after previous accidents indicates that the majority of passengers will suffer from shock. There will also be an initial reaction of disbelief and inaction. It is important that the crew instil confidence in their passengers.

If the crew is not prompt, but is uncertain and do not take command, passengers will quickly take action themselves and will try to find their own way out. The situation will soon become chaotic as passengers will have different responses and will compete rather than co-operate with each other. This has happened in actual accidents with disastrous results.

It is important that crew is assertive, as this will create positive reaction from passengers. Passengers will be more responsive, they will be organized and they will trust the person who is in command.

8.11.8.3 Passenger Management after Evacuation

Once all passengers have been evacuated, they must be directed upwind and assembled in groups well away from the aircraft. A head count must be carried out and first aid offered where possible and practical. No smoking must be enforced.

8.11.8.4 Instructions for Evacuation

Once the aircraft has come to a complete stop and the evacuation signal has been given, the crew should unfasten their seat belts and assess the situation. Having determined the most appropriate exit, passengers should be directed by using commands such as listed in the paragraphs above.

(See also the Aircraft Type-Specific Chapters)

8.11.9 Carriage of Special Category Passengers (SCP's)

In the event of an evacuation, the main object will be to get all passengers out of the aircraft as quickly as possible. Any passenger with a disability must not be allowed to prejudice the survival chances of the other passengers. For these reasons, PRMs must be evacuated last so as not to impede or obstruct the exits for other passengers.

Unless a handicapped passenger is accompanied, it will be necessary to appoint an ABP to help him/her leave the aircraft.

8.11.9.1 Quadriplegic

A quadriplegic passenger is a person who has paralysis from the neck or shoulder down and cannot evacuate alone.

To remove the quadriplegic passenger from their seat it is advisable to recline the seat back and the ABP should then place his /her arms under the armpits from the back and grip around the lower chest in order to prevent shoulder dislocation. The passenger should then be dragged to the exit. If there are two ABPs available, one should grab the passenger around the chest as described above and the other can assist by lifting the legs and feet.

8.11.9.2 Paraplegic Passenger (Non-Ambulatory)

A paraplegic passenger is a person who has paralysis involving the legs and all or part of the body.

Some may be capable of evacuating themselves, as they tend to develop their upper body to enable them to overcome their disabilities. However, if they are evacuating themselves, they should remain in their seats until all other passengers have evacuated as they may hinder the evacuation.

If they do require assistance, the ABP should reach under their armpits from the back and cross the arms in front of the chest, holding the passenger’s wrists. They should then stand up and raise the passenger so that only the passengers heals are touching the floor. They should then be dragged to the exit. If there are two ABPs, the second ABP can assist by lifting the legs and feet.

8.11.9.3 Blind Passengers

Blind passengers should also wait until the majority of passengers have evacuated. An ABP or a crew member must assist them.

If the passenger is accompanied by a guide dog, care should be taken to ensure that the dog stays close to its charge.

8.11.10 Unusable Exits

8.11.10.1 Definition

An unusable exit is a door, window or hatch, which cannot be opened or operated in the normal way due to structural damage or to unsuitable flotation characteristics in a ditching. Hazards outside the exit may also render it unusable.

Should a door be inoperable, passengers must be re-directed to an alternative exit.

(See also the Aircraft Type-Specific SEP Chapters)

8.11.11 Land Evacuation and Ditching - General Principles

In a planned emergency situation the emergency brief will either be read over the PA system or, if time permits, it may be possible to give passengers a personal passenger briefing.

8.11.11.1 Personal Passenger Briefing

8.11.11.1.1 Aim

The aim of a personal passenger briefing is to instruct passengers on the actions they should carry out before, during and after an emergency landing. It also reassures passengers and gives them confidence.

8.11.11.1.2 Techniques

- Face passengers being briefed to command attention;
- Brief one row at a time;
- Avoid using scare words such as “Fire” and “Crash”;
- If asked about the nature of the emergency;
- Do not give direct information;
- Use general phrases such as “precautionary landing”;
- Give orders and instructions - do not make requests;
- Check each passenger has understood, or practice each item before going onto the next;
- Demonstrate items where possible;
- Use everyday terms e.g. “left” not “port”;
- Do not interrupt briefing to deal with special cases.

8.11.11.1.3 Content

The content of the brief must include the following:

- Seats - must be in the upright position;
- Tables - stowed;
- Seat Belts - fastened and the method of quick release demonstrated;
- No Smoking;
- Sharp objects and high heeled shoes removed and placed in the seat pocket;
- The brace signal;
- The brace position – demonstrated;
- Push passengers into position to confirm they know it;
- Show adults with babies the correct brace position;
- Advise how long they should hold the position once they have landed;
- Advice on the location of exits.

If ditching:

- Show the passengers where their life jackets are;
- Get them to put them on;
- Inform them they must not be inflated until outside the aircraft;
- Instruct the passengers to read the safety card and familiarize themselves with all that has been covered.

8.11.11.1.4 Special cases

Certain passengers will not be able to comply with some of the requirements of the personal passenger briefing. Return to instruct these passengers after completion of the remainder of the personal passenger briefings. Passengers may not understand the briefing because they are either deaf or may not understand the language used. In such cases the briefing can be mimed or the safety leaflet can be used as a visual aid. If the brief is not being understood because the passenger does not understand the language, then it may be possible to enlist the help of others who may speak the appropriate language.

Those passengers wearing spectacles must be advised to take them off on hearing the brace signal. They should be advised to not put them back on until the aircraft has come to a complete stop or if possible until they have evacuated. Passengers wearing contact lenses should not remove them.

8.11.12 Land Evacuation and Ditching Procedures

It is imperative that passengers are evacuated as soon as possible, whether on land or on sea,

Once the aircraft has come to its final stop, the Commander will usually initiate the evacuation by using the command - **"Evacuate, Evacuate".**

(This command may be accompanied by an evacuation alarm signal if fitted).

Prior to opening the doors in any evacuation it is important that the crew look for any hazards outside the aircraft. If there is a hazard outside the door i.e. there is fire or the water level is high, the door must not be opened and passengers must be re-directed to an alternative exit.

Should a hazard become apparent after the door has been opened, the exit must be guarded and passengers must be re-directed to an alternative exit.

8.11.12.1 Evacuation Procedures - No Hazard Present (Land)

Once the aircraft has come to a final stop and the evacuation signal has been given, the following general procedure should be followed:

- look outside for any hazards;
- if safe, open the door;
- evacuate passengers;
- check the cabin;
- collect any useful equipment; then
- leave the aircraft.

8.11.12.2 Evacuation Procedures - Hazard Present (Land)

Should a hazard become apparent at an exit, either before or after the door has been opened, the following general procedure should be followed:

- guard the door and re-direct passengers (shout & use hand signals to re-direct passengers to an alternative exit);
- check the cabin;
- collect any equipment; then
- leave the aircraft by the nearest alternative exit.

8.11.12.3 Evacuation Procedures - No Hazard Present (Ditching)

Once the aircraft has come to its final stop and the evacuation signal has been given, the following general procedure should be followed:

- check the water level;
- if safe, open the door;
- evacuate the passengers instructing them to “Inflate your life jacket as you leave”;
- assist any passengers with children and infants;
- check the cabin
- collect any useful equipment; and
- inflate your life jacket as you leave.

8.11.12.4 Evacuation Procedures - Hazard Present (Ditching)

Should a hazard become apparent i.e. the water line is high at an exit, the following general procedure should be followed:

- DO NOT OPEN DOOR;
- guard the door and re-direct passengers (shout and use hand signals to re-direct passengers to an alternative exit);
- check the cabin;
- collect equipment; and
- leave the aircraft by the nearest alternative exit.

8.11.13 Rejected Take-Off

Once conditions have stabilized and the aircraft is stationary, an announcement should be made soon as practicable, explaining what has happened.
Consideration should then be given to whether an evacuation is required.
Ground Based Emergency Services

After an incident/accident resulting in an aircraft evacuation, the crew must move passengers upwind if possible, and as far away from the aircraft.

8.11.13.1 Exercise crowd control techniques.

Once the emergency services have arrived on the scene, the situation must be handed over to their control. Circumstances will differ from country to country and airport to airport, but it is normally the Chief Fire Officer or the Chief of Police who will take charge.

8.11.13.2 Liaison with Emergency Services

To assist in the hand over, the crew must inform the emergency services of the following:

- numbers of passengers and crew on board;
- details of anyone still on board;
- description / information of / on persons not accounted for;
- injuries to passengers and crew;
- confirmation of the flight number / routing and operator; and
- nationalities of the passengers and crew and any potential language problems.

8.11.14 Pilot Incapacitation

In the event of either pilot suffering partial or total collapse in-flight, the other pilot may require assistance from a passenger(s). The pilot in control will summon assistance either via the PA (if fitted) or by shouting into the cabin. Any passenger(s) who respond will then be briefed on the situation. No attempt should be made to remove the incapacitated pilot from his/her seat. The assistance of a medically qualified passenger would be beneficial.

8.11.14.1 Action

The assisting passenger must be instructed to:

- pull the incapacitated pilot upright and as far back into the seat as possible;
- ensure that the seat belt and shoulder harness are fastened with the arms placed under the harness. the inertia reel must then be locked;
- ensure that the pilots' feet are moved away from the rudder etc.;
- unlock the seat and pull it rearwards and lock into position;
- check if first aid / oxygen is required (use pilot's fixed oxygen) and administer if necessary; and
- loosen collar and necktie.

8.11.14.2 Assisting With Drills

If a passenger is required to read out drills, the pilot in control will brief the passenger on the drills section to be read out and the signals to be used. The passenger must not occupy a pilot seat, for example:

- Thumbs up - Commence reading drill item;
- Open hand - Stop immediately.

The passenger must be advised that after reading each item, they should wait for the signal from the operating pilot before continuing with the next. If interrupted, repeat the last item and then continue.

8.11.15 Decompression

8.11.15.1 Introduction

If air pressure is lost due to a fault or leak in the pressurization system, the effect may be characterised by either a slow or rapid depressurization depending on the nature of the fault. If there is a serious leak such as the failure of a window, the air will leave the aircraft in a rush and it may be accompanied by a bang. This is known as "Rapid Decompression" or as an "Explosive Decompression".

The absence of a smell of burning distinguishes this type of decompression from the detonation of explosive materials within the cabin.

8.11.15.2 Slow Decompression

A slow decompression is a gradual loss of cabin pressure that may be caused by something like a damaged door seal or a fault in the pressurization system.

Passengers and crew would become progressively tired without realising they were being affected. If the cabin altitude were to exceed about 15,000 feet they would begin to suffer from hypoxia. The effects of a slow decompression may be insidious and go unnoticed and the first indication that an aircraft was experiencing decompression may be the drop out oxygen masks appearing when the trigger altitude is exceeded.

8.11.15.3 Actions to be taken in case of a slow decompression

Because there may be no significant clues that a slow decompression is occurring, any abnormality such as a crack in a window or an unusual noise emanating from a door seal must be responded to immediately, and, where possible, passengers must be moved away from the vicinity. Should the oxygen masks deploy automatically, standard procedures for the use of oxygen should be followed immediately.

8.11.15.4 Rapid Decompression

The occurrence of sudden decompression is rare, but it is important that Flight Crew know the associated effects on those in the cabin and the action to take in such an emergency.

Indications of a rapid decompression:

1. Possible loud noise due to escaping air (explosive);
2. Mist may form in the cabin (not to be confused with smoke);
3. Dust and loose papers may fly about the cabin;
4. Oxygen masks will drop out when the cabin altitude rises to the trigger level;
5. Air will become cold and thin;
6. Liquids in hot beverage containers and water boilers (risk of scalding) may start to boil;
7. Carbonated drink cans and other pressurised containers may burst.

Physical effects:

1. There will be a need to breathe rapidly and because of the lack of oxygen - dizziness will occur;
2. Difficulty in speaking;
3. Pain in the ears and sinuses;
4. Discomfort or pain due to pressure of gasses trapped in the body (can be relieved by belching and / or passing wind);
5. Changes in noise level and vibration will occur, especially if there is structural damage and the emergency descent may also cause unusual motion.

8.11.15.5 Actions to be taken in a Rapid Decompression

The first action in the event of a rapid decompression will be for the crew to fit their own oxygen masks and to initiate the appropriate emergency procedure(s). Once the situation has stabilized, attention should be given to the situation in the cabin.

8.11.15.6 Monitoring of Passengers

Indicate to passengers through hand signals that they must put on a mask and sit down.

8.11.15.7 Check of Passengers and Cabin Security

Once the descent has been completed and a safe altitude has been reached, the PNF must go back into the cabin and:

1. check and fit passenger masks if required;
2. ensure passengers are strapped in;
3. take portable oxygen sets to unconscious passengers and infants;
4. ensure smoking materials are extinguished;
5. administer first aid;
6. secure the cabin and galley; and
7. keep passengers away from doors as it may be possible to open then when the cabin pressure is low.

8.11.15.8 Administering Oxygen

Unconscious passengers must be attended to first. They must be administered oxygen immediately. If there is still a supply of oxygen to the drop down masks then fit one of those. If not, use the portable oxygen set. Ensure the mask is connected to the bottle, turn on to the highest setting, check oxygen is flowing and fit the mask to passenger’s face.

8.11.15.9 Administer first aid as required

Inform the Commander of the situation

8.11.16 Fire

8.11.16.1 Basic Theory of Fire and Smoke

Fire and smoke within the cabin is one of the most dangerous situations that can be encountered on an aircraft. Not only are there obvious factors such as smoke and extreme heat, but all fires are usually accompanied by toxic fumes which, when inhaled, can cause incapacitation or death.

Should a fire be discovered, immediate action must be taken to put it out. This must involve:

- Identifying the type and source of fire;
- Collecting the appropriate equipment;
- Fighting the fire.

8.11.16.2 Combustion

For any fire to take place, three factors are essential:

- Fuel - Any substance that will burn;
- Oxygen - This is supplied from the surrounding air;
- Heat - The heat causes the fuel temperature to be raised above its combustion temperature by mechanical, electrical or chemical means.

8.11.16.3 Extinguishing a Fire

The basic principle of fire extinguishing is to take away one of these elements. So, when dealing with a fire, there are three ways of extinguishing it:

- Cool - Remove heat source and/or lower the temperature to below ignition point of the material;
- Smother - Starve or dilute the oxygen content around the fire;
- Starve - Remove or limit the fuel which is feeding the fire.

8.11.16.4 Smoke Development

The first indication of fire is often the smell or sight of smoke.

Smoke is generally a mixture of fine solid particles, droplets of water and other liquids, and products given off by the materials involved in the fire. Smoke and heat rise up to the ceiling of the cabin and then they will spread sideways. Disorientation is a major problem in smoke development.

Smoke can also travel considerable distances from the actual source of fire. Air currents cause this.
The volume of smoke present can often be of no indication to the actual size of the fire, as small fires can produce smoke for long periods of time into an aircraft and can completely smoke fill the structure, thus making firefighting very difficult.

Classification of Types of Fire

Class A	Fires generally involving solid organic materials, such as coal, wood, paper and natural fibres, in which combustion takes place with the formation of glowing embers. ***Extinguished by smothering, by use of BCF or non-flammable liquid (water).***
Class B	Fires involving liquids such as aviation fuel, lighter fluid and alcohol. ***Extinguished by use of BCF extinguisher.***
Class C	Fires involving electrical items, such as coffee makers, water boilers and ovens. ***Extinguished by use of BCF extinguisher.***
Class D	Fires involving certain flammable metals. ***Extinguished by use of BCF extinguisher.***

8.11.16.5 Fire Sources

8.11.16.6 High Risk Areas

1. Passengers smoking in the aircraft - dropped cigarettes, leaking lighters and passengers falling asleep whilst smoking.
2. Electrical malfunctions - these could be in the galley and toilet areas.
3. Disposal of un-extinguished cigarette ends in the toilet waste or toilet compartments.
4. Frequent checks of the toilet area must be under taken to ensure that the waste bin flaps are closed and that the toilet flush motor is not working continuously.
5. Fire starting in passenger baggage - non-safety matches, cameras and video cameras.

8.11.16.7 Equipment to Use

BCF	Any type of fire **Caution: BCF vapour can cause short-term side effects such as nausea, faintness, inflammation and swelling of the skin. Inhalation of the vapour does not have lasting or long-term effects**.
PBE	If dense smoke is being generated, PBE must be fitted before entering the fire area. Portable oxygen bottles must not be used as PBE when firefighting.

Should a person's clothing be on fire, they must be wrapped in a blanket or a coat to smother the flames.

8.11.16.8 General Procedures

All fires should be dealt with immediately and, in all cases of fire in the cabin, the Commander must be kept informed.

8.11.16.9 Tactics and Techniques

The fire drill involves three people (if available):

- Fire fighter;
- Communicator;
- Coordinator.

Note: When fewer than 3 persons are available, the drill must be modified. In all cases the fire must be tackled without delay and the Commander kept informed at all times.

In a small aircraft, it is important that the situation does not become confused by passengers getting in the way. It might not be possible, therefore, to adopt the standard fire-fighting technique in its entirety. However, the general principles apply.

8.11.16.10 Actions to be taken by the Fire Fighting Team

<u>Fire Fighter</u>

The "Fire Fighter" is always a crew member who will:

- identify the source and type of fire;
- switch off any electrical supplies involved;
- collect appropriate fire-fighting equipment; and
- attack the fire immediately.

SIMULTANEOUSLY with the above, the "fire fighter" must attract the attention of a second person who becomes the "Communicator".

<u>Communicator</u>

The second person is the "Communicator. This person must keep the Commander fully informed of the situation. The Commander must be told:

- the location of the fire;
- if the source of the fire has been established; and
- how many and which extinguishers have been used.

<u>Coordinator</u>

The Coordinator is responsible for:

- bringing any back up fire equipment to the "Fire Fighter";
- removing portable oxygen from the area;

- keeping the “Communicator” informed;
- moving others away from the area; and
- ensuring the fire is out and smouldering material is dampened down.

8.11.16.11 Fire Fighting Procedures

Fire in a Waste Container

1. Extinguish with BCF or and/or any non-flammable liquid;
2. Soak contents with water (or any non-flammable liquid);
3. Close the flap/lid to the container as soon as possible;
4. Monitor situation to ensure the fire does not re-ignite.

Fire/ Smoke behind a Wall

1. Move passengers away from the area;
2. Feel panel/lid/back of door to sense heat;
3. Use axe/jemmy to pull panel slightly away from wall;
4. Insert nozzle of BCF extinguisher behind the panel/into the locker or stowage and discharge the contents;
5. Leave for a few minutes, then, with a second BCF extinguisher at the ready, pull the panel away/carefully open the locker and establish if the fire has been extinguished.

Note: If smoke/flames are still evident then discharge another BCF extinguisher, monitor the area to ensure that the fire does not re-ignite.

Fire/ Smoke from Electrical Equipment

1. Switch off the electrical supply;
2. Extinguish with BCF extinguisher and move passengers away from the area;
3. Monitor the area, ensuring the fire does not re-ignite.

In the event of a fire in the flight deck, isolate the appropriate electrical source.

Fire/Smoke from Passenger/Crew Baggage, Seat Cushion(s)

Move passengers away from the area;
Smother with blankets or extinguish with BCF/non-flammable liquid;
If a BCF extinguisher is used, dampen down the area with water;
Monitor the area to ensure the fire does not re-ignite;
Locate the owner of the bag to establish the contents.

Dense Smoke in the Cabin

1. If possible, instruct passengers to “Get down on the floor and cover mouth and nose with a wet handkerchief, scarf or cloth”;
2. Immediately don PBE.

Control of Passengers

In any situation involving fire and/or smoke, it is essential to keep passengers calm and reassured and under control, as panic will only make the situation worse.

8.12 Normal Cabin Procedures

Adherence to standard Cabin Procedures ensures that this aspect of the operation is conducted in a coordinated way and assists the accommodation of unforeseen events. Even in an emergency, having set procedures aids the orderly conduct of its resolution. Crew members are therefore expected to have a thorough knowledge of Cabin Procedures and to adhere to them at all times. However, nothing precludes the use of initiative in situations not covered by any laid down procedure, but the Commander has the final responsibility for the safety of the aircraft and its occupants.

8.12.1 Communication and Co-Ordination

Whilst the use of standard Cabin Procedures ensures that crew members can conduct their tasks without excessive prompting, it is imperative that there is good communication between crew members and that they work as a team – this is especially important in the event of an emergency.

It is also important that passengers clearly understand any instructions necessary for their safety. Good interpersonal communication skills will result in fewer errors or misunderstandings.

8.12.2 Pre-Departure Safety Equipment Checks *(refer to 8.3.15.1)*

On first boarding the aircraft, the designated crew member is required to check all items of safety equipment and conduct a full security check in the cabin and surrounding area.

Crew members should check that:

1. each item of equipment is present and is in the correct stowage;
2. the items of equipment are serviceable and in good condition; and
3. electrical items such as emergency lighting and PA systems (if fitted) are tested for function.

Such tests should be performed as soon as the crew have boarded, so that repairs and replacements can be obtained without delay).

Aircraft type-specific sections i.e. Part B show locations and accessibility of equipment and additional checks required on specific items of equipment.

8.12.3 Unauthorised Carriage

Prior to boarding and during transit stops, a thorough check of the cabin and baggage area must be made to ensure that no person has secreted themselves on board the aircraft.

It is imperative that all ground personnel ID cards are checked prior to their boarding the aircraft and that a security check is completed once they have completed their duties and they have disembarked.

8.12.4 Inadmissible Passengers and Refusal of Embarkation *(refer to 8.2.3)*

Passengers must not be accepted for flight if it is obvious that they are acting recklessly or negligently and in a manner that is likely to endanger the aircraft or anyone in it. The following are possible reasons to refuse embarkation:

1. being under the influence of drugs or alcohol;
2. suffering from an infectious or contagious disease (unless notified and by prior arrangement);
3. being unable to conduct themselves in a proper manner;
4. being of unsound mind;
5. not complying with instructions given by authorised personnel;
6. being required to wear a Home Office electronic tag.

8.12.5 Passenger Seat Allocation/Restrictions

(refer to 8.2.2.1 and 8.3.15.1)

8.12.6 Multi-Occupancy of Seats

(refer to 8.2.2.1 and 8.3.11.2(c))

8.12.7 Carriage of Special Categories of Passengers

(Refer to 8.2.2.1 and 8.3.15.1)

8.12.8 Securing of Cabin and Galleys for Take-off and Landing

(refer to 8.2.2 and 8.3.15.1(1)(i))

8.12.9 Taxi, Take-Off, Pre- Landing, And Post-Landing

During taxi, a look back into the cabin should be made to ensure that it is secure.

8.12.10 In-Flight

In-flight, the cabin should be monitored periodically.

8.12.11 Cabin Preparation for Landing *(refer to 8.2.2, 8.3.15.1a) and 8.12.8)*

Prior to landing, passengers must be made aware that the cabin must be secured in the same way as for take-off

8.12.12 Pre-Landing

Prior to landing, a look back into the cabin should be made to ensure that everything is still secure.

8.12.13 Post Landing and Taxi-In

Passengers should be made aware that they should remain seated with their seat belts fastened until the aircraft has come to a complete stop.

8.12.13.1 Transit

During transit, depending on local authority regulations, passengers may or may not be required to remain on board the aircraft. If passengers remain on board, they must refrain from smoking. If refuelling is taking place, they must comply with the appropriate requirements. *(refer to 8.2.1.3)*

8.12.13.2 Door Cover (Passengers remaining on board)

If passengers remain on board during transit, a crewmember must remain in the vicinity of the door.

8.12.14 Refuelling With Passengers on Board

(refer to 8.2.1.3)

8.12.15 Passenger Disembarkation *(refer to 8.3.15.3)*

On arrival, passengers must remain in their seats with their seat belt securely fastened and all hand baggage must remain securely stowed until the “Fasten Seat Belt” sign has been switched off.

8.12.16 Flight Crew Drinks and Meals *(refer to 6.1)*

Flight Crew should always eat different meals, thus reducing the risk of both pilots becoming incapacitated due to food poisoning.

8.12.16.1 Further Precautions

The following precautions must be taken:

1. shellfish, oysters or any other type of molluscs must never be eaten by flight crew either prior to or when on duty;
2. hot meals must always be placed on a tray;
3. the Commander and Co-pilot should eat their meals at different times.

Neither alcohol nor containers containing alcohol may be taken into the flight deck. All food, drink and catering items must be removed from the flight deck for take-off, landing and during turbulence

8.12.17 Admission to the Flight Deck

(refer to 8.3.12)

8.12.18 Injury and Death on Board *(refer to section 11)*

Where serious injury or death has resulted from an accident on board an aircraft this shall be the subject of the procedures detailed in *Part A Section 11- Handling of Accidents and Occurrences.*

8.12.19 Fire Prevention *(refer to 8.11.6 – Fire)*

Without any doubt, one of the most frightening situations on board an aircraft is a fire. If a fire is not contained quickly, it can spread within a matter of minutes and can develop into a situation that is clearly catastrophic. It is therefore imperative that the cabin and surrounding areas are monitored continuously for fire and all precautions are taken to prevent a fire from arising.

8.12.20 Smoking Restrictions *(refer to 8.3.15.1 f))*

Smoking restrictions must be adhered to at all times - cigarettes must be extinguished and disposed of in the correct receptacle. Passengers who wish to smoke must remain seated.

8.12.21 Live Animals in the Cabin

The carriage of live animals in the cabin is permitted subject to certain conditions shown in the following paragraphs. Carriage of approved guide dogs and assistance dogs will normally be permitted, but the commander has the ultimate authority regarding carriage of any animals.

AMC 2 CAT.OP.MPA.160 refers and dogs up to a maximum of 8Kg may be carried with no added process or restrictions.

8.12.21.1 Carriage of Guide Dogs and Assistance Dogs

a) Guide Dog

A guide dog is one that has been trained to provide mobility assistance to a blind or partially sighted person. A guide dog is trained, assessed and accredited by an individual or organization that is accepted by and affiliated to the International Guide Dog Federation.

b) Assistance Dog

An assistance dog is one which has been specifically trained to assist a disabled person and which has been qualified by a person or organization or which meets the full membership criteria of the established international assistance dog organizations:

Assistance Dogs International and Assistance Dogs Europe.

It should be noted that assistance dogs could be of any breed and size from a large Labrador to a miniature Yorkshire Terrier.

c) Carriage of other Dogs or Animals

Any dog not meeting the above criteria, or any other animal, must be treated as a pet. These animals must be carried as listed below.

ALTERNATIVE MEANS OF COMPLIANCE FOR PETS OVER 8KG

If passengers inform Gama of a request to carry a pet weighing over 8kg, or passengers specify a breed of dog that is likely to exceed 8kg, then Charter Sales/CSMs must immediately contact the GOM.

Pets weighing in excess of 8kg may be carried however special measures must be taken to ensure the safe carriage of the animal. Upon receipt of a request to carry an animal over 8kg, Charter Sales/CSMs must gather the following information from the broker/customer:

- Date and route of flight.
- Operating crew *(if scheduled)*

- Number of passengers on-board
- Size, Weight, and number of animals
- Restraint(s) to be used
- Frequency of travel on aircraft
- Suitability for travel and behaviour of the animal to be carried.

Charter Sales/CSMs must not accept any animal over 8kg without prior approval from the GOM or another Nominated Postholder.

Multiple occupancy of seats by a passenger and a pet/guide/assistance dog is prohibited.

Pets/guide/assistance dogs must NOT be restrained next to an Emergency Exit.

Pets/guide/assistance dogs SHOULD be restrained on the rear most seat in the cabin, providing this is **not** an emergency exit.

Mass and balance calculations must include the pet/guide/assistance dog.

Any pet/guide/assistance dog carried must be securely restrained with a suitable restraining device provided by the passenger for the duration of the flight in a location in the cabin that is clear of the aisle and emergency exits and does not pose a risk of distraction to the flight crew.

Pets/guide/assistance dogs exhibiting aggressive or anxious behaviour must not be accepted for carriage.
Access to the flight deck by any pet/guide/assistance dog is prohibited.

The aircraft Commander must be briefed on the animal to be carried prior to the flight and he or she must brief the owner of the animal on restraint procedures prior to departure as part of his/her pre departure passenger safety brief.
The Commander may refuse carriage of passenger(s) not in possession of a suitable restraining device for their pet or any other animals carried.

8.12.22 Portable Electronic Devices (CAT.GEN.MPA.120)

The operator shall not permit any person to use a portable electronic device (PED) on board an aircraft that could adversely affect the performance of the aircraft's systems and equipment, and shall take all reasonable measures to prevent such use.

8.12.22.1 GENERAL

(a) Scope

This AMC provides means to prevent that portable electronic devices (PEDs) on board aircraft adversely affect the performance of the aircraft's systems and equipment. This AMC addresses operation of PEDs in the different aircraft zones – passenger compartment, flight compartment, and cargo compartments. Furthermore, it addresses the specific case of PEDs qualified and under configuration control by the operator - controlled PEDs (C-PEDs) - for which the operator gives some credit.

(b) Restrictions on the use of PEDs in the passenger compartment

If an operator permits passengers to use PEDs on board its aircraft, procedures should be in place to control their use. The operator should ensure that all crew members and ground personnel are trained to enforce the restrictions on this equipment in line with these procedures.
These procedures should ensure the following:

(1) As the general principle all PEDs (including transmitting PEDs (T-PEDs)) are switched-off at the start of the flight when the passengers have boarded and all doors have been closed, until a passenger door has been opened at the end of the flight.

(2) The following exceptions from the general principle may be granted under the responsibility of the operator:

(i) Medical equipment necessary to support physiological functions does not need to be switched-off.

(ii) The use of PEDs, excluding T-PEDs, may be permitted during non-critical phases of flight, excluding taxiing.

(iii) T-PEDs may be used during non-critical phases of flight, excluding taxiing, if the aircraft is equipped with a system or otherwise certified allowing the operation of such technology during flight. The restrictions coming from the corresponding aircraft certification as documented in the aircraft flight manual (AFM), or equivalent document(s), stay in force.

(iv) The use of C-PEDs during critical phases of flight, however, may only be permitted if the operator has accounted for this situation in its assessment.

(v) The commander may permit the use of any kind of PED when the aircraft is stationary during prolonged departure delays, provided that sufficient time is available to check the passenger compartment before the flight proceeds. Similarly, after landing, the commander may authorise the use of any kind of PED in the event of a prolonged delay for a parking/gate position (even though doors are closed and the engines are running).

(3) Announcements should be made during boarding of the aircraft to inform passengers of the restrictions applicable to PEDs (in particular to T-PEDs) before fastening their seat belts.

(4) Where in-seat electrical power supplies are available for passenger use the following should apply:

(i) information cards giving safety instructions are provided to the passengers;

(ii) PEDs should be disconnected from any in-seat electrical power supply, switched-off and stowed during taxiing, take-off, approach, landing, and during abnormal or emergency conditions; and

(iii) Crew members should be aware of the proper means to switch-off in-seat power supplies used for PEDs.

(5) During boarding and any phase of flight:

(i) appropriate coordination between crew members is defined to deal with interference or other safety problems associated with PEDs;

(ii) passenger use of equipment during the flight is monitored;

(iii) suspect equipment is switched off; and

(iv) particular attention is given to passenger misuse of equipment that could include a built-in transmitting function.

(6) Thermal runaways of batteries, in particular lithium batteries, and potential resulting fire can be handled properly.

(7) Appropriate coordination between crew members should be defined to deal with interference or other safety problems associated with PEDs.

(8) The commander may for any reason and during any phase of flight require deactivation and stowage of PEDs.

(9) Occurrences of suspected or confirmed interference that have potential safety implications should be reported to the competent authority. Where possible, to assist follow-up and technical investigation, reports should describe the offending device, identify the brand name and model number, its location in the aircraft at the time of the occurrence, interference symptoms and the results of actions taken by the crew.

(10) The cooperation of the device owner should be sought by obtaining contact details.

(11) Special requests to operate a PED or T-PED during any phase of the flight for specific reasons (e.g. for security measures) should be handled properly.

(c) Restrictions on the use of PEDs in the flight compartment.

Due to the higher risk of interference and potential for distracting crew from their duties, PEDs should not be used in the flight compartment. However, the operator may allow the use of PEDs, e.g. to assist the flight crew in their duties, if procedures are in place to ensure the following:

(1) The conditions for the use of PEDs in-flight are specified in the operations manual, otherwise they should be switched off and stowed during all phases of flight.

(2) The PEDs do not pose a loose-item risk or other hazard.

(3) During critical phases of flight only those C-PEDs are operated, for which the operator has demonstrated that the radio frequency (RF) interference levels are below those considered acceptable for the specific aircraft environment. Guidance for such test is provided in (e) below.

(4) During pre-flight procedures, e.g. when loading route information into navigation systems or when monitoring fuel loading, no T-PED should be operated. In all other cases, flight crew and other persons on board the aircraft involved in dispatching the aircraft should observe the same restrictions as applicable to passengers.

(5) These restrictions should not preclude use of a T-PED (specifically a mobile phone) by the flight crew to deal with an emergency. However, reliance should not be predicated on a T-PED for this purpose.

(d) PEDs not accessible during the flight PEDs should be switched off, when not accessible for deactivation during flight. This should apply especially to PEDs contained in baggage or transported as part of the cargo. The operator may allow deviation for PEDs for which tests have demonstrated their safe operation. Other precautions, such as transporting in shielded, metal boxes, may also be used to mitigate associated risks.

(e) In case an automated function is used to deactivate a T-PED, the unit should be qualified for safe operation on board the aircraft.

Test methods

The means to demonstrate that the RF radiations (intentional or non-intentional) are tolerated by aircraft systems should be as follows:

(1) The radio frequency (RF) emissions of PEDs should meet the levels as defined by EUROCAE ED-14E/RTCA DO 160E Section 21 Category M for operation in the passenger compartment and EUROCAE ED-14E/RTCA DO 160E Section 21 Category H for operation in the cargo bay. Later revisions of those documents may be used for testing. The assessment of intentional transmissions of T-PEDs is excluded from those test standards and needs to be addressed separately.
(2) When the operator intends to allow the operation of T-PEDs, its assessment should follow the principles set out in EUROCAE ED-130.

8.12.22.2 Definitions (GM1 CAT.GEN.MPA.140)

(a) Definition and categories of PEDs

PEDs are any kind of electronic device, typically but not limited to consumer electronics, brought on board the aircraft by crew members, passengers, or as part of the cargo and that are not included in the approved aircraft configuration. All equipment that is able to consume electrical energy falls under this definition. The electrical energy can be provided from internal sources as batteries (chargeable or non-rechargeable) or the devices may also be connected to specific aircraft power sources.

PEDs fall into three categories:

(1) Non-intentional transmitters can non-intentionally radiate RF transmissions. This category includes, but is not limited to, computing equipment, cameras, radio receivers, audio and video reproducers, electronic games and toys. In addition, portable, non-transmitting devices provided to assist crew members in their duties are included in this category. The category is identified as PED.

(2) Intentional transmitters can radiate RF transmissions on specific frequencies as part of their intended function. In addition they may radiate non-intentional transmissions like any PED. The term ‘transmitting PED’ (T-PED) is used to identify the transmitting capability of the PED. Intentional transmitters are transmitting devices such as RF based remote control equipment, which may include some toys, two-way radios (sometimes referred to as private mobile radio), mobile phones of any type, satellite phones, computer with mobile phone data connection, wireless fidelity (WIFI) or Bluetooth capability. After deactivation of the transmitting capability, e.g. by activating the so-called ‘flight mode’ or ‘flight safety mode’, the T-PED remains a PED having non-intentional emissions.

(3) A controlled PED (C-PED) is subject to administrative control by the operator. This will include, inter alia, tracking the location of the devices to specific aircraft or persons and ensuring that no unauthorised changes are made to the hardware, software or databases. A controlled PED will also be subject to procedures to ensure that it is maintained to the latest amendment state. C-PEDs can be assigned to the category of non-intentional transmitters (PEDs) or intentional transmitters (T-PEDs).

(b) Definition of the switched-off status
Many PEDs are not completely disconnected from the internal power source when switched off. The switching function may leave some remaining functionality e.g. data storage, timer, clock, etc. These devices can be considered switched off when in the deactivated status. The same applies for devices having no transmit capability and operated by coin cells without further deactivation capability, e.g. wrist watches.

8.12.22.3 Portable electronic devices (GM2 CAT.GEN.MPA.140)

<u>FIRE CAUSED BY PEDs</u> **(***Refer also to Part D-Appendix N)*

Items containing Lithium batteries such as mobile telephones, lap top computers, on board computers, video and still cameras, hand held games.

The following procedures are recommended for fighting a fire of a lithium-type-battery powered PED. The procedures consist of two phases: (1) extinguishing the fire, and (2) cooling the remaining cells to stop thermal runaway.

(1) Utilize a Halon, Halon replacement or water extinguisher to extinguish the fire and prevent its spread to additional flammable materials.

(2) After extinguishing the fire, douse the device with water or other non-alcoholic liquids to cool the device and prevent additional battery cells from reaching thermal runaway.

WARNING: Do not attempt to pick up and move a smoking or burning device! Bodily injury may result.

WARNING: Do not cover the device or use ice to cool the device. Ice or other materials insulate the device, increasing the likelihood that additional battery cells will reach thermal runaway.

This page intentionally left blank

9 SECTION 9 DANGEROUS GOODS AND WEAPONS

9.1 Policy on the Transport of Dangerous Goods

9.1.1 Approval for the Transport of Dangerous Goods *(CAT.GEN.MPA.200, SPA.DG.105)*

Dangerous goods can only be carried according to the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air *(Technical Instructions)*, irrespective of whether the flight is wholly or partly within or wholly outside the territory of a State. An approval must be granted by the State of the Operator before dangerous goods can be carried on an aircraft, except as identified in *9.1.3* and *9.1.5* below. An additional approval or an exemption may be required to permit the transport of some dangerous goods – *see para 9.1.2 below.*

For operational purposes, the IATA Dangerous Goods Manual is used, and these regulations will be referred to as the IATA Regulations in this manual.

Gama Aviation holds an EASA approval for the transport of dangerous goods by air.

The following persons are assigned responsibility for the approval held:

Post Holder: Ground Operations (or deputy)
Mrs Kirsty Willmett; tel: +44 (0)1252 553051, e: kirsty.willmett@gamaaviation.com

Deputy Post Holder Ground Operations
Mr Tom Everitt; tel: +44 (0) 1252 553035, e: tom.everitt@gamaaviation.com

Cabin Safety and Training Manager
Mr Paul Milverton; tel: +44 (0)1252 553068, e: paul.milverton@gamaaviation.com

Ground Operations Staff trained to IATA Regulations Standards can be identified in the Ground Operations Procedures Manual *(GAL/GOP)*, Section 5.1.4.1

9.1.2 Forbidden Dangerous Goods (CAT.GEN.MPA.200 (c), GM1 CAT.GEN.MPA.200)

Certain dangerous goods, which are normally forbidden, may be specifically approved for air transport by the State of Origin and the State of the Operator:

a) to transport dangerous goods forbidden on passenger and/or cargo aircraft where Special Provision A1/A2 applies; or

b) for other purposes as specified in the IATA Regulations;

provided that in such instances an overall level of safety in transport which is at least equivalent to the level of safety provided for in the IATA Regulations is achieved.

In instances of extreme urgency or when other forms of transport are inappropriate or full compliance with the prescribed requirements is contrary to public interest, the States concerned may grant an exemption from the provisions of the IATA Regulations provided that in such instances an overall level of safety in transport which is at least equivalent to the level of safety provided for in the IATA Regulations is achieved. For the purposes of exemptions, "States concerned" are the States of Origin, Operator, transit, overflight and destination. For the State of overflight, if none of the criteria for granting an exemption are relevant, an exemption may be granted based solely on whether it is believed that an equivalent level of safety in air transport has been achieved.

Additionally, since controls exist for the quantities of some explosives which may be carried to or from specific airfields in the United Kingdom, operators must seek advice from the Civil Aviation Authority as to the suitability of the intended airfield of loading and unloading when Class 1 dangerous goods are being carried under an A2 approval.

Note: Application for approvals should be submitted to the CAA Dangerous Goods Office at least 10 working days prior to the proposed flight date.

Dangerous goods carried in accordance with an exemption or approval must comply with the conditions on the exemption or approval, as well as those on the permanent approval unless these have been varied by the exemption or further approval.

Short-term approvals and exemptions regarding the carriage of dangerous goods will be notified to all relevant operational personnel using the existing Notice to Aircrew procedure. When dangerous goods are carried under a specific exemption or approval, a copy of that document will carried on board the aircraft.

Gama Aviation utilises the permanent EASA exception for the carriage of Nitric Oxide (UN1956) when used for medical purposes or when positioning for medical purposes in accordance with procedure *AOC.OP.050.* - See para 9.1.3.3.

9.1.3 General Exceptions

9.1.3.1 Airworthiness and Operational Items *(CAT.GEN.MPA.200 (b)(1))*

An approval is not required for dangerous goods which are required to be aboard the aircraft as:

a) items for airworthiness or operating reasons or for the health of passengers or crew, such as batteries, fire extinguishers, first-aid kits, insecticides, air fresheners, life rafts, escape slides, life-saving appliances, portable oxygen supplies, tritium signs, smoke hoods, passenger service units;

b) aerosols, alcoholic beverages, perfumes, colognes, liquefied gas lighters and portable electronic devices containing lithium metal or lithium ion cells or batteries *(provided that the batteries meet the provisions applicable when carried by passengers and crew)* carried aboard an aircraft by the operator for use or sale on the aircraft during the flight or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure; and

c) dry ice intended for use in food and beverage service aboard the aircraft; and

d) electronic devices such as electronic flight bags, personal entertainment devices, credit card readers, containing lithium metal or lithium ion cells or batteries and spare lithium batteries for such devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights, provided that the batteries meet the provisions applicable to the carriage of portable electronic devices containing lithium or lithium ion cells or batteries by passengers (See the entry for *'Batteries'* in the table at para 9.1.5 Spare lithium batteries must be individually protected so as to prevent short circuits when not in use).

Note: Operators should collect and retain evidence that any lithium cell/battery carried in accordance with 9.1.3.1*.b) or d)* is of a type which meets the requirements of each test in the United Nations UN Manual of Tests and Criteria, Part III, subsection 38.3

Note: Dangerous goods intended as replacements for those referred to in *para 9.1.3.1 a, b* and *c* above may not be carried without the approval referred to in *para 9.1.1* and unless consigned and accepted for transport in accordance with the IATA Dangerous Goods Regulations.

9.1.3.2 Veterinary Aid (CAT.GEN.MPA.200 (b)(1))

An approval is not required for dangerous goods which are carried for use in flight as veterinary aid or as a humane killer for an animal. Such dangerous goods must be stowed and secured during take-off and landing and at all other times when deemed necessary by the pilot-in-command. The dangerous goods must be under the control of trained personnel during the time when they are in use on the aircraft.

Dangerous goods may be carried on a flight made by the same aircraft before or after a flight for which they are required as veterinary aid or as a humane killer for an animal, *(e.g. training flights and positioning flights prior to or after maintenance)*, when it is impracticable to load or unload the dangerous goods immediately before or after the flight, subject to the following conditions:

a) the dangerous goods must be capable of withstanding the normal conditions of air transport;

b) the dangerous goods must be appropriately identified *(e.g. by marking or labelling);*

c) the dangerous goods may only be carried with the approval of the operator;

d) the dangerous goods must be inspected for damage or leakage prior to loading;

e) loading must be supervised by the operator;

f) the dangerous goods must be stowed and secured in the aircraft in a manner that will prevent any movement in flight which would change their orientation;

g) the pilot-in-command must be notified of the dangerous goods loaded on board the aircraft and their loading location. In the event of a crew change, this information must be passed to the next crew;

h) all personnel must be trained commensurate with their responsibilities; and

i) the provisions of *para 11.10.4* *(Dangerous Goods Accident and Incident Reports)* apply.

9.1.3.3 Medical Aid for a Patient *(CAT.GEN.MPA.200 (b)(1))*

An approval is not required for dangerous goods which:

a) are placed on board an aircraft with the approval of the operator; or

b) form part of the permanent equipment of the aircraft when it has been adapted for specialised use, to provide, during flight, medical aid for a patient, such as gas cylinders, drugs, medicines, other medical material *(e.g. sterilising wipes)* and wet cell or lithium batteries, providing:

   i) the gas cylinders have been manufactured specifically for the purpose of containing and transporting that particular gas;

   ii) the drugs and medicines and other medical matter are under the control of trained personnel during the time when they are in use;

iii) the equipment containing wet cell batteries is kept, and when necessary secured, in an upright position to prevent spillage of the electrolyte; and

iv) proper provision is made to stow and secure all the equipment during take-off and landing and at all other times when deemed necessary by the commander in the interests of safety.

These dangerous goods may also be carried on a flight made by the same aircraft to collect a patient or after that patient has been delivered *(e.g. training flights and positioning flights prior to or after maintenance),* when it is impracticable to load or unload the goods at the time of the flight on which the patient is carried.

Note: The dangerous goods carried may differ from those identified above due to the needs of the patient. These provisions apply both to dedicated air ambulances and to temporarily modified aircraft.

9.1.3.4 Excess baggage being sent as cargo

An approval is not required for dangerous goods contained within items of excess baggage being sent as cargo provided that:

i)the excess baggage has been consigned as cargo by or on behalf of a passenger;

ii) the dangerous goods may only be those that are permitted by and in accordance with *para 9.1.5* to be carried in checked baggage; and

iii) the excess baggage is marked with the words “Excess baggage consigned as cargo”.

With the aim of preventing dangerous goods, which a passenger is not permitted to have, from being taken aboard an aircraft in excess baggage consigned as cargo, any organization or enterprise accepting excess baggage consigned as cargo should seek confirmation from the passenger, or a person acting on behalf of the passenger, that the excess baggage does not contain dangerous goods that are not permitted and seek further confirmation about the contents of any item where there are suspicions that it may contain dangerous goods that are not permitted.

9.1.4 Instructions on the Carriage of Employees of the Operator *(AMC2 CAT.OP.MPA.160)*

There is no restriction of the carriage of employees on an aircraft carrying dangerous goods which are permitted on a passenger aircraft, providing the requirements of the IATA Regulations are complied with. When an aircraft is carrying dangerous goods which can only be carried on a cargo aircraft, employees of the operator can also be carried provided they are in an official capacity. It is intended this be interpreted as meaning they have duties concerned with the preparation or undertaking of a flight or on the ground once the aircraft has landed, although not necessarily in connection with an aircraft. See also para 9.3.4.

9.1.5 Items That May Be Carried by Passengers and Crew *(CAT.GEN.MPA.200 (b)(2))*

An approval is not required for those dangerous goods which, according to the IATA Regulations, can be carried by passengers or crew members.

Passengers or crew are forbidden to carry dangerous goods either as or in carry-on baggage, checked baggage or on their person unless the dangerous goods are permitted in accordance with the table below and:

a) Carried by passengers or crew for personal use only;

b) Contained in baggage that has been separated from its owner during transit (e.g. lost baggage or improperly routed baggage); or

c) Contained within items of excess baggage sent as cargo permitted by *9.1.3.4*

The entry in the table that most appropriately describes the item or article must be selected. For instance, electronic cigarettes must meet the requirements of the entry for "Battery-powered portable electronic smoking devices" not the entry for lithium batteries or non-spill able batteries.

An item or article that contains multiple dangerous goods must meet all applicable entries. For instance, the restrictions and conditions for entries 1) and 14) apply to avalanche backpack that contains lithium batteries and gas cartridges.

Active devices must meet defined standards for electromagnetic radiation to ensure that the operation of the devices does not interfere with aircraft systems.

Where an entry requires compliance with specific UN tests or Special Provisions, if considered necessary (e.g. to grant the operator's approval for carriage), passengers should be able to confirm that the applicable requirements have been met. For items such as batteries, the passenger should be able to obtain confirmation from the manufacturer or supplier of the item.

International standards permit the carriage of the dangerous goods listed below by passengers or crew members either as or in carry-on baggage or checked baggage or on their person. Additional restrictions implemented by countries in the interests of aviation security may, however, limit or forbid the carriage of some of these items.

Certain items listed are permitted only with the operator's approval. A request for this must be presented to the persons listed in *Section 9.1.1* for consideration. Only once approved can the item be carried – details of any restrictions / special considerations should be noted by the commercial team and passed on to the client. Flight crew and ground operations staff should be notified of the agreed details. Carriage of the items may still be at the discretion of the aircraft Commander.

Baggage intended to be carried in the cabin that is placed in the cargo compartment must only contain dangerous goods permitted in checked baggage. When baggage intended as carry-on is taken by the operator and placed in the cargo compartment for carriage, the operator must confirm with the passenger that dangerous goods which are only permitted in the carry-on baggage (e.g. lithium batteries, including power banks) have been removed. This will be checked and confirmed by the operating flight crew

Note 1: The following Dangerous Goods may be commonly carried by passengers on other modes of transport, however, they are prohibited either as or in carry-on baggage or checked baggage:

- Personal medical oxygen devices that utilize liquid oxygen;
- Electroshock weapons (e.g. tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc;
- "strike anywhere" matches;
- Lighter fuel and lighter refills;

- Premixing burner lighter without a means of protection against unintentional activation; and
- Battery-powered lighters powered by a lithium ion or lithium metal battery (e.g. laser plasma lighters, tesla coil lighters, flux lighters, arc lighters and double arc lighters) without a safety cap or means of protection against unintentional activation.

Note 2: Exceptions found in the IATA Regulations from the restrictions of carriage by passengers and crew (e.g. by application of a Special Provision) are not reproduced in the tables below. The following dangerous goods are not subject to the IATA Regulations:-

- Radio-pharmaceuticals contained within the body of a person as the result of medical treatment; and
- Energy efficient lamps when in retail packaging and intended for personal or home use.

Note 3: Air cylinders for purposes such as scuba diving; if empty or at pressure less than 200 kPA at 20^0 (2 Bar or 29 PSI) air cylinders are not classified as dangerous goods so are permitted for carriage by passenger or crew.

9.1.5.2 Loading of battery powered mobility aids – general requirements:

A battery powered mobility aid with installed batteries must be secured, by use of straps, tie-downs or other restraint devices.

The mobility aid, the batteries, electrical cabling, and controls must be protected from damage, including by the movement of baggage, mail or cargo.

The operator must verify that:

a) The battery terminals are protected from short *circuits (e.g. by being enclosed within a battery container)* and;
b) The battery is either:
    i. Securely attached to the mobility aid and the electrical circuits are isolated following the manufacturer's instructions; or
    ii. Removed by the user, if the mobility aid is specifically designed to allow it to be, following the manufacturer's instructions.

Note:

To check that electrical circuits are isolated (inactive), place the device into drive mode (i.e.. Not the freewheel mode), see if the mobility aid will power up, and if so, whether use of the joystick results in the mobility aid moving. It must also be verified that the circuits of supplemental motorised systems such as seating systems have been inhibited to prevent inadvertent operation, e.g. by the separation of cable connectors. If an electric mobility aid has not been made safe for carriage, it must not be loaded.

9.1.5.3 Additional requirements for non-spill able wet battery powered mobility aids:

The passenger has confirmed that the battery is a non-spill able wet battery that complies with Special Provision A67.

A maximum of one spare battery may be carried per passenger.

Any battery(ies) removed from the mobility aid and any spare battery must be carried in the strong, rigid packaging, protected from short circuit and stowed in the cargo compartment.

The operator must inform the pilot-in-command of the location of any mobility aids with installed batteries, removed batteries and spare batteries.

9.1.5.4 Additional requirements for spill able battery powered mobility aids:

Where feasible, the battery is fitted with spill resistant-vent caps.

If the mobility aid cannot be loaded, stowed, secured and unloaded in an upright position or if the mobility aid does not adequately protect the battery, the operator must remove the batteries and carry them in strong, rigid packaging as follows;

a) Packaging must be leak-tight, impervious to battery fluid and be protected against being overturned by securing them to pallets or by securing them in cargo compartments using appropriate means of securement;
b) Batteries must be protected against short circuits, secured upright in these packaging's and surrounded by compatible absorbent material sufficient to absorb their total liquid contents; and
c) These packaging's must be marked "Battery, wet, with wheelchair" or "Battery, wet, with mobility aid" and be labelled with a "corrosive" label and with package orientation labels.

The operator must inform the pilot-in-command of the location of any mobility aids with installed spill able batteries and removed batteries.

9.1.5.5 Additional requirements lithium ion battery powered mobility aids

Any battery removed from the mobility aid and any spare batteries must be carried in the cabin and protected from damage (e.g. by placing each battery in a protective pouch) and the battery terminals protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals).

A removed battery must not exceed 300 Watt-hours ((Wh). In addition, one spare not exceeding 300 Wh or two spares not exceeding 160 Wh are permitted.

The operator must inform the pilot-in-command of the location of any mobility aids with installed lithium ion batteries, removed batteries and spare batteries.

Note: The calculation used to determine watt hours is:

Volts x ampere hour (Ah) = watt hours

Items or 2articles		Location		Approval of the operator(s) is required	Restrictions
		Checked baggage	Carry-on baggage		
Batteries					
1)	Lithium batteries (including portable electronic devices)	Yes (except for g and h)	Yes	(see c) and d)	a) Each battery must be of a type which meets the requirements of each test in the UN Manual Tests and Criteria, Part III, subsection 38.3; b) Each battery must not exceed the following: - For lithium metal batteries, a lithium content of 2 grams; or - For lithium ion batteries, a Watt-hour rating of 100Wh c) Each battery may exceed 100 Wh but not exceed 160 Watt-hour rating for lithium ion with the approval of the operator; d) Each battery may exceed 2 grams but not exceed 8 grams lithium content for portable medical electronic devices with the approval of the operator; e) Batteries contained in portable electronic devices should be carried as carry-on-baggage; however, if carried as checked-baggage: - Measures must be taken to prevent unintentional activation and to protect the devices from damage; and - The devices must be completely switched off (not in sleep hibernation mode); f) Batteries and heating elements must be isolated in portable electronic devices capable of generating extreme heat, which could cause fire if activated, by removal of the heating element, battery or other components; g) Spare batteries, including power banks: - Must be carried as carry-on baggage - Must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating terminals e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch);

	Items or 2articles	*Location*		*Approval of the operator(s) is required*	*Restrictions*
		Checked baggage	*Carry-on baggage*		
					h) Baggage equipped with a lithium battery(ies) exceeding: - For lithium metal batteries, a lithium content of 0.3 grams; or - For lithium ion batteries, a Watt-hour rating of 2.7Wh - Must be carried as carry-on baggage unless the battery(ies) is removed from the baggage, in which case the battery(ies) must be carried in accordance with g); i) No more than two spare batteries meeting the requirements of c) or d) may be carried per person
2)	Non-spillable batteries	Yes	Yes	No	a) Must meet the requirements of Special Provision A67; b) Each battery may not exceed a voltage of 12 volts and a Watt-hour rating of 100 Wh; c) Each battery must be protected from short circuit by the effective insulation of exposed terminals: d) No more than two spare batteries per person may be carried; and e) If contained in equipment, the equipment must either be protected from unintentional activation, or each battery must be disconnected, and its exposed terminals insulated
3)	Battery-powered portable electronic smoking devices (e.g. cigarettes, cigs, ecigars, epipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	a) If powered by lithium batteries, each battery must comply with restrictions 1) a), b) and g); b) The devices and / or batteries must not be recharged on board the aircraft; and c) Measures must be taken to prevent the unintentional activation of the heating element while on board the aircraft

	Items or 2articles	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
4)	Battery-powered mobility aids (e.g. wheelchairs)	Yes	(see d)	Yes	a) For use by passengers whose mobility is restricted by either a disability, their health or age, or a temporary mobility problem (e.g. broken leg) b) The passenger should make advance arrangements with each operator and provide information on the type of battery installed and on the handling of the mobility aid (including instructions on how to isolate the battery) c) In the case of a non-spillable battery: i) Each battery must comply with Special Provision A67; and ii) A maximum of one spare battery may be carried per passenger d) In the case of a lithium ion battery: i) Each battery must be of a type which meets the requirements of each test in the UN Manual of Tests and Criteria, Part III, subsection 38.3; ii) When the mobility aid does not provide adequate protection to the battery: – The battery must be removed in accordance with the manufacturer's instructions; – The battery must not exceed 300 Wh; – The battery terminals must be protected from short circuit (by insulating the terminals, e.g. by taping over exposed terminals); – The battery must be protected from damage (e.g. by being placed in a protective pouch); and – The battery must be carried in the cabin iii) A maximum of one spare battery not exceeding 300 Wh or two spare batteries not exceeding 160 Wh each may be carried. Spare batteries must be carried in the cabin.

Items or 2articles		Location		Approval of the operator(s) is required	Restrictions
		Checked baggage	Carry-on baggage		
Flames and fuel sources					
5)	Cigarette lighter Small packet of safety matches	No	(see b)	No	a) No more than one per person; b) Must be carried on the person; c) Must not contain un-absorbed liquid fuel (other than liquefied gas); and d) If a cigarette lighter is powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g) and 3) b) and c.
6)	Alcoholic beverages containing more than 24 percent but not more than 70 percent alcohol by volume	Yes	Yes	No	a) Must be in retail packaging's; and b) No more than 5 L total net quality per person Note – Alcoholic beverages containing not more than 24 percent alcohol are not subject to any restrictions
7)	Internal combustion engines or fuel cell engines	Yes	No	No	Measures must be taken to nullify the hazard. a) For flammable liquid powered engines i) the engine is powered by a fuel that does not meet the classification criteria for any class or division; and ii) the fuel tank of the vehicle, machine or other apparatus has never contained any fuel, or the fuel tank has been flushed and purged of vapours and adequate measures taken to nullify the hazard; and iii) the entire fuel system of the engine has no free liquid and all fuel lines are sealed or capped or securely connected to the engine and vehicle, machinery or apparatus. b) For flammable gas-powered internal combustion or fuel cell engines: i) the entire fuel system must have been flushed, purged and filled with a non-flammable gas or fluid to nullify the hazard; and ii) the final pressure of the non-flammable gas used to fill the system does not exceed 200kPA at 20 degrees C
8)	Fuel cells containing fuel	No	Yes	No	a) Fuel cell cartridges may only contain flammable liquids, corrosive substances, liquefied flammable gas, water reactive substances or hydrogen in metal hydride;

Items or 2articles	Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
Spare fuel cell cartridges	Yes	Yes	No	b) Refuelling of fuel cells on board an aircraft is not permitted except that the installation of a spare cartridge is allowed c) The maximum quantity of fuel in any fuel cell or fuel cell cartridge must not exceed: - For liquids 200 mL - For solids 200 grams - For liquefied gases, 120 mL for non-metallic fuel cell cartridges or 200 mL for metal fuel cell or fuel cell cartridges; and - For hydrogen in metal hydride, the fuel cell or fuel cell cartridges must have a water capacity of 120 mL or less; d) Each fuel cell and each fuel cell cartridge most conform to IEC 62282-6-100 Ed.1, including Amendment 1, and must be marked with a manufacturer's certification that it conforms to the specification. In addition, each fuel cell cartridge must be marked with the maximum quantity and type of fuel in the cartridge; e) Fuel cell cartridges containing hydrogen in metal hydride must comply with the requirements in Special Provision A162; f) No more than two spare fuel cell cartridges may be carried by a passenger;
				g) Fuel cells containing fuel are permitted in carry-on baggage only h) Interaction between fuel cells and integrated batteries in a device must confirm to IEC 62282-6-100 Ed. 1, including Amendment 1. Fuel cells whose sole function is to charge a battery in the device are not permitted; i) Fuel cells must be of a type that will not charge batteries when the portable electronic device is not in use and must be durably marked by the manufacturer: "APPROVED FOR CARRIAGE IN AIRCRAFT CABIN ONLY" to so indicate; and j) In addition to the languages that may be required by the state of origin for the markings specified above, English should be used

Items or 2articles		Location: Checked baggage	Location: Carry-on baggage	Approval of the operator(s) is required	Restrictions
Gases in cylinders and cartridges					
9)	Cylinders of oxygen or air required for medical use	Yes	Yes	Yes	a) No more than 5kg gross mass per cylinder b) Cylinders, valves and regulators, where fitted, must be protected from damage which could cause inadvertent release of the contents; c) Advance arrangements recommended; and d) The pilot-in-command must be informed of the number of oxygen cylinders loaded on board the aircraft and their loading location(s).
10)	Cartridges of Division 2.2 worn for the operation of mechanical limbs	Yes	Yes	No	Spare cartridges of a similar size are also allowed, if required, to ensure an adequate supply for the duration of the journey.
11)	Cartridge of hydrocarbon gas contained in hair styling equipment	Yes	Yes	No	a) No more than one per person; b) The safety cover must be securely fitted over the heating element; and c) Spare cartridges must not be carried.
12)	Cartridges of Division 2.2 with no subsidiary hazard fitted into a self-inflating personal safety device such as a life-jacket or vest	Yes	Yes	Yes	a) No more than one personal safety device per person b) The personal safety device must be packed in such a manner that is cannot be accidently activated; c) Must be for inflation purposes d) No more than two cartridges are fitted into the device; and e) No more than two spare cartridges
13)	Cartridges of Division 2.2 with no subsidiary hazard for other than a self-inflating personal safety device	Yes	Yes	Yes	a) No more than four cartridges per person; and b) The water capacity of each cartridge must not exceed 50 mL Note – For carbon dioxide, a gas cartridge with a water capacity of 50 mL is equivalent to a 28g cartridge
14)	Cartridges and cylinders of Division 2.2 with no subsidiary hazard contained in an avalanche rescue backpack	Yes	Yes	Yes	a) No more than one avalanche rescue backpack per person; b) The backpack must be packed in such a manner that it cannot be accidently activated; c) May contain a pyrotechnic trigger mechanism which must not contain more than 200mg net of Division 1.4S; and d) The airbags within the backpack must be fitted with pressure relief valves.
Radioactive Material					

Items or 2articles		Location		Approval of the operator(s) is required	Restrictions
		Checked baggage	Carry-on baggage		
15)	Radioisotopic cardiac pacemakers or other medical devices	n/a (see restrictions)	n/a (see restrictions)	No	Must be implanted into a person or fitted externally as the result of medical treatment.
Mercury					
16)	Small medical or clinical thermometer which contains mercury	Yes	No	No	a) No more than one per person; and b) Must be in its protective case
Other Dangerous Goods					
17)	Non-radioactive medicinal articles (including aerosols), toiletry articles (including aerosols), and aerosols in Division 2.2 with no subsidiary hazard	Yes	Yes	No	a) No more than 0.5 kg or 0.5L total net quantity per single article; b) No more than 2 kg or 2 L total net quantity of all articles (*e.g. four aerosol cans of 0.5 L)* per person c) Release valves on aerosols must be protected by a capor other suitable means to prevent inadvertent release of the contents; and d) The release of gas must not cause extreme annoyance or discomfort to crew members so as to prevent the correct performance of assigned duties
18)	Dry Ice	Yes	Yes	Yes	a) No more than 2.5 kg per person; b) Used to pack perishables that are not subject to these IATA regulations; c) The package must permit the release of carbon dioxide gas; and d) When carried as checked baggage, each package must be marked: i) “DRY ICE” or “CARBON DIOXIDE, SOLID”,; and ii) the net weight of the dry ice as an indication that net weight is 2.5 kg or less.
19)	Cartridges in Division 1.4S (UN0012 or UN0014 only)	Yes	No	Yes	a) No more than 5 kg gross mass per person; b) Must be securely packaged; c) Must not include ammunition with explosive or incendiary device; d) Allowances for more than one person must not be combined into one or more packages.
20)	Permeation devices	Yes	No	No	Instructions on how to package permeation devices for calibrating air quality monitoring equipment are found in Special Provision A41.

	Items or 2articles	Location		Approval of the operator(s) is required	Restrictions
		Checked baggage	Carry-on baggage		
21)	Non-infectious specimens in flammable solutions	Yes	Yes	No	Instructions on how to package and mark specimens are found in Special Provision A180.
22)	Refrigerated liquid nitrogen	Yes	Yes	No	Must be contained in insulated packaging's (e.g. dry shippers) that would not allow the build-up of pressure and be fully absorbed in a porous material so that there is no free liquid that could be released from the packaging. Refer to Special Provision A152 for more information.
23)	Dangerous goods incorporated in security-type equipment, such as attaché cases, cash boxes, cash bags, etc.	Yes	No	Yes	The security-type equipment must be equipped with an effective means of preventing accidental activation and the dangerous goods incorporated into the equipment must meet the Special provisions A178

9.1.5.6 The Organization for the Prohibition of Chemical Weapons (OPCW) and government agencies listed in the table below may carry specified instruments containing dangerous goods when:

a) carried by staff members on official travel;

b) contained in baggage that has been separated from its owner during transit *(e.g. lost baggage or improperly routed baggage)*; or

c) contained within items of excess baggage sent as cargo as permitted by 9.1.3.4.

Provisions for instruments carried by OPCW and government agencies

	Items or 2articles	Location		Approval of the operator(s) is required	Restrictions
		Checked baggage	Carry-on baggage		
1)	Instruments containing radioactive material (i.e. chemical agent (CAM) and/or rapid alarm and identification device monitor (RAID-M)	Yes	Yes	Yes	a) The instruments must not exceed the activity limits for 'excepted' packages; b) Must be securely packed; and c) Must be carried by staff members of the Organization for the Prohibition of Chemical weapons (OPCW) on official travel

Items or 2articles		Location		Approval of the operator(s) is required	Restrictions	
		Checked baggage	Carry-on baggage			
2)	A mercurial barometer or mercurial thermometer	No	Yes	Yes	a)	Must be carried by a representative of a government weather bureau or similar official agency
					b)	Must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leakproof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position; and
					c)	The pilot-in-command must be informed of the barometer or thermometer.

9.1.6 Provision of Information to Passengers *(CAT.GEN.MPA.200 (f))*

Operators must inform passengers about dangerous goods that passengers are forbidden to transport aboard an aircraft. *(GAL404)* which includes text and pictorial information on the restrictions on dangerous goods in baggage. The notification system must ensure that where the ticket purchase and/or boarding pass Issuance can be completed by a passenger without the involvement of another person, the system must include acknowledgement by the passenger that they have been presented with the information. The information that must be provided to the passengers: -

A.) at the point of ticket purchase or, if this is not practical, made available in another manner to the passengers prior to boarding pass issuance; and

B.) at boarding pass issuance, or when no boarding pass is issued, prior to boarding the aircraft

The information may be provided in text or pictorial form, electronically, or verbally.

An operator or the operator's handling agent and the airport operator must ensure information on the types of dangerous goods which they are forbidden to transport aboard an aircraft is communicated effectively to passengers.

The information must be presented at each of the places at an airport where tickets are issued, passenger baggage is dropped off and aircraft boarding areas are maintained, and at any other location where passengers are issued boarding passes and/or checked baggage is accepted. This information must include visual examples of dangerous goods forbidden from transport aboard an aircraft.

An operator, of passenger aircraft, should have information on those dangerous goods which may be carried by passengers made available prior to the boarding pass issuance process on their websites or other sources of information.

Operations must describe the means of promulgating Information to passengers.
Gama Aviation (UK) Ltd contains this information on the terms and conditions presented to all clients as well as on the boarding cards given to passengers.

9.1.7 Marking and Labelling of Packages

Articles and substances meeting the dangerous goods classification criteria are assigned a 'UN Number' under the United Nations classification system. This consists a four-digit number preceded by the capital letters 'UN'. Packages of dangerous goods must be marked with the UN Number(s) applicable to their contents.

Packages containing dangerous goods can also be identified by labels indicating the hazard of the goods by their class or division or by the presence of certain handling labels/marks.

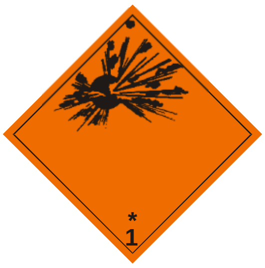
Note: ***When dangerous goods marks or labels are seen on items not declared as dangerous goods, it is often an indication that they do contain such goods. Undeclared dangerous goods must not be loaded on an aircraft and reporting procedures must be implemented (see para 11.10.4).***

During air transport, including storage, dangerous goods marks and labels must not be covered or obscured by any part of or attachment to the packaging or any other label or marking.

CLASS 1 – EXPLOSIVE

Class 1 (with exploding bomb symbol) – explosives generally not permitted on an aircraft.

Class 1 *(without exploding bomb symbol)* *Divisions 1.4B, 1.4F, 1.5 and 1.6* – explosives not usually permitted on an aircraft in normal circumstances.



* Division and compatibility group

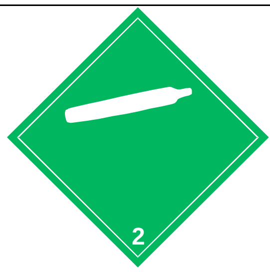
** Compatibility group

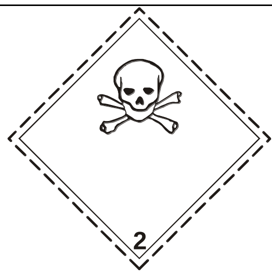
CLASS 2 – GASES

Flammable gas (Division 2.1)

Non-flammable, non-toxic gas (Division 2.2)

Toxic gas (Division 2.3)





CLASS 3 – FLAMMABLE LIQUID

CLASS 4 – FLAMMABLE SOLIDS; Substances liable to spontaneous combustion; substances which, in contact with water, emit flammable gases.

Flammable solid (Division 4.1)	Substance liable to spontaneous combustion (Division 4.2)	Substance which, in contact with water, emits flammable gas (Division 4.3)

CLASS 5 – OXIDISING SUBSTANCES AND ORGANIC PEROXIDES

Oxidising substance	Organic peroxide (Division 5.2) (flame may be black or white)

(Division 5.1)

CLASS 6 – TOXIC AND INFECTIOUS SUBSTANCES

Toxic substance (Division 6.1)

Infectious substance (Division 6.2)

The bottom part of the label should bear the inscription:

"INFECTIOUS SUBSTANCE — In case of damage or leakage immediately notify public health authority".

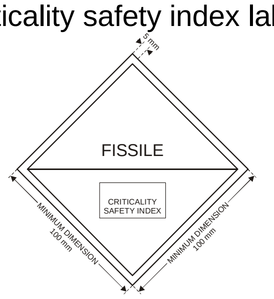
CLASS 7 – RADIOACTIVE MATERIAL

Category I

Category II

Category III

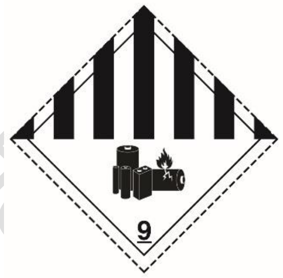
Criticality safety index label



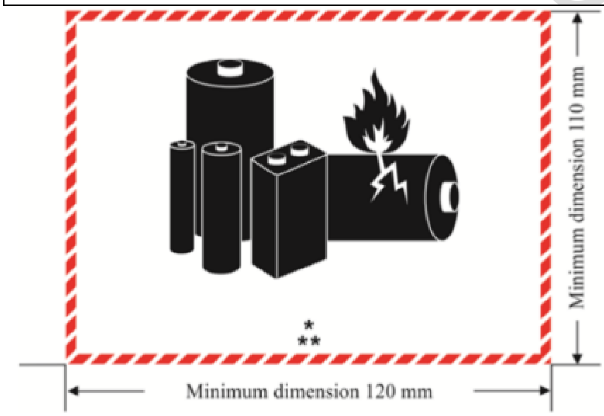
CLASS 8 – CORROSIVE

CLASS 9 – MISCELLANEOUS

Class 9 label for Section I, IA and IB shipments



LITHIUM BATTERIES MARK



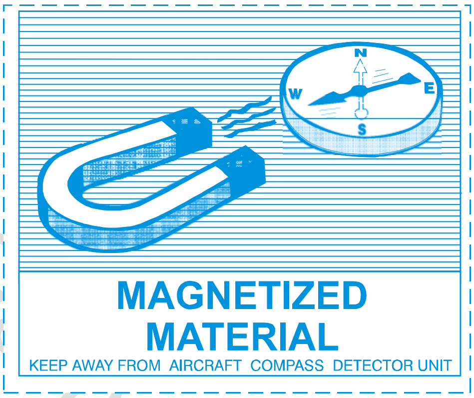
* Place for UN Number(s)
** Place for telephone number for additional information

Application of the lithium battery mark to a consignment of lithium batteries (of any type) indicates that the Shipper has determined specific requirements have been met. Consignments borne this label without the Class 9 label do not need to be accompanied by a dangerous goods transport document (Shipper's Declaration) and no acceptance check is required.

HANDLING LABELS

Packages of dangerous goods may also bear labels providing handling information; these are:

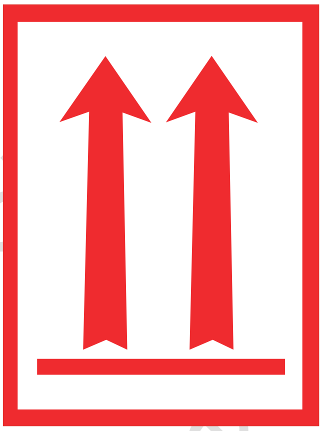
Magnetized material



Cargo aircraft only

Cryogenic liquid label

Package orientation

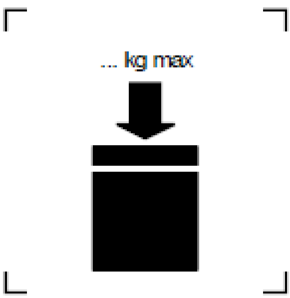


(red or black)

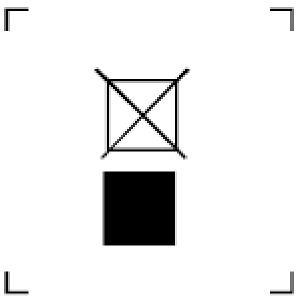
Keep away from heat

Intermediate Bulk Containers (IBCs) *are only permitted for the transport of UN 3077 Environmentally hazardous substance, solid, n.o.s. The maximum permitted stacking load applicable when the IBC is in use must be displayed on a symbol as follows:*

IBCs capable of being stacked



IBCs NOT capable of being stacked



EXCEPTED QUANTITIES MARK

Packages containing excepted quantities of dangerous goods can be identified from the following:

Hatching and symbol of the same colour, black or red, on white or suitable contrasting background.

* Place for class or, when assigned, the division number(s).

** Place for name of shipper or consignee, if not shown elsewhere on the package.

LIMITED QUANTITIES MARK

Packages containing limited quantities of dangerous goods can be identified from the following:

Many dangerous goods when in reasonably limited quantities present a reduced hazard during transport and can safely be carried in good quality packaging's that have not been tested and marked as is required for UN Specification packaging's required for larger quantities of dangerous goods. Packages containing limited quantities of dangerous goods must be marked with a diamond shaped mark. When presented for carriage by air, the mark must additionally include a "Y" which indicates compliance with the provisions of the ICAO Technical Instructions, some of which are more stringent than those of the UN Model Regulations and of other modes of transport.

NOTE: The mark depicted here but without the 'Y' indicates that the package contains dangerous goods in limited quantities as permitted by surface transport regulations (ADR/IMDG) which may not be acceptable for air transport. A package so marked and offered for transport in the absence of a dangerous goods transport document must be reported to the appropriate authority where the goods are discovered as a discovery of undeclared dangerous goods (the CAA if discovered within the UK).

ENVIRONMENTALLY HAZARDOUS SUBSTANCES MARK

Packages containing environmentally hazardous substances (UN Nos. 3077 and 3082) must be durably marked with the environmentally hazardous substance mark with the exception of packages containing a net quantity per single or inner packaging with 5 L or less for liquids; or having a net mass per single inner packaging of 5 kg or less for solids.

9.2 Duties of all Personnel Involved

9.2.1 Detailed Assignments of Responsibilities *(CAT.GEN.MPA.200 (d))*

Person Nominated as Responsible for Operator's Dangerous goods Approval	• Oversight and control of the carriage of dangerous goods. • Ensuring all necessary permissions, approvals and exemptions are held. • Generation (or acceptance) of relevant procedures. • Responding to queries regarding the carriage of dangerous goods. • Arrangement of the carriage of dangerous goods only in accordance with the operator's stated policies.
Commercial Department	• Recognition of undeclared dangerous goods.
Persons receiving or handling general cargo, mail and stores	• Recognition of undeclared dangerous goods. • Dealing with dangerous goods that are found damaged or leaking during processing for transport. • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected, a report is made to the appropriate Authority *(see 11.10.4)*.
Persons receiving or handling dangerous goods	• Acceptance procedures for dangerous goods are carried out as required by the Technical Instructions. • Inspection procedures during the processing of dangerous goods for transport are carried out as required by the Technical Instructions. • Dealing with dangerous goods that are found damaged or leaking during processing for transport. • Dangerous goods are loaded, segregated, stowed and secured on an aircraft in accordance with the Technical Instructions. • Generation of written information to the commander (NOTOC). • Provision of written information about dangerous goods loaded on board to the commander for signature. • Retention of documentation on the ground. • Recognition of undeclared dangerous goods. • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected, a report is made to the appropriate Authority *(see 11.10.4)*.
Charter Sales	• Ensuring that information is provided with the passenger ticket or in another manner such that prior to or during the check-in process the passenger receives the information. • Considering passenger requests for approval of the operator for items of dangerous goods requiring such approval.

Persons handling passengers	• Ensuring that the provisions concerning passengers and dangerous goods are complied with. • Ensuring that notices are displayed in sufficient number and prominence at each of the places at an airport where tickets are issued, passengers checked in and aircraft boarding areas maintained, and at any other location where passengers are checked in. • With the aim of preventing dangerous goods which passengers are not permitted to have from being taken on board an aircraft in their baggage, seeking confirmation from a passenger about the contents of any item where there are suspicions that it may contain dangerous goods. • When baggage intended as carry-on is taken by the operator and placed into the cargo compartment for carriage, seeking confirmation from the passenger that dangerous goods which are only permitted in carry-on baggage (e.g. lithium batteries, including power banks) have been removed. • Ensuring that the discovery of prohibited dangerous goods (after a passenger has checked in) is reported to the appropriate Authority *(see 11.10.4)*.
Operations Personnel	• If there is an aircraft incident or accident, information is passed to emergency services and state Authorities as required by the Technical Instructions *(see 11.10.2)*. • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected a report is made to the appropriate Authority *(see 11.10.4)*.
Flight Crew	• Recognition of undeclared dangerous goods. • Signature of NOTOC to indicate receipt of information. • If an in-flight emergency occurs, as soon as the situation permits, passage of details of dangerous goods on board to the appropriate Air Traffic Services Unit. • Responding to a dangerous goods incident or accident in the cabin (if operation does not have cabin crew). • If there is a dangerous goods incident or accident, or if undeclared dangerous goods are detected a report is made to the Appropriate Authority (*see 11.10.4*).
Trainers	• Provision of initial and recurrent dangerous goods training commensurate with the responsibilities of the personnel concerned.
Compliance Monitoring Manager, Auditors and Safety Manager	• Ensuring that activities are monitored for compliance with dangerous goods requirements and that these activities are carried out properly under the supervision of the relevant head of functional area. • Ensuring the initiation and follow-up of internal occurrence / accident investigations.

The Operator has four staff qualified to IATA Regulations standards and in addition all other Ground Operations personnel receive Dangerous Goods Awareness training via approved operators training in-house.

All handling agents appointed to carry out all the procedures for the processing and acceptance of dangerous goods on the operators aircraft will have personnel qualified to IATA Regulations or ICAO Technical Instruction standards. The nominated handling agent must be provided with a copy of this section and all relevant operator procedures to action including GAL615 NOTOC the Dangerous Goods Checklist.

9.3 Guidance on the Requirements for Acceptance, Handling and Stowage *(SPA.DG.105)*

9.3.1 Acceptance Check

Before a consignment consisting of a package or overpack containing dangerous goods, a freight container containing radioactive material or a unit load device containing dangerous goods is first accepted for carriage by air, the operator must, by use of a checklist, verify the following:

a) the documentation or, when provided, the electronic data is compliant with the applicable requirements

b) the quantity of dangerous goods stated on the dangerous goods transport document is within the limits per package on a passenger or cargo aircraft as appropriate;

c) the package, overpack or freight container marks accord with the details stated on the accompanying dangerous goods transport document and is clearly visible;

d) where required, the letter in the packaging specification marking designating the packing group for which the design type has been successfully tested is appropriate for the dangerous goods contained within. This does not apply to overpacks where the specification marking is not visible;

e) proper shipping names, UN numbers, labels, and special handling instructions appearing on the interior package(s) are clearly visible or reproduced on the outside of an overpack;

f) the labelling of the package, overpack or freight container is as required for the consignment;

g) the outer packaging of a combination package or the single packaging is permitted by the applicable packing instruction, and when visible is of the type stated on the accompanying dangerous goods transport document;

h) the package or overpack does not contain different dangerous goods which require segregation from each other; and

i) the package or overpack is not leaking and there is no indication that its integrity has been compromised;

The operator must be able to identify the person who performed the acceptance check.

Note 1: *An acceptance check is not required for dangerous goods in excepted quantities, radioactive material in excepted packages and lithium batteries consigned in accordance with Section II of the applicable packing instruction.*

Note 2: *Persons conducting dangerous goods acceptance checks must have received dangerous goods training commensurate with this responsibility. Acceptance checks conducted in the United Kingdom must only be conducted by a person who has successfully completed training applicable to this role from a CAA Approved Dangerous Goods Training Organisation.*

9.3.2 Inspections for Damage or Leakage *(SPA.DG.105)*

A package or overpack containing dangerous goods must not be loaded onto an aircraft unless it has been inspected immediately prior to loading and found free from evidence of leakage or damage. Packages or overpacks containing dangerous goods must be inspected for signs of damage or leakage upon unloading from the aircraft.

9.3.3 Prohibition on the Carriage of Dangerous Goods Within a Cabin Occupied by Passengers *(SPA.DG.105)*

Dangerous goods must not be carried in the cabin of an aircraft occupied by passengers or on the flight deck, except as provided for in the IATA Regulations.

9.3.4 Prohibition on the Carriage of Passengers with 'Cargo Aircraft Only' Dangerous Goods *(SPA.DG.105)*

Dangerous goods identified as suitable for transport only on a cargo aircraft must not be carried on an aircraft on which passengers are being carried. In this context "passenger" excludes a crew member, an operator's employee *(see para 9.1.4)*, an authorised representative of an Authority and a person with duties in respect of a shipment of dangerous goods or other cargo on board.

9.3.5 Segregation, Separation and CAO Accessibility *(SPA.DG.105)*

9.3.5.1 Dangerous goods must be loaded, stowed and secured on an aircraft as required by the IATA Regulations. This includes segregating packages from each other when they contain incompatible dangerous goods, the separation of explosives of different division numbers and compatibility groups (when required), securing packages in a manner that will prevent any movement. Dangerous goods must also be protected so they cannot be damaged by the movement of baggage, mail, stores or other cargo.

9.3.5.2 With certain exceptions (see Note 1) packages and overpacks bearing the "Cargo Aircraft Only" label must be loaded for carriage by a cargo aircraft (see 9.3.4) in accordance with one of the following provisions:

a) in a class C aircraft compartment; or

b) in a unit load device equipped with a fire detection / suppression system equivalent to that required by certification requirements of a class C aircraft cargo compartment as determined by the appropriate national authority (a ULD that is determined by the appropriate national authority to meet the class C aircraft cargo compartment standards must include "Class C compartment" on the ULD tag); or

c) in such a manner that in the event of an emergency involving such packages or overpacks, a crew member or authorized person can access those packages or overpacks, and can handle and, where size and mass permit, separate such packages and overpacks from other cargo.

Note 1: the requirements of 9.3.5.2 do not apply to:

i. Flammable liquids (Class 3) Packing Group III, other than those with a subsidiary hazard of 8.
ii. Toxic substances (Division 6.1) with no subsidiary hazard other than Class 3;
iii. Infectious substances (Division 6.2);
iv. Radioactive material (Class 7)
v. Miscellaneous dangerous goods (Class 9);
vi. UN3528 – Engine, internal combustion, flammable liquid powered or Engine, fuel cell, flammable liquid;
vii. Powered or Machinery, internal combustion, flammable liquid powered or Machinery, fuel cell, flammable liquid powered; and
viii. UN3529 – Engine, internal combustion, flammable gas powered or Engine, fuel cell, flammable gas powered or Machinery, internal combustion, flammable gas powered or Machinery, fuel cell, flammable gas powered.

All dangerous goods shall be secured to the aircraft cargo loading floor, where installed, and secured using the company approved cargo netting at the appropriate securing stations in line with the manufacturer's instructions and supplemental type certificate. The aircraft currently operated by the company do not allow for adequate segregation whilst maintaining accessibility in flight. As such, the company will not carry mixed category dangerous goods requiring segregation and in-flight monitoring. Where in-flight monitoring is not required then appropriate storage and securing straps are available in aircraft wing lockers.

9.3.5.3 Packages and overpacks containing UN 3480 — Lithium ion batteries prepared in accordance with Section IA or Section IB of Packing Instruction 965 and packages and overpacks containing UN 3090 — Lithium metal batteries prepared in accordance with Section IA or Section IB of Packing Instruction 968 must not be stowed on an aircraft next to, or in a position that would allow interaction with, packages or overpacks containing dangerous goods which bear a Class 1, other than Division 1.4S, Division 2.1, Class 3, Division 4.1 or Division 5.1 hazard label.

Segregation of incompatible dangerous goods

Hazard Label	1	2.1	2.2 2.3	3	4.1	4.2	4.3	5.1	5.2	8	9 (see 9.3.5.3)
1	Note 1	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2	Note 2
2.1	Note 2										X
2.2, 2.3	Note 2										
3	Note 2							X			X
4.1	Note 2										X
4.2	Note 2							X			
4.3	Note 2									X	
5.1	Note 2			X		X					X
5.2	Note 2										

8	Note 2						X				
9 See 9.3.5.3	Note 2	X		X	X			X			

An “X” at the intersection of a row and column indicates that packages containing these classes of dangerous goods may not be stowed next to or in contact with each other, or in a position which would allow interaction in the event of leakage of the contents. Thus, a package containing Class 3 dangerous goods may not be stowed next to or in contact with a package containing Division 5.1 dangerous goods.

Note 1: See the table below detailing the separation of explosive substances and articles.

Note 2: This class or division must not be stowed together with explosives other than those in Division 1.4, Compatibility Group S.

Note 3: Packages containing Dangerous Goods with multiple hazards in the class or divisions which require segregation in accordance with the above table need not be segregated from other packages bearing the same UN number.

Note 4: UN3528, Engines, internal combustion, flammable and liquid powered, Engines, fuel cell, flammable liquid powered, Machinery internal combustion, flammable liquid powered and Machinery, fuel cell, flammable liquid powered need not be segregated from packages containing dangerous goods in Division 5.1.

Separation of explosive substances and articles

Division and Compatibility Group	1.3C	1.3G	1.4B	1.4C	1.4D	1.4E	1.4G	1.4S
1.3C			X					
1.3G			X					
1.4B	X	X		X	X	X	X	
1.4C			X					
1.4D			X					
1.4E			X					
1.4G			X					
1.4S								

An “X” at the intersection of a row and column indicates that explosives of these divisions and compatibility groups must be loaded into separate unit load devices and, when stowed aboard the aircraft, the unit load devices must be separated by other cargo with a minimum separation distance of 2 m. When not loaded in a unit load device, these explosives must be loaded into different, non-adjacent loading positions and separated by other cargo with a minimum separation distance of 2 m. Explosive substances and articles carried under an exemption may be subject to additional separation requirements.

9.3.6 Loading of Dry Ice *(SPA.DG.105)*

Dry ice *(Carbon dioxide, solid; UN1845)* may be carried onboard aircraft to keep food *(galley or cargo)* and medicine or biological materials *(as cargo)* in a frozen or chilled condition. Carbon dioxide gas produced by the sublimation of dry ice is an asphyxiant and will reduce the amount of available oxygen to breathe. Dry ice sublimation producing excess CO_2 gas may be dangerous in confined spaces where there is an absence of ventilation or ventilation rates are low. The signs and symptoms of CO_2 poisoning are similar to those that precede lack of oxygen, namely headache, dizziness, muscular weakness, drowsiness, and ringing in the ears. CO_2 poisoning does have a greater effect on breathing than simple lack of oxygen, causing a significant increase in the rate and depth of breathing as an early symptom. 10% carbon dioxide in air can be endured for only a few minutes whereas 12% to 15% would cause unconsciousness.

Ground staff must be informed that dry ice is being loaded or is onboard the aircraft.

The company does not operate compartmentalised aircraft and as such has imposed a limit 2.5kg x the maximum number of seats certified for the aircraft type.

9.3.7 Loading of Magnetised Material *(SPA.DG.105)*

Packing Instruction 953 allows the carriage of such material when the magnetic field strength at a distance of 4.6 m causes a compass deflection of not more than 2 degrees *(equivalent to 0.418 A/m or 0.00525 Gauss measured at a distance of 4.6 m)*. Material with a magnetic field strength exceeding these limits may only be carried with the prior approval of the State of Origin and the State of the Operator.

Magnetised material must be loaded so headings of aircraft compasses are maintained within the tolerances prescribed by the applicable aircraft airworthiness requirements and, where practical, in locations minimising possible effects on compasses.

Note: *Masses of ferromagnetic metals such as automobiles, automobile parts, metal fencing, piping and metal construction material, even if not meeting the definition of magnetised materials, may affect aircraft compasses. As may packages or items of material which individually do not meet the definition of magnetised material, but cumulatively may have a magnetic field strength of a magnetised material.*

Please note only small items would be able to be carried due to the size of our aircraft types, these would be loaded as far back as possible in the aircraft to prevent any interference with magnetised material / flight deck / aircraft instruments.

9.3.8 Loading of Radioactive Material *(SPA.DG.105)*

Radioactive materials are articles or substances which spontaneously and continuously emit ionising radiation, which can be harmful to the health of humans and animals and can affect photographic or X-Ray film. Whilst packaging's used for the transport of radioactive material must provide protection from radiation, there is likely to be residual activity from packages offered for air transport.

A Transport Index (TI) is a number which represents the level of radiation at 1 metre, assigned to a single package, overpack or freight container. The TI is used to provide control over radiation exposure, to determine categories of radioactive material for the purposes of labelling, declaration, etc., to determine whether transport under exclusive use is required and to determine spacing requirements during storage and transport. The TI for each overpack or freight container must be determined as either the sum of the transport indices of all the packages contained, or by direct measurement of radiation level.

Separation from Persons

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from persons. The minimum separation distances in the following table that are to be applied are based upon the sum of TIs and these distances are from the surface of the packages, overpacks or freight containers to the nearest inside surface of the passenger cabin or flight deck partitions or floors, irrespective of the duration of the carriage of the radioactive material. If the packages, overpacks or freight containers are separated into groups, the minimum distance from the nearest inside surface of the passenger cabin or flight deck partitions or floors to each group is the distance applicable to the sum of the TIs within the individual groups, provided that each group is separated from each other group by at least three times the distance applicable to the one that has the larger sum of TIs. Alternative separation distances apply when radioactive material is being carried by a cargo aircraft and in those circumstances the minimum distances must be applied as above and to any other areas occupied by persons. Whether carried on a passenger or cargo aircraft, in accordance with the practice of keeping exposure to radiation as low as reasonably achievable, separation distances should be extended whenever feasible.

Passenger or Cargo Aircraft		Cargo Aircraft Only	
Total sum of transport indexes	Minimum distance (metres)	Total sum of transport indexes	Minimum distance (metres)
0.1 – 1.0	0.30	50.1 – 60.0	4.65
1.1 – 2.0	0.50	60.1 – 70.0	5.05
2.1 – 3.0	0.70	70.1 – 80.0	5.45
3.1 – 4.0	0.85	80.1 – 90.0	5.80
4.1 – 5.0	1.00	90.1 – 100.0	6.10
5.1 – 6.0	1.15	100.1 – 110.0	6.45
6.1 – 7.0	1.30	110.1 – 120.0	6.70
7.1 – 8.0	1.45	120.1 – 130.0	7.00
8.1 – 9.0	1.55	130.1 – 140.0	7.30
9.1 – 10.0	1.65	140.1 – 150.0	7.55
10.1 – 11.0	1.75	150.1 – 160.0	7.80
11.1 – 12.0	1.85	160.1 – 170.0	8.05
12.1 – 13.0	1.95	170.1 – 180.0	8.30
13.1 – 14.0	2.05	180.1 – 190.0	8.55
14.1 – 15.0	2.15	190.1 – 200.0	8.75
15.1 – 16.0	2.25	200.1 – 210.0	9.00
16.1 – 17.0	2.35	210.1 – 220.0	9.20
17.1 – 18.0	2.45	220.1 – 230.0	9.40
18.1 – 20.0	2.60	230.1 – 240.0	9.65

Passenger or Cargo Aircraft		Cargo Aircraft Only	
Total sum of transport indexes	Minimum distance (metres)	Total sum of transport indexes	Minimum distance (metres)
20.1 – 25.0	2.90	240.1 – 250.0	9.85
25.1 – 30.0	3.20	250.1 – 260.0	10.05
30.1 – 35.0	3.50	260.1 – 270.0	10.25
35.1 – 40.0	3.75	270.1 – 280.0	10.40
40.1 – 45.0	4.00	280.1 – 290.0	10.60
45.1 – 50.0	4.25	290.1 – 300.0	10.80

Separation from Live Animals

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from live animals by a distance of at least 0.5 metres for journeys not exceeding 24 hours, and by a distance of at least 1.0 metres for journeys longer than 24 hours.

Separation from Undeveloped Photographic Film

Categories II — Yellow and III — Yellow packages, overpacks or freight containers must be separated from undeveloped photographic films or plates. The minimum separation distances to be applied from the surface of the packages, overpacks or freight containers to the surface of the packages of undeveloped photographic films or plates are as follows:

Total sum of transport indexes	Duration of carriage					
	2 hours or less	2-4 hours	4-8 hours	8-12 hours	12-24 hours	24-48 hours
1	0.4	0.6	0.9	1.1	1.5	2.2
2	0.6	0.8	1.2	1.5	2.2	3.1
3	0.7	1.0	1.5	1.8	2.6	3.8
4	0.8	1.2	1.7	2.2	3.1	4.4
5	0.8	1.3	1.9	2.4	3.4	4.8
10	1.4	2.0	2.8	3.5	4.9	6.9
20	2.0	2.8	4.0	4.9	6.9	10.0
30	2.4	3.5	4.9	6.0	8.6	12.0
40	2.9	4.0	5.7	6.9	10.0	14.0
50	3.2	4.5	6.3	7.9	11.0	16.0

Note: The above table is calculated so that the radiation dose received by the films does not exceed 0.1 mSv (10 mrem).

Means of Securing

The means of securing packages or overpacks must adequately ensure that minimum separation distances are maintained at all times.

An aircraft and equipment used for the transport of radioactive material must be checked every six months with the use of a Geiger Counter device to determine the level of contamination.

9.3.9 Loading of UN2211, Polymeric beads, expandable or UN3314, Plastics Moulding compound

A total of not more than 100kg net mass of expandable polymeric beads (or granules), or plastic moulding materials, referenced to Packaging Instruction 957, may be carried in any inaccessible cargo compartment of any aircraft.

NB: Gama would review on a case by case basis if these could be carried onboard a Gama Aviation Aircraft due to the size of aircraft operated and hold accessibility.

9.3.10 Notification to Captain *(NOTOC)* (*AMC SPA.DG.110(a)*)

As early as practicable before departure of the aircraft, but in no case later than when the aircraft moves under its own power, the operator of an aircraft in which dangerous goods are carried must:

i) Provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo *(GAL615)*; and

ii) Provide personnel with responsibilities for operational control of the aircraft *(e.g. the flight operations officer, flight dispatcher, or designated ground personnel responsible for flight operations)* with the same information that is required to be provided to the pilot-in-command *(e.g. a copy of the written information provided to the pilot-in-command)* This is to facilitate notifying emergency services and authorities of the dangerous goods on board in the event of an aircraft accident or incident *(see para 11.10.2)*

The nominated handling agent / approved Gama personnel will provide a scanned or faxed copy of the signed NOTOC to operations@gamaaviation.com / +44 (0)1252 553031 prior to the aircraft moving under its own power. A copy of this scanned NOTOC shall be retained by the Duty Operations Manager (+ 44 (0) 1252 553030) on duty within Gama Operations, which is manned 24/7, until completion of the flight upon which it will be placed in the Flight File for that aircraft.

Note: This includes information about dangerous goods loaded at a previous departure point and which are to be carried on the subsequent flight.

This information must include the following:

a) The date of flight

b) the air waybill number *(when issued)*;

c) the proper shipping name *(with the technical name(s) shown on the dangerous goods transport document is not required)* and UN number or ID number;

d) the class or division, and subsidiary hazard(s) corresponding to the subsidiary hazard label(s) applied, by numerals, and *(in the case of Class 1)* the compatibility group;

e) the packing group shown on the dangerous goods transport document;

f) the number of packages and their exact loading location. For radioactive material see g) below;

g) the net quantity, or gross mass if applicable, of each package, except that this does not apply to radioactive material or other dangerous goods where the net quantity or gross mass is not required on the dangerous goods transport document. For a consignment consisting of multiple packages containing dangerous goods bearing the same proper shipping name and UN number, only the total quantity and an indication of the quantity of the largest and smallest package at each loading location need to be provided;

h) for radioactive material, the number of packages, overpacks or freight containers, their category, their Transport Index *(if applicable)* and their exact loading location;

i) whether the package must be carried on cargo aircraft only;

j) the aerodrome at which the package(s) is to be unloaded; and

k) where applicable, an indication that the dangerous goods are being carried under a State exemption.

l) signed confirmation, or some other indication, from the person responsible for loading the aircraft that there was no evidence of any damage to or leakage from the packages or any leakage from the unit load devices loaded on the aircraft.

m) The telephone number where a copy of the information to the pilot-in-command can be obtained during flight.

Note 1: For UN 1845 Carbon dioxide, solid *(dry ice)*, the information detailed above may be replaced by UN number, proper shipping name, class, total quantity in each cargo compartment on the aircraft and the aerodrome at which the package(s) is to be unloaded.

Note 2: For UN3480 *(Lithium ion batteries)* and UN3090 *(Lithium metal batteries),* the information detailed above may be replaced by the UN number, proper shipping name, class, total quantity at each specific loading location, the aerodrome at which the package(s) is to be unloaded and whether the package must be carried on cargo aircraft only. A full NOTOC is required when such batteries are carried under a state exemption.

Note 3: For consumer commodities, the information provided may either be the gross mass of each package or the average gross mass of the packages as shown on the dangerous goods transport document.

The following dangerous goods need not appear on the NOTOC:

- Dangerous goods packed in excepted quantities
- Biological substance, Category B
- Genetically modified micro-organisms
- Genetically modified organisms
- Lithium ion batteries *(including lithium ion polymer batteries);* Lithium ion batteries contained in equipment; and Lithium ion batteries packed with equipment when meeting the Section II requirements of the applicable Packing Instruction.
- Lithium metal batteries *(including lithium alloy batteries)*, Lithium metal batteries contained in equipment, and Lithium metal batteries packed with equipment when meeting the Section II requirements of the applicable Packing Instruction.
- Magnetized material with field strengths causing a compass deflection of not more than 2 degrees at a distance of 4.6m
- Radioactive material, excepted package *(UN 2908, UN 2909, UN 2910 or UN 2911)*

9.3.11 Availability of NOTOC on the Ground for the Duration of Flight *(SPA.DG.110)*

A legible copy of the information to the pilot-in command must be retained on the ground. This copy must have an indication on it, or with it, that the pilot-in-command has received the information.

9.3.12 Retention of Documents (ORO.MLR.115 (b)(4), SPA.DG.110(f))

At least one copy of the documents appropriate to the transport by air of a consignment of dangerous goods *(including consignments that fail their acceptance check)* must be retained for a minimum period of three months, or such other period as specified by the States concerned, after the flight on which the dangerous goods were transported. As a minimum, the documents which must be retained are the dangerous goods transport document (Shipper's Declaration), the acceptance checklist *(when this is in a form which requires completion)* including identification of the person who completed it, and the NOTOC *(if the goods were carried).*

These documents will be retained by the nominated handling agent contracted for each flight.

9.3.13 Ad Hoc Charters *(CAT.GEN.MPA.200 (a))*

The company regularly operates Ad-hoc charters and as such operates to a number of airports where there is no negotiated contract in place for the provision of handling services. It is common practice in these instances to send an ad-hoc handling requests to a nominated agent. Where dangerous goods are to be carried on a company aircraft the nominated handling agent must be agreed and approved by one of the responsible persons listed in *para 9.1.1*. and a LOA signed between the two parties confirming the correct assignment of duties with regards to the handling and acceptance of dangerous goods. The nominated handling agent will also agree to provide the company a copy of the signed NOTOC prior to the aircraft moving under its own power as prescribed in *para 9.3.10*

9.4 Recognition of Undeclared / Hidden Dangerous Goods *(CAT.GEN.MPA.200(e))*

9.4.1 'Hidden' Dangerous Goods

Personnel must be alert to indications that undeclared dangerous goods are present within cargo, mail or stores. Personnel interfacing with passengers must be alert to indications that prohibited dangerous goods are carried by passengers or within their baggage.

NOTE: THE DISCOVERY OF UNDECLARED OR MIS-DECLARED DANGEROUS GOODS OR THE DISCOVERY OF DANGEROUS GOODS FORBIDDEN FOR CARRIAGE BY PASSENGERS (DISCOVERED AFTER THE CHECK-IN PROCESS) MUST BE REPORTED TO THE CAA – SEE 11.10.4.

The following is a list of general descriptions that are often used for items in cargo or in passengers' baggage and the types of dangerous goods that may be included in any item bearing that description.

Aircraft on ground (AOG) spares — may contain explosives (flares or other pyrotechnics), chemical oxygen generators, unserviceable tyre assemblies, cylinders of compressed gas (oxygen, carbon dioxide or fire extinguishers), fuel in equipment, wet or lithium batteries, matches.

Automobile parts / supplies (car, motor, motorcycle) — may include engines (including fuel cell engines), carburettors or fuel tanks that contain or have contained fuel, wet or lithium batteries, compressed gases in tyre inflation devices and fire extinguishers, air bags, flammable adhesives, paints, sealants and solvents etc.

Battery-powered devices / equipment – may contain wet or lithium batteries.

Breathing apparatus — may indicate cylinders of compressed air or oxygen, chemical oxygen generators or refrigerated liquefied oxygen.

Camping equipment — may contain flammable gases (butane, propane, etc.), flammable liquids (kerosene, gasoline, etc.) or flammable solids (hexamine, matches, etc.).

Cars, car parts — see automobile parts, etc.

Chemicals — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.

Consolidated consignments (groupages) — may contain any of the defined classes of dangerous goods.

Cryogenic (liquid) — indicates refrigerated liquefied gases such as argon, helium, neon, nitrogen, etc.

Cylinders — may contain compressed or liquefied gas.

Dental apparatus — may contain flammable resins or solvents, compressed or liquefied gas, mercury and radioactive material.

Diagnostic specimens — may contain infectious substances.

Diving equipment — may contain cylinders of compressed gas (e.g. air or oxygen). May also contain high intensity diving lamps that can generate extreme heat when operated in air. In order to be carried safely, the bulb or battery should be disconnected.

Drilling and mining equipment — may contain explosive(s) and/or other dangerous goods.

Dry shipper (vapour shipper) — may contain free liquid nitrogen. Dry shippers are only not subject to IATA Regulations when they do not permit the release of any free liquid nitrogen irrespective of the orientation of the packaging.

Electrical / electronic equipment — may contain magnetised materials, mercury in switch gear, electron tubes, wet or lithium batteries or fuel cell cartridges that contain or have contained fuel.

Electrically-powered apparatus (wheelchairs, lawn mowers, golf carts, etc.) — may contain wet or lithium batteries or fuel cell cartridges that contain or have contained fuel.

Expeditionary equipment — may contain explosives (flares), flammable liquids (gasoline), flammable gas (camping gas) or other dangerous goods.

Film crew and media equipment — may contain explosive pyrotechnic devices, generators incorporating internal combustion engines, wet or lithium batteries, fuel, heat-producing items, etc.

Frozen embryos — may be packed in refrigerated liquefied gas or dry ice (solid carbon dioxide).

Frozen fruit, vegetables, etc. — may be packed in dry ice.

Fuel control units — may contain flammable liquids.

Hot-air balloon — may contain cylinders with flammable gas, fire extinguishers, engines (internal combustion), batteries, etc.

Household goods — may contain items meeting any of the criteria for dangerous goods. Examples include flammable liquids such as solvent-based paint, adhesives, polishes, aerosols (for passengers, those not permitted under ICAO Technical Instructions 8;1.1.2), bleach, corrosive oven or drain cleaners, ammunition, matches, etc.

Instruments — may conceal barometers, manometers, mercury switches, rectifier tubes, thermometers, etc. containing mercury.

Laboratory/testing equipment — may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries, cylinders or compressed gas etc.

Machinery parts — may contain flammable adhesives, paints, sealants and solvents, wet and lithium batteries, mercury, cylinders of compressed or liquefied gas, etc.

Magnets and other items of similar material — may individually or cumulatively meet the definition of magnetised material.

Medical supplies / equipment— may contain items meeting any of the criteria for dangerous goods, particularly flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries.

Metal construction material — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Metal fencing — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Metal piping — may contain ferro-magnetic material which may be subject to special stowage requirements due to the possibility of affecting aircraft instruments.

Pharmaceuticals — may contain items meeting any of the criteria for dangerous goods, particularly radioactive material, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.

Photographic supplies / Equipment — may contain items meeting any of the criteria for dangerous goods, particularly heat-producing devices, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances, lithium batteries.

Racing car or motorcycle team equipment — may contain engines (including fuel cell engines), carburettors or fuel tanks that contain fuel or residual fuel, wet and lithium batteries, flammable aerosols, nitromethane or other gasoline additives, cylinders of compressed gases, etc.

Refrigerators — may contain liquefied gases or an ammonia solution.

Repair kits — may contain organic peroxides and flammable adhesives, solvent-based paints, resins, etc.

Samples for testing — may contain items meeting any of the criteria for dangerous goods, particularly infectious substances, flammable liquids, flammable solids, oxidisers, organic peroxides, toxic or corrosive substances.

Semen — may be packed with dry ice or refrigerated liquefied gas (see also dry shipper).

Sporting goods / sports team equipment – may contain cylinders of compressed or liquefied gas (air, carbon, dioxide etc), lithium batteries, propane torches, first aid kits, flammable adhesives, aerosols, etc.

Swimming pool chemicals — may contain oxidising or corrosive substances.

Switches in electrical equipment or instruments — may contain mercury.

Tool boxes — may contain explosives (power rivets), compressed gases or aerosols, flammable gases (Butane cylinders or torches), flammable adhesives or paints, corrosive liquids, lithium batteries etc.

Torches — micro torches and utility lighters may contain flammable gas and be equipped with an electronic starter. Larger torches may consist of a torch head (often with a self-igniting switch) attached to a container or cylinder of flammable gas.

Unaccompanied passengers' baggage/personal effects — may contain items meeting any of the criteria for dangerous goods.

Note: *Excess baggage carried as cargo may contain certain dangerous goods (see 9.1.3.4).*

Vaccines — may be packed in dry ice.

9.4.1.1 Identification of Dangerous Goods Through X-Ray Screening

Persons conducting security screening of cargo should be alert to the presence of dangerous goods within packages that are not marked and labelled as dangerous goods and/or not accompanied by a Shipper's Declaration. In particular, items such as aerosols, ammunition, gas cylinders (camping gas, cylinders attached to life-jackets, etc.), cigarette lighters and wet acid batteries can be readily identified from x-ray images. Information provided on an air waybill or marked on a package often indicates that a consignment contains no dangerous goods. In the absence of such annotation by the shipper, should suspicions be raised by the size and shape of the contents of a package, consideration should be given to opening and hand-searching the consignment to verify that no undeclared dangerous goods are present.

Consignments of dangerous goods that have been properly marked, labelled and declared to the operator (where approved for carriage) are commonly processed separately from general freight. Should consignments bearing UN numbers, proper shipping names or hazard labels be discovered within general freight, when separate arrangements exist, this should be queried. It may be that no shipper's declaration accompanies the consignment; as such the consignment of dangerous goods would be considered 'undeclared'.

9.4.1.2 Safety Data Sheets

REACH (**R**egistration, **E**valuation, **A**uthorisation & restriction of **CH**emicals) is a European Union regulation controlling chemicals in Europe. REACH requires for many substances and mixtures, a Safety Data Sheet (SDS) to be provided either before or at the time of first delivery. Section 14 of the EU format SDS provides basic classification information, i.e. UN number, proper shipping name, Class/Division and Packing Group.

9.4.1.3 GHS Consumer Labelling (Overview)

Some everyday household items bear consumer warning labels which may or may not indicate they are classified as dangerous goods in air transport. All over the world there are different laws on how to identify the hazardous properties of chemicals (called ‘classification’) and how information about these hazards is then passed to users (through consumer supply labels and safety data sheets for workers). This can be confusing because the same chemical can have different hazard descriptions in different countries. For example, a chemical could be labelled for supply as ‘toxic’ in one country, but not in another. For this reason, the UN brought together experts from different countries to create the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

The GHS has been implemented within Europe by – the Regulation on Classification, Labelling and Packaging of Substances and Mixtures (known as the CLP Regulation).

9.4.1.4 GHS Labels

Products bearing the following GHS labels ARE classified as dangerous goods:

Note: A product bearing the GHS corrosive label (depicted far right above) is NOT classified as dangerous goods if the signal word ‘Danger’ and hazard statement ‘causes serious eye damage’ applies.

Products bearing the following GHS labels (and none of the above) are NOT classified as dangerous goods:

9.5 Emergency Situations (AMC1 SPA.DG.105(b))

9.5.1 Provision of Information for Use in Responding to In-Flight Emergencies (SPA.DG.110)

For those dangerous goods for which a dangerous goods transport document is required, the commander of an aircraft carrying such goods must be provided with information which can be used on board to assist in planning the response to an emergency arising in-flight involving the dangerous goods.

All company operated aircraft used to carry dangerous goods will have in the aircraft library a copy of ‘Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods’ (Doc 9481), which is published by the International Civil Aviation Organization.

9.5.2 For procedures for responding to emergency situations see section 11.10.

9.6 Conditions Under Which Weapons, Munitions of War and Sporting Weapons May Be Carried *(CAT.GEN.MPA.155, CAT.GEN.MPA.160)*

9.6.1 Need for Approval to Transport Munitions of War *(CAT.GEN.MPA.155)*

Weapons of war and munitions of war can only be carried provided an approval to do so has been granted by all the States concerned before a flight. They must be carried in the aircraft in a place which is inaccessible to passengers during flight and, in the case of firearms, unloaded, except as specified in *para 9.6.2* below.

Gama Aviation does not hold CAA approval for the transport of Munitions of War by air.

9.6.2 Stowage Requirements for Munitions of War *(EC Regulation 300/2008)*

In exceptional circumstances, weapons of war and munitions of war may be carried other than in an inaccessible place on the aircraft and may be loaded, provided an approval to do so has been granted by all the States concerned before a flight. These exceptional circumstances are intended primarily to permit the carriage of law enforcement officers, protection officers, etc.

UK Police Protection Officers hold an exemption from the Air Navigation Order that enables them to carry their weapons on their person when accompanying specific named VIPs. A condition on the exemption requires the police to provide the operator with a copy of the relevant exemption in advance of the flight to demonstrate that the exemption applies to them and the person they are accompanying. Official Record Series 4 approves the carriage of weapons by operators in accordance with the exemption issued to UK Police Protection Officers. Should an operator be asked to carry protection officers bearing weapons on their person and the Police do not/cannot provide a copy of the relevant exemptions (preferably when booking the flight), then their weapons must be stowed in a location that is inaccessible during flight. When the police officer is not accompanying any of the persons referred to in the exemption, the unloaded arms and ammunition shall be stowed in a location which is inaccessible to passengers on the aircraft. The exemption issued to UK Police Protection Officers and the Official Record Series 4 document each contain additional conditions with which operators must comply.

There are some limited occasions when the UK CAA may grant one-off exemptions for persons not on the two exemptions held by the Police, such as visiting Heads of State, but these will generally only be when accompanied by UK Protection Officers. In such circumstances, or in the event of a request for non-UK protection officers to carry weapons in the cabin, the operator must apply to the CAA Dangerous Goods Office.

9.6.3 Notifying Commander of the Carriage of Munitions of War *(CAT.GEN.MPA.155)*

The commander must be notified before a flight if weapons of war or munitions of war are to be carried on the aircraft.

9.6.4 Carriage of Sporting Weapons When Inaccessible to Passengers During Flight *(CAT.GEN.MPA.160)*

Sporting weapons and ammunition for such weapons may be carried without an approval from an Authority, provided they are stowed in a place on the aircraft which is inaccessible to passengers during flight and, in the case of firearms, unloaded.

Prior notification should be given to the operator of anyone intending to carry a sporting weapon including copies of the required licenses, this should be requested by Charter Sales at the time of booking.

NOTE: Ammunition is subject to the conditions set out in 9.1.5

9.6.5 The passenger and operator *(or his agent)* must observe all regulations applicable to the export, import and transit of weapons and ammunition, applicable in the country of departure, transit and destination.

This page intentionally left blank

10 SECTION 10 - SECURITY

10.1 General

The Company is required to ensure that all appropriate personnel are familiar, and comply with, the relevant requirements of the National Security Programme. Where the necessary instructional expertise is not available 'in-house', arrangements will be made for visits to major airlines where suitable lecture programmes are part of the training syllabus. Advice and guidance on security and relevant training can be obtained from:

CAA, 5th Floor
11, Westferry Circus
Canary Wharf
London
E14 4HD

Email: AviationSecurityEnquiries@~~caa.gsi.gov.uk~~
AviationSecurityEnquiries@avsec.caa.co.uk

Telephone: 0207 453 5874 / 5825 ~~or 5828~~
IAW ACSP, Section 1.5

For any urgent aviation security issues (i.e. those that represent an imminent threat to airports, aircraft or the wider aviation industry), please call 0207 453 5876 or 5825 Monday – Friday 09:00 – 17:00

Out of Office hours, please use telephone: 0330 022 1500

The company Security Manager has overall responsibility for matters affecting security. He / she will report directly to the Accountable Manager. In addition he / she will be responsible for the establishment and maintenance of security procedures within the company. The Security Officer will keep the operations department informed of all relevant security matters.

The Account Manager / Client Service Co-ordinator and / or the Duty Operations Manager is responsible for informing the Security Manager of any security related matter. In addition the Account Manager / Client Service Co-ordinator or the Duty Operations Manager is also responsible for ensuring that all aeroplane Commanders are kept fully informed, at all times, of any security matter related to that aeroplane Commander's current operation and/or duties.

Gama Aviation will not disclose passenger names and itineraries to any person who is not directly involved with the movement in question. Passenger and aircraft movements are kept strictly confidential.

The Commander of the aircraft will be responsible for the security of the aircraft and will comply with the procedures laid out in the Air Carrier Security Programme.

.

This page intentionally left blank

11 Section 11 - Handling of Accidents and Occurrence Reporting *ORO.GEN.160*

11.1 Accidents

The following is the ICAO definition of an Accident and also the definition of a UK 'Reportable Accident'.

An occurrence associated with the operation of an aircraft which takes place between the time when any person boards the aircraft with the intention of flight and such time as all persons have disembarked there from, in which:

a. Any person suffers death or serious injury while in or upon the aircraft or by direct contact with any part of the aircraft (including any part which has become detached from the aircraft) or by direct exposure to jet blast, except when the death or serious injury is from natural causes, is self-inflicted or is inflicted by other persons or when the death or serious injury is suffered by a stowaway hiding outside the areas normally available in flight to the passengers and members of the crew of the aircraft, or
b. The aircraft incurs damage or structural failure, other than:
    i. Engine failure or damage, when the damage is limited to the engine, its cowling or accessories;
    ii. Damage limited to propellers, wing tips, antennae, tyres, brakes, fairings, small dents or punctured holes in the aircraft skin, which adversely affects its structural strength, performance or flight characteristics and which would normally require major repair or replacement of the affected component, or
c. The aircraft is missing or is completely inaccessible or
d. Significant damage is caused to the property of the company or any third party.

Note: 'Significant' damage in this respect may be taken to mean any damage caused which may be subject to an insurance claim.

11.2 Serious Injury

Serious injury means an injury which is sustained by a person in a reportable accident and which:

a. Requires his stay in hospital for more than 48 hours commencing within seven days from the date on which the injury was received.
b. Results in a fracture of any bone (except simple fractures of fingers, toes or nose).
c. Involves lacerations which cause nerve, muscle or tendon damage or severe haemorrhage.
d. Involves injury to any internal organ.
e. Involves second or third degree burns or any burns affecting more than five per cent of the body surface.
f. Involves verified exposure to infectious substances or injurious radiation.

11.2.1 Airprox

A situation in which, in the opinion or the controller, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved was or may have been compromised.

11.2.2 Bird strike

An incident in flight in which the Commander of an aircraft has reason to believe that the aircraft has been in collision with one or more birds.

11.3 Pilot Post Accident Procedures

Immediately after an accident on land, or a ditching, and following the evacuation of the passengers to either a sheltered location upwind of the aircraft, or into the life raft the pilot should carry out, or delegate the following duties to either a crew member or a selected passenger:

a. Subject to safety and the prevailing situation the aircraft should be left in a safe condition with fuel off and aircraft batteries disconnected and equipment such as first aid kits, survival packs and fire extinguishers removed.
b. A headcount should be made to account for all persons on board at the time of the accident. In the event of a person, or persons being unaccounted for, action should be taken to recover them or locate their whereabouts.
c. The needs of any injured person should be administered to as far as is possible – such persons should be made as comfortable as is practicable.
d. The bodies of any victims should be decently set apart and covered.
e. Activate the distress beacon and establish feasibility of using aircraft radio equipment. Prepare pyrotechnics for immediate use. Select, mark and prepare a rescue helicopter landing site. If a site is not available, lay out appropriate search and rescue signals.
f. If people, dwellings, or communications facilities are very close to the scene of the accident, consider sending for assistance, having regard to the local situation, distress messages, transmitted and received, and the local SAR facilities.
g. If rescue is likely to be delayed for reasons of distance, or failing daylight, prepare suitable shelters distribute necessary rations of food and water. If necessary, ascertain the availability of fresh water in the immediate vicinity of the accident.
h. Subsequent to rescue and subject to the location of the accident, the police should be informed and assistance sought in the placing of guards on the aircraft. Alternatively, consideration should be given to hiring local watchmen.

11.4 Aircraft Accident Reporting

Following an accident or incident involving company aircraft the Captain shall complete the Company Accident Report, in addition to complying with the laws and regulations of the country of registration and the country in which the accident or incident occurred.

Aircraft accidents and incidents are classified by the company, for reporting purposes, in accordance with the definitions as detailed in this Section. If there is any doubt as to the classification, the occurrence should be reported as an Accident. The Director Flight Operations will reclassify accidents and incidents where necessary.

The Company will retain Incidents/Accidents reports for a period of five years. These reports will be managed through the Management.

11.5 Accident Reporting Procedures

Whenever an accident occurs, the following sequence of reporting actions must be followed:

a. Notify the Operator by Fax, AFTN or Email (operations@gamaaviation.com) immediately using the prefix ACCIDENT, in accordance with the format prescribed below.
b. If appropriate, telephone the company in accordance with the requirements detailed below.
c. Where necessary notify the Competent Authority of the country in which the accident occurs and/or in which the aircraft is registered. The accident message should indicate whether such notification has been made or is intended.
d. Complete and despatch the Company Air Safety Report form as soon as possible but in any case within 72 hours of the accident. Where items of the report cannot be completed due to lack of information, they should be marked 'to be completed' and the missing information forwarded when obtained, rather than delaying the report.

11.6 Responsibility for Accident Reporting *ORO.GEN.200(a)(3)*

After any accident, it is the responsibility of the pilot involved, or the senior staff member on site, to ensure that the appropriate reporting procedures are followed without delay. Accidents must be notified to the Company via the quickest means.

The Director Flight Operations will issue standing instructions regarding any requirement to notify the appropriate and local authorities. A copy of these instructions should be incorporated in the Base Instructions.

In the United Kingdom and for British registered aircraft, and for aircraft of British manufacture, the AAIB will be notified by the Company.

11.7 Informing the Company by Fax or AFTN

When reporting accidents to the company by Fax the following number/address should be used:

Fax Number:	+44 (0)1252 553001
AFTN:	EGLFGMAX

The message should be in the standardised form as follows:

	Reference
	ACCIDENT
AA	Date
BB	Aircraft Registration
CC	Pilot's Name
DD	Other Crew Members
EE	Number of Passengers
FF	Location of Accident
GG	Time of Accident (local)
HH	Brief description of pilot's injuries
II	Brief description of crew/passenger injuries
JJ	Brief description of accident, inc. flight phase and task
KK	Brief description of extent of damage
LL	Post accident procedures carried out

MM Action taken on site to notify authorities
NN Immediate action requested on the Company's part

Other relevant information may be added which may influence the course of subsequent action on the Company's part or which may provide a clearer picture of the accident. An example of such a message would read as follows:

	XBC 125
	ACCIDENT
AA	13:2:94
BB	G-XYAB
CC	PETAL
DD	NIL
EE	SIX
FF	ABERDEEN
GG	1120
HH	MINOR CUTS AND ABRASIONS
II	TWO PAX MINOR CUTS
JJ	HEAVY LANDING FOLLOWING SEVERE WINDSHEAR ON APPROACH AT 50 FEET
KK	UNDERCARRIAGE IRREPARABLE WILL REVERT WITH FULL DETAILS REPLACEMENT PARTS REQUIRED
LL	PILOT AND PASSENGERS RECOVERED BY LANDROVER GUARD PLACED ON AIRCRAFT
MM	LOCAL DCA AND CLIENT ADVISED
NN	NO COMPANY ACTION REQUIRED AT THIS TIME

In areas where communications are difficult or liable to delays and provided no fatalities or serious injuries have been suffered, the despatch of the accident message may be held back up to six hours in order to provide more comprehensive information which might become available during that time.

11.8 Follow-up Information

In view of postal uncertainties and possible delay in the arrival of the Accident Report, the person responsible shall provide the Director of Flight Operations:

a. Additional information which may come to light or updating earlier information already sent.
b. Any apparent mechanical failure discovered.
c. The form of investigation which may be taking place and aspects which are receiving special consideration.
d. Recommendation regarding the pilot's return to duty as prescribed in 'Flying after an Accident' below.

It is emphasised that this follow-up procedure is an essential requirement to enable the Director of Fight Operations to decide on what further action is appropriate.

Follow-up messages addressed to the company on matters concerning accidents / incidents shall be prefixed 'Re Accident .....' or 'Re Incident ....' followed by the aircraft registration to which the information refers.

11.9 Reporting by Telephone

In the event of an accident in which fatalities or serious injuries are sustained or persons are missing or where grave political or international embarrassment or serious adverse publicity may result, the Accountable Manager and Director of Flight Operations must be informed, day or night, without delay.

+44 (0) 1252 553030

11.10 Special Notification Requirements in the Event of an Accident or Occurrence When Dangerous Goods are Being Carried or Have Been Offered for Air Transport Without Having Been Prepared and Declared in Accordance with the ICAO Technical Instructions)

11.10.1 Information to be Provided by the Pilot-In-Command in the Event of an In-Flight Emergency (AMC1 SPA.DG.105(b))

If an in-flight emergency occurs and the situation permits, the commander must inform the appropriate Air Traffic Services Unit of any dangerous goods on board. This information should include the proper shipping name, class/division, identified subsidiary hazard(s), compatibility group for explosives, quantity and location on board.

The company maintains a 24 hour Operations Department which is manned by personnel who have all completed Dangerous Goods Awareness training. A copy of the NOTOC for each flight will be held by the Operations Department for the duration of the sector, and they can be contacted by telephone on +44 (0)1252 553030 or by email operations@gamaaviation.com. Additionally, the Responsible Persons named in 9.1.1 are certified to IATA Category 6 and are available 24/7 on an on-call basis.

11.10.2 Information to be Provided by the Operator in the Event of an Aircraft Accident or Serious Incident Where Dangerous Goods Carried as Cargo may be Involved

If an aircraft carrying dangerous goods as cargo is involved in an accident or serious incident where the dangerous goods may be involved, the operator must provide information, without delay, to emergency services responding to the accident or serious incident about the dangerous goods on board, as shown on the copy of the information to the pilot-in-command (NOTOC). The information must be sufficient to enable any hazards created by the dangerous goods to be minimised and include the proper shipping name, UN number, class/division, any identified subsidiary hazards, the compatibility group for explosives, the quantity and the location on board the aircraft. As soon as possible, the operator must also provide this information to the CAA Dangerous Goods Office and the appropriate authority of the State in which the accident or serious incident occurred. In the first instance, the Dangerous Goods Office should be alerted to the incident or accident by phone using the following number:

Telephone: +44 (0) 330 022 1915.

11.10.3 Information to be Provided by the Operator in the Event of an Aircraft Incident (AMC1 SPA.DG.105(b))

In the event of an aircraft incident, the operator of an aircraft carrying dangerous goods as cargo must, if requested to do so, provide information without delay to the emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, about the dangerous goods on board, as shown on the copy of the information to the pilot-in-command (NOTOC). For aircraft accidents and serious incidents, see para 11.10.2.

11.10.4 Dangerous Goods Accident and Incident Reports (CAT.GEN.MPA.200(e))

Definitions:

Dangerous goods accident: An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident: An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants is also deemed to be a dangerous goods incident.

Note: A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified in ICAO Annex 13 — Aircraft Accident and Incident Investigation.

An operator must report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred in accordance with the reporting requirements of those appropriate authorities.

> *Note.— This includes incidents involving dangerous goods that are not subject to all or part of these Instructions through the application of an exception or of a special provision (e.g. an incident involving the short circuiting of a dry cell battery that is required to meet short-circuit prevention conditions in a special provision of 3;3).*

An operator must report to the State of the Operator and the State of Origin any occasion when:

a) dangerous goods are discovered to have been carried when not correctly loaded, segregated, separated or secured.

b) dangerous goods are discovered to have been carried without information having been provided to the pilot-in command (when required) or the information is inadequate.

An operator must report any occasion when undeclared or mis declared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the Operator and the State in which this occurred**.**

An operator must report any occasion when dangerous goods that are not permitted are discovered by the operator (or the operator is advised by the entity that discovers the dangerous goods) either in the baggage or on the person of passengers (after check-in) or crew members. Such a report must be made to the appropriate authority of the State in which this occurred.

In addition to the requirements of the ICAO Technical Instructions for the reporting of dangerous goods occurrences (above), ORO.GEN.160 requires that **any incident** which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person is reported to **CAA Safety Data**. Dangerous goods occurrences reportable under the Mandatory Occurrence Reporting Scheme include:

- Dangerous goods found not to have been secured to prevent movement
- Damage to packages of dangerous goods
- NOTOC errors where dangerous goods have not been stowed in accordance with loading instructions
- Failure to prepare electric wheelchairs in order to prevent accidental activation
- Electric wheelchairs found not to have been stowed and secured correctly
- Leakage of dangerous goods from passenger baggage

NOTE: Dangerous goods occurrences meeting the criteria of ORO.GEN.160 also meet the definition of a dangerous goods accident or incident (above), reportable in accordance with CAT.GEN.MPA.200(e). Accordingly, the report must be made to CAA Safety Data within 72 hours (rather than 96), unless exceptional circumstances prevent this.

A dangerous goods accident or dangerous goods incident not meeting the criteria of ORO.GEN.160 must be reported to the CAA Dangerous Goods Office within 72 hours, unless exceptional circumstances prevent this. If necessary, a subsequent report shall be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation shall be sent as soon as possible. Any type of accident or incident must be reported irrespective of whether the dangerous goods are in cargo, mail, stores, passengers' baggage or crew baggage.

In accordance with Regulation (EU) No.376/2014 on the reporting analysis and follow-up of occurrences in civil aviation aircraft operators are required to store occurrence reports on a database capable of producing an output that is ECCAIRS compatible. Organisations need to submit Mandatory Occurrence Reports to the CAA in this format.

Dangerous goods occurrences not meeting the criteria of ORO.GEN.160 are to be reported to dgo@caa.co.uk using the following forms:

> **CAA Form** SRG 2808 may be used to report a dangerous goods occurrence involving cargo or unaccompanied baggage.
>
> **CAA Form** SRG 2809 may be used to report a dangerous goods occurrence involving a passenger/crew member or their baggage.

The first and any subsequent report shall be as precise as possible and contain such of the following data that are relevant:

- Date of the incident or accident or the finding of undeclared or mis declared dangerous goods.
- Location, the flight number and flight date.
- Description of the goods and the reference number of the air waybill, pouch, baggage tag, ticket, etc.

- Proper shipping name (including the technical name, if appropriate) and UN/ID number, when known.
- Class or division and any subsidiary risk.
- Type of packaging, and the packaging specification marking on it.
- Quantity of dangerous goods.
- Name and address of the shipper, passenger, etc.
- Any other relevant details.
- Suspected cause of the incident or accident.
- Action taken.
- Any other reporting action taken.
- Name, title, address and telephone number of the person making the report.

Copies of relevant documents and any photographs taken should be attached to a report.

NOTE: IF SAFE TO DO SO, THE DANGEROUS GOODS INVOLVED IN THE ACCIDENT OR INCIDENT SHOULD BE HELD PENDING CAA INVESTIGATION.

The procedures for the reporting of dangerous goods incidents are described in the company Safety Management Manual. An Occurrence Report Form has a dangerous goods section for completion when appropriate. The Flight Safety Officer will ensure that a copy of the completed NOTOC is attached to the report.

Any LOA between the company and a third party handler will contain a Service Level Agreement requiring the handler to notify the company immediately of any incident involving dangerous goods.

11.10.5 Removal of Contamination (SPA.DG.105)

In the event of a spillage or leakage of dangerous goods within an aircraft, the position where the dangerous goods were stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. The hazard of the dangerous goods within packages concerned may be established by checking the entry on the NOTOC for that loading position or from hazard labels applied to the packages. Persons responding in the event of damage to or leakage of dangerous goods from packages must:

- identify the hazards and wear appropriate protective clothing;
- avoid handling the package or keep handling to a minimum;
- inspect adjacent packages for contamination and put aside any that may have been contaminated;
- arrange for decontamination of the aircraft and equipment; and
- in the case of infectious material, inform the appropriate public health authority or veterinary authority, and provide information to any other countries of transit where persons may have been exposed to danger; and notify the shipper and/or the consignee.

If it is evident that a package containing radioactive material is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package must be restricted and a qualified person must, as soon as possible, assess the extent of contamination and the resultant radiation level of the package. The scope of the assessment must include the package, the aircraft, the adjacent loading and unloading areas and, if necessary, all other material which has been carried in the aircraft. When necessary, additional steps for the protection of persons, property and the environment must be taken in accordance with provisions established by the relevant competent authority, to overcome and minimise the consequences of such leakage or damage. An aeroplane which has been contaminated by radioactive materials must be immediately taken out of service and not returned until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions. In the event of non-compliance with any limit in the Technical Instructions applicable to radiation level or contamination, the operator must ensure the shipper is informed if the non-compliance is identified during transport; take immediate steps to mitigate the consequences of the non-compliance; and communicate the non-compliance to the shipper and relevant competent Authority(ies), respectively, as soon as practicable and immediately whenever an emergency situation has developed or is developing.

11.11 Accident Report Distribution *(see also paragraph 11.5)*

All Accident Reports shall be addressed to the Operations Department (Flight Safety) with a copy held on file on the Unit. A Copy should also be sent to the Managing Pilot.

11.12 Flying after an Accident

After being involved in an accident as defined at the beginning of this paragraph, the crew shall not carry out further flying duties.

Crew members shall remain on site, unless to undergo medical treatment or examination, and may not be scheduled for flying duties until authorised by the Director of Flight Operations after the preliminary findings of the investigation are known or apparent.

In order to expedite a Crew member's return to normal flying duties the Director of Flight Operations may exercise judgement whether in his own carefully considered judgement, the actions of the Crew member were in no way a contributory cause of the accident, nor, commensurate with the average ability of an alert, well-trained crew member, contributed to any subsequent damage.

11.13 Incident

An occurrence not covered by the definition of Aircraft Accident in *paragraph 11.1* which:

a. Has jeopardised the safety of passengers, crew or aircraft but which has terminated without serious injury or substantial damage and / or
b. Under slightly varied circumstances, may have jeopardised the safety of the passengers, crew or aircraft, or may have resulted in an aircraft accident and/or
c. Was caused by damage to, or failure of, any major component, not resulting in substantial damage, or serious injury, but which required the repair or replacement of that component.

Examples:

a. A precautionary or forced landing without subsequent substantial damage to the aircraft or third parties, nor serious injury to the crew, passengers or other persons.
b. An engine failure or stoppage which does not consequently result in substantial damage or serious injuries.
c. An external part of the aircraft becoming detached in flight, not causing substantial damage or serious injury to a third party.
d. Instances of contaminated fuel. Absence of fuel quality control.
e. A forced, unscheduled, change of flight plan caused by the failure of aircraft instruments, navigation aids or other technical failure.
f. Bird strikes, Airprox, In-flight Icing.

It must be realised that an Incident Report is not required to apportion blame but to prevent a similar incident recurring when the consequences might be more serious. The Company however, would take a very serious view of any failure to report any incident which subsequently came to light.

11.14 Serious Incidents

A serious incident is defined as an incident which:

a. Has jeopardised the safety of passengers, crew or aircraft and narrowly avoids being an accident (by good handling, good luck, etc)
b. Has serious potential technical or operational implications, or
c. May result in formal disciplinary action against Flight Crew or engineers.

The decision to classify an Incident as 'Serious' will normally be made by the Senior Person in the Operations or a nominated person within the operating Company. This decision must be made as soon as possible after the event and before the crew or aircraft fly again.

The Director of Flight Operations is to relieve the crew from flying duties until they have been interviewed and assessed fit for duty. Any such action would be principally to preserve the crew's recollection of the incident or to ensure their fitness for duty rather than for disciplinary reasons.

If, following a serious incident, the aircraft lands away from base a replacement CVR or CVDR, if appropriate, is to be installed before the aircraft flies again and the records installed at the time of the incident returned to base for action. If the Crew or engineers attending the incident know or suspect that an incident may be classified as 'serious' they should ensure that any CVR or CBFR, if fitted, is disabled after shutdown to prevent any relevant data being overwritten when power is re-applied to the aircraft.

11.15 Incident Investigation - *Refer to Safety Management Manual*

The purpose of Incident reporting is to improve the safety and reliability of aircraft and their operation and thereby to avoid accidents and serious incidents. It is not the purpose of the incident reporting scheme to apportion blame, but it must be appreciated that where there is clear evidence of serious negligence or incompetence, the company has a duty to take any action that may be necessary to ensure the future safety of its aircraft and their occupants.

All incidents must be investigated if the purpose of the incident reporting scheme is to be served; the depth of the investigation required depending upon the seriousness of the incident. It is important that all incident reports should include sufficient information for the incident to be fully assessed by the company's Flight Safety staff.

11.16 Incident Reporting Procedures

The pilot involved is to complete the Incident Report Form within three days of the occurrence. The Director of Flight Operations and Maintenance Manager should add the report of their local investigation together with their comments and recommendations stating any immediate preventative action which may have been taken.

The Director of Flight Operations should anticipate that certain incidents may be subject to an insurance or warranty claim and will therefore need to complete page 7 of the Accident Report 'Details Required for Insurance Purposes' in addition to the Incident Report. Instances of this would be for any major component change, or the loss of an external load. In the latter case, it would be necessary to report whether the lost load had subsequently been recovered and whether repairable or not.

The completed Incident Report should be despatched to the Operations Department (Flight Safety) within 5 days of this occurrence.

11.17 Local Assessment

In order that Accident and Incident Reports can be more readily assessed, it is extremely important that Director of Flight Operations should give careful consideration to the circumstances of the event before the report is forwarded to the company. Their comments and recommendations are a very necessary part of the report and should include opinion as well as any relevant background information which may not be otherwise apparent from the text of the Pilot's or Maintenance Manager's report.

Failure on the part of the Director of Flight Operations to do this may result in an erroneous or incomplete assessment of the incident which in turn can give rise to protracted correspondence before the file on the event can finally be closed.

11.18 Supporting Information

Where they may be relevant, the following documents and information should accompany the Air Safety Report:

- Photographs of the aircraft and area
- Position of cockpit controls and switches
- Sketch map of the area
- Passenger / eye witness report
- Post-accident medical reports in respect of crew and passengers
- Copy of the Standard or Multiple Sector Load Sheet
- Any relevant extracts from local legislation and / or base instructions
- Weather report
- Passenger seat plan in the aircraft
- Extract from radio log
- Engine power checking data for the 30 days preceding the accident or incident
- Post-accident procedures carried out.

11.19 Accident and Incident Report Distribution

The Sections comprising the Accident Report must be kept intact and not separately posted to the respective department heads. All Accident and Incident Reports shall be addressed to the Operations Department (Flight Safety) with a copy held on file on the Unit. Where appropriate, a copy shall be supplied by the Unit to the Area Manager or Managing Pilot.

The reports will, on receipt, be subject to immediate internal distribution and will, in summary form, be distributed to all Units on a monthly basis. The monthly Incident / Accident Summaries should be made available to all pilots and engineers but they are not to be copied or shown to non-company personnel and are to be treated as confidential documents.

An accident file can only be closed by the Director Flight Operations and any disciplinary measure which may arise from such events can only originate from or be authorised by him.

11.20 Mandatory Occurrence Reporting Scheme

The Civil Aviation Authority Mandatory Occurrence Reporting Scheme (MORS) relates to all British registered public transport aircraft having a maximum certificated weight of more than 2300 kg. The company policy is that reports will be submitted for appropriate occurrences to all British registered company aircraft operating for public transport, regardless of maximum certificated weight. These occurrences should be reported to the Ground Operations Manager who will forward the MOR to:

The Safety Investigation Data Department
Civil Aviation Authority
Aviation House
Gatwick Airport South
West Sussex RH6 0YR
Tel: 01293 573220
Fax: 01293 573972
sdd@caa.co.uk

11.20.1 Objectives of the Scheme

- To ensure that the CAA is advised of hazardous or potentially hazardous incidents and defects, referred to as 'Occurrences'.
- To ensure that knowledge of these occurrences is disseminated so that other persons and organisations may learn from them.
- To enable an assessment to be made by those concerned, of the safety implications of each occurrence, both in itself and in relation to previous similar occurrences, so that they may take or initiate any necessary action.

The overall objective of the MORS is to use the reported information to improve the level of flight safety and not to attribute blame.

11.20.2 Occurrence Reporting Analysis

(Regulation (EU) No 376/2014, Article 4) EU 2015/1018

Occurrences which may represent a significant risk to aviation safety and which fall into the following categories shall be reported

(a) occurrences related to the operation of the aircraft, such as:

(i) collision-related occurrences;
(ii) take-off and landing-related occurrences;
(iii) fuel-related occurrences;
(iv) in-flight occurrences;
(v) communication-related occurrences;
(vi) occurrences related to injury, emergencies and other critical situations;
(vii) crew incapacitation and other crew-related occurrences;
(viii) meteorological conditions or security-related occurrences;

(b) occurrences related to technical conditions, maintenance and repair of aircraft, such as:

(i) structural defects;
(ii) system malfunctions;
(iii) maintenance and repair problems;
(iv) propulsion problems (including engines, propellers and rotor systems) and
(v) auxiliary power unit problems;

(c) occurrences related to air navigation services and facilities, such as:

(i) collisions, near collisions or potential for collisions;
(ii) specific occurrences of air traffic management and air navigation services (ATM/ANS);
(iii) ATM/ANS operational occurrences;

(d) occurrences related to aerodromes and ground services, such as:

(i) occurrences related to aerodrome activities and facilities;
(i) occurrences related to handling of passengers, baggage, mail and cargo;
(ii) occurrences related to aircraft ground handling and related services. 2.

The overriding criteria in determining whether an occurrence is reportable is if it: 'endangered, or if not corrected, would have endangered, the aircraft, occupants, or other persons.'

For further information on Mandatory and Voluntary Occurrence Reporting requirements please *refer to the Safety Management Manual* Mandatory reporting requirements under *Regulation (EU) No 376/2014, Commission Implementing Regulation (EU) 2015/1018* and the *UK Air Navigation Order.*

Reportable occurrences should be notified to the CAA within 72 hours. All reports must therefore be reported as soon as possible after the event.

In most cases it is acceptable to file an internal Accident Report to the Safety Department who will in turn file an MOR on the Company's behalf.

Nothing precludes the Commander or any Crew member, or any other Company staff member, from submitting an MOR if an internal Accident Report has already been filed.

Occurrences to non-British registered Company aircraft will be reported by overseas operations if they relate to an aircraft type operated by the Company on the British register, or of British manufacture.

11.20.3 Informing Base of Occurrences

The following is intended as guidance to aircraft Commanders experiencing a technical malfunction or other occurrence away from base.

In all cases where the nature or extent of a problem is such that the flight cannot be continued normally, advice shall be sought from Managerial and Engineering staff at the operating base. Whenever possible, the first point of contact should be with the Operations Co-ordinator who will then alert the appropriate personnel for consultation.

Whilst it is difficult to formulate a hard and fast rule to cover every possible situation, the general principle shall apply that unless the aircraft is judged serviceable to public transport standards it shall not be ferried back to base until the problem has been fully researched.

It follows that a return to base 'without passengers' will not normally be undertaken and then only when specifically authorised by managerial staff at base and with the concurrence of the aeroplane captain who will retain at all times the ultimate 'NOGO' decision.

In the case of crews experiencing in-flight unserviceability which in the opinion of the Captain can be rectified on return to base, the symptoms must still be reported on VHF or HF. This will also enable the Engineering Department to prepare themselves to rectify the defects when the aircraft lands.

It is mandatory that crews inform their operating base of occurrences such as bird strikes, minor illnesses etc. as well as technical defects before continuing the flight, and if it is impractical, as soon as possible after take-off.

11.21 Air Accident Report

11.21.1 General

The Company has its own Accident Report scheme, which is acceptable to the Authority.

The Accident Report can be accessed by all staff through the company server, and additional forms are located on the Flight Deck of each aircraft.

An Accident Report should be submitted as soon as possible after the event to the Safety Department.

The Commander should write on the Accident Report if he considers the incident to be of such seriousness that it requires notification to the CAA.

Similarly the Safety Department will assess an Accident Report on receipt and use their judgement as to whether an ASR should be upgraded to an MOR. An Accident Report upgraded to MOR status must be filed with the Authority within 72 hours

The Company SMS uses the Accident Reports for internal reporting.

Accident Reports can be submitted in paper form (directly to the Safety Department) or electronically.

11.22 Anonymous Reporting Procedures

Any employee may submit an anonymous Accident Report to the Safety Department. The anonymous reporting system is an essential part of the Company's Safety Management System.

11.23 Airprox, Wake Vortex and Bird strike Occurrences

11.23.1 Use of Forms

Because of both the specialist and detailed nature of the information required on AIRPROX, Wake Vortex and Bird strike Occurrences, an ASR/MOR is all that is needed to be filled as an electronic record.

11.24 Reporting an Airprox via ATC

It should be noted that certain items of information following an Airprox should immediately be reported by radio to the ATS unit being worked. If this is not possible, this initial report should be made immediately after landing by telephone to any UK ATCC.

The format for the transmitted report shall be:

- "Airprox Report"
- Aircraft Callsign
- SSR Code
- Position of Airprox
- Aircraft Heading
- Flight Level/Altitude
- Altimeter Setting
- Aircraft Attitude (Level/climbing/descending/turning)
- Weather Conditions
- Date (UTC)/Time of Airprox
- Description of their aircraft
- First sighting distance and details of flight paths of reporting and reported aircraft

11.25 Wake Turbulence

Reports of wake turbulence encounters at any stage of flight should be sent to the Wake Vortex Analysis Team, National Air Traffic Services Limited, Mailbox 10, C Block, 1st Floor, Corporate Technical Centre (CTC), 4000 Parkway, Whiteley, Fareham, Hampshire, PO15 7FL. e-mail: waketurbulence@nats.co.uk. Tel: 01489 615813. Fax: 01489 615215

11.26 Special Notification Requirements in the Event of an Accident or Occurrence When Dangerous Goods are Being Carried or Have Been Offered for Air Transport Without Having Been Prepared and Declared in Accordance with the ICAO Technical Instructions *(CAT.GEN.MPA.200(e))*

11.26.1 Information to be Provided by the Pilot-in-Command in the Event of an In-Flight Emergency *(AMC1 SPA.DG.105(b))*

If an emergency occurs and the situation permits, the commander must inform the appropriate Air Traffic Services Unit of any dangerous goods on board. This information should include the proper shipping name, class/division, identified subsidiary risk(s), compatibility group for explosives, quantity and location on board.

11.26.2 Information to be Provided by the Operator in the Event of an Aircraft Accident or Serious Incident where Dangerous Goods Carried as Cargo may be involved

If an aircraft carrying dangerous goods as cargo is involved in an accident or serious incident where the dangerous goods may be involved, the operator must provide information, without delay, to emergency services responding to the accident or serious incident about the dangerous goods on board, as shown on the copy of the information to the Pilot-in-Command (NOTOC). The information must be sufficient to enable any hazards created by the dangerous goods to be minimised and include the proper shipping name, UN number, class / division, any identified sub-risks, the compatibility group for explosives, the quantity and the location on board the aircraft. As soon as possible, the operator must also provide this information to the CAA Dangerous Goods Office and the appropriate authority of State in which the incident or serious incident occurred. In the first instance, the Dangerous Goods Office should be alerted to the incident or accident by phone using the following number:

- Telephone: +44 (0) 1293 573800

11.26.3 Information to be Provided by the Operator in the Event of an Aircraft Incident *(AMC1 SPA.DG.105 (b))*

In the event of an aircraft incident, the operator of an aircraft carrying dangerous goods as cargo must, if requested to do so, provide information without delay to the emergency services responding to the incident and to the appropriate authority of the State in which the incident occurred, about the dangerous goods on board, as shown on the copy of the information to the pilot-in-command (NOTOC). For aircraft accidents and serious incidents, see para 11.26.2

11.26.4 Dangerous Goods Accident and Incident Reports *(CAT.GEN.MPA.200(e))*

Definitions:

Dangerous goods accident: An occurrence associated with and related to the transport of dangerous goods by air which results in fatal or serious injury to a person or major property or environmental damage.

Dangerous goods incident: An occurrence other than a dangerous goods accident associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an aircraft, which results in injury to a person, property or environmental damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardises an aircraft or its occupants is also deemed to be a dangerous goods incident.

Note: A dangerous goods accident or incident may also constitute an aircraft accident or incident as specified in ICAO Annex 13 — Aircraft Accident and Incident Investigation.

An operator must report dangerous goods accidents and incidents to the appropriate authorities of the State of the Operator and the State in which the accident or incident occurred in accordance with the reporting requirements of those appropriate authorities.

Note.— This includes incidents involving dangerous goods that are not subject to all or part of these Instructions through the application of an exception or of a special provision (e.g. an incident involving the short circuiting of a dry cell battery that is required to meet short-circuit prevention conditions in a special provision of 3;3).

An operator must report any occasion when undeclared or mis declared dangerous goods are discovered in cargo or mail. Such a report must be made to the appropriate authorities of the State of the Operator and the State in which this occurred.

An operator must report any occasion when dangerous goods that are not permitted are discovered by the operator *(or the operator is advised by the entity that discovers the dangerous goods)* either in the baggage or on the person of passengers *(after check-in)* or crew members. Such a report must be made to the appropriate authority of the State in which this occurred.

In addition to the requirements of the ICAO Technical Instructions for the reporting of dangerous goods occurrences *(above)*, ORO.GEN.160 requires that **any incident** which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person is reported to **CAA Safety Data**. Dangerous goods occurrences reportable under the Mandatory Occurrence Reporting Scheme include:

- Dangerous goods found not to have been secured to prevent movement.
- Damage to packages of dangerous goods.
- NOTOC errors where dangerous goods have not been stowed in accordance with loading instructions.
- Failure to prepare electric wheelchairs in order to prevent accidental activation.
- Electric wheelchairs found not to have been stowed and secured correctly.
- Leakage of dangerous goods from passenger baggage.

NOTE: Dangerous goods occurrences meeting the criteria of *ORO.GEN.160* also meet the definition of a dangerous goods accident or incident *(above),* reportable in accordance with *CAT.GEN.MPA.200(e)* . Accordingly, the report must be made to CAA Safety Data within 72 hours *(rather than 96)*, unless exceptional circumstances prevent this.

A dangerous goods accident or dangerous goods incident not meeting the criteria of *ORO.GEN.160* must be reported to the CAA Dangerous Goods Office within 72 hours, unless exceptional circumstances prevent this. If necessary, a subsequent report shall be made as soon as possible giving all the details that were not known at the time the first report was sent. If a report has been made verbally, written confirmation shall be sent as soon as possible. Any type of accident or incident must be reported irrespective of whether the dangerous goods are in cargo, mail, stores, passengers' baggage or crew baggage.

In accordance with Regulation (EU) No. 376/2014 on the reporting, analysis and follow up of occurrences in civil aviation aircraft operators are required to store occurrence reports in a database capable of producing an output that is ECCAIRS compatible. Organisations need to submit Occurrence reports to the CAA in this format.

Dangerous goods occurrences not meeting the criteria of ORO.GEN.160 are to be reported to dgo@caa.co.uk using the following forms:

CAA Form SRG 2808 may be used to report a dangerous goods occurrence involving cargo or unaccompanied baggage.

CAA Form SRG 2809 may be used to report a dangerous goods occurrence involving a passenger/crew member or their baggage.

The first and any subsequent report shall be as precise as possible and contain such of the following data that are relevant:

- Date of the incident or accident or the finding of undeclared or mis declared dangerous goods.
- Location, the flight number and flight date.
- Description of the goods and the reference number of the air waybill, pouch, baggage tag, ticket, etc.
- Proper shipping name *(including the technical name, if appropriate)* and UN/ID number, when known.
- Class or division and any subsidiary risk.
- Type of packaging, and the packaging specification marking on it.
- Quantity of dangerous goods.
- Name and address of the shipper, passenger, etc.
- Any other relevant details.
- Suspected cause of the incident or accident.
- Action taken.
- Any other reporting action taken.
- Name, title, address and telephone number of the person making the report.

Copies of relevant documents and any photographs taken should be attached to a report.

NOTE: IF SAFE TO DO SO, THE DANGEROUS GOODS INVOLVED IN THE ACCIDENT OR INCIDENT SHOULD BE HELD PENDING CAA INVESTIGATION.

11.27 Removal of Contamination *(SPA.DG.105)*

In the event of a spillage or leakage of undeclared dangerous goods within an aircraft, the position where the dangerous goods or unit load device was stowed on the aircraft must be inspected for damage or contamination and any hazardous contamination removed. Persons responding in the event of damage to or leakage of dangerous goods from packages must:

- identify the hazards and wear appropriate protective clothing;
- avoid handling the package or keep handling to a minimum;
- inspect adjacent packages for contamination and put aside any that may have been contaminated;
- arrange for decontamination of the aircraft and equipment; and
- in the case of infectious material, inform the appropriate public health authority or veterinary authority, and provide information to any other countries of transit where persons may have been exposed to danger; and notify the shipper and/or the consignee.

If it is evident that a package containing radioactive material is damaged or leaking, or if it is suspected that the package may have leaked or been damaged, access to the package must be restricted and a qualified person must, as soon as possible, assess the extent of contamination and the resultant radiation level of the package. The scope of the assessment must include the package, the aircraft, the adjacent loading and unloading areas and, if necessary, all other material which has been carried in the aircraft. When necessary, additional steps for the protection of persons, property and the environment must be taken in accordance with provisions established by the relevant competent authority, to overcome and minimise the consequences of such leakage or damage.

An aeroplane which has been contaminated by radioactive materials must be immediately taken out of service and not returned until the radiation level at any accessible surface and the non-fixed contamination are not more than the values specified in the Technical Instructions.

In the event of non-compliance with any limit in the Technical Instructions applicable to the radiation level or contamination, the operator must ensure the shipper is informed if the non-compliance is identified during transport; take immediate steps to mitigate the consequences of the non-compliance; and communicate the non-compliance to the shipper and relevant competent Authority(ies), respectively, as soon as practicable and immediately whenever an emergency situation has developed or is developing.

11.28 Unlawful Interference

In the event of unlawful interference on board an aircraft, the Commander, or in his absence, the Company, must notify the Company's Security Manager without delay, and submit a report as soon as practicable to the local Authority, and to the UK CAA.

UK Civil Aviation Authority CAA
5th Floor 11 Westferry Circus
Canary Wharf
London
E14 4HJD
Tel: +44 207 435 5874 or 5825
24 hrs : +44 207 944 5999

11.29 Irregularities in Ground and Navigational Facilities and Hazardous Conditions

The Commander shall notify the appropriate air traffic services unit as soon as practicable whenever a potentially hazardous condition such as an irregularity in a ground or navigational facility, a meteorological phenomenon or a volcanic ash cloud is encountered during flight.

11.30 Confidential Human Factors Incident Reporting Programme (CHIRP)

Reports of incidents or occurrences involving human factors and / or errors which the reporter wishes to remain confidential should be sent to:

https://www.chirp.co.uk/submit-a-report/online

11.31 Confidentiality

Staff must not discuss the circumstances concerning any accident / occurrence with anyone outside of the Company other than authorised investigators or the CAA Flight Operations Inspector.

12 SECTION 12 - Rules of the Air

12.1 Refer to the Standardised European Rules of the Air (SERA)

This page intentionally left blank

13 Section 13 – Leasing

13.1 Philosophy

Gama Aviation (UK) Ltd is restricted to certain types of leasing. This will be the Dry Lease-In of an aircraft from another community operator.

13.2 Responsibility and Restrictions

The Accountable Manager or other company authorised representative, normally the General Manager or the Director of Flight Operations is authorised to sign the respective lease agreements.

Minimum contents of the lease agreement shall be:

- duration of lease agreement
- that Gama Aviation is responsible for the flight crew
- that Gama Aviation has free access to the aeroplane for commercial operation.

13.3 Terminology

Dry lease:	-	Lease of an aeroplane without flight crew.
Dry lease-in:	-	The aeroplane is leased in without crew and operated under the AOC of Sample-Company.
Dry lease-out:	-	The aeroplane is leased out without crew and operated under the AOC of the foreign operator.
Wet lease:	-	Lease of an aeroplane with flight crew.
Wet lease-in:	-	The aeroplane is leased in with crew and operated under the AOC of the foreign operator.
Wet lease-out:	-	The aeroplane is leased out with crew and operated under the AOC of Sample-Company.
Lessor:	-	A company giving an aeroplane to an operator.
Lessee:	-	An operator hiring an aeroplane.
Community Operator:	-	An operator certificated under OPS Part 1 by one of the Member State.

13.4 Leasing of Aeroplanes between Community Operators

13.4.1 Wet lease

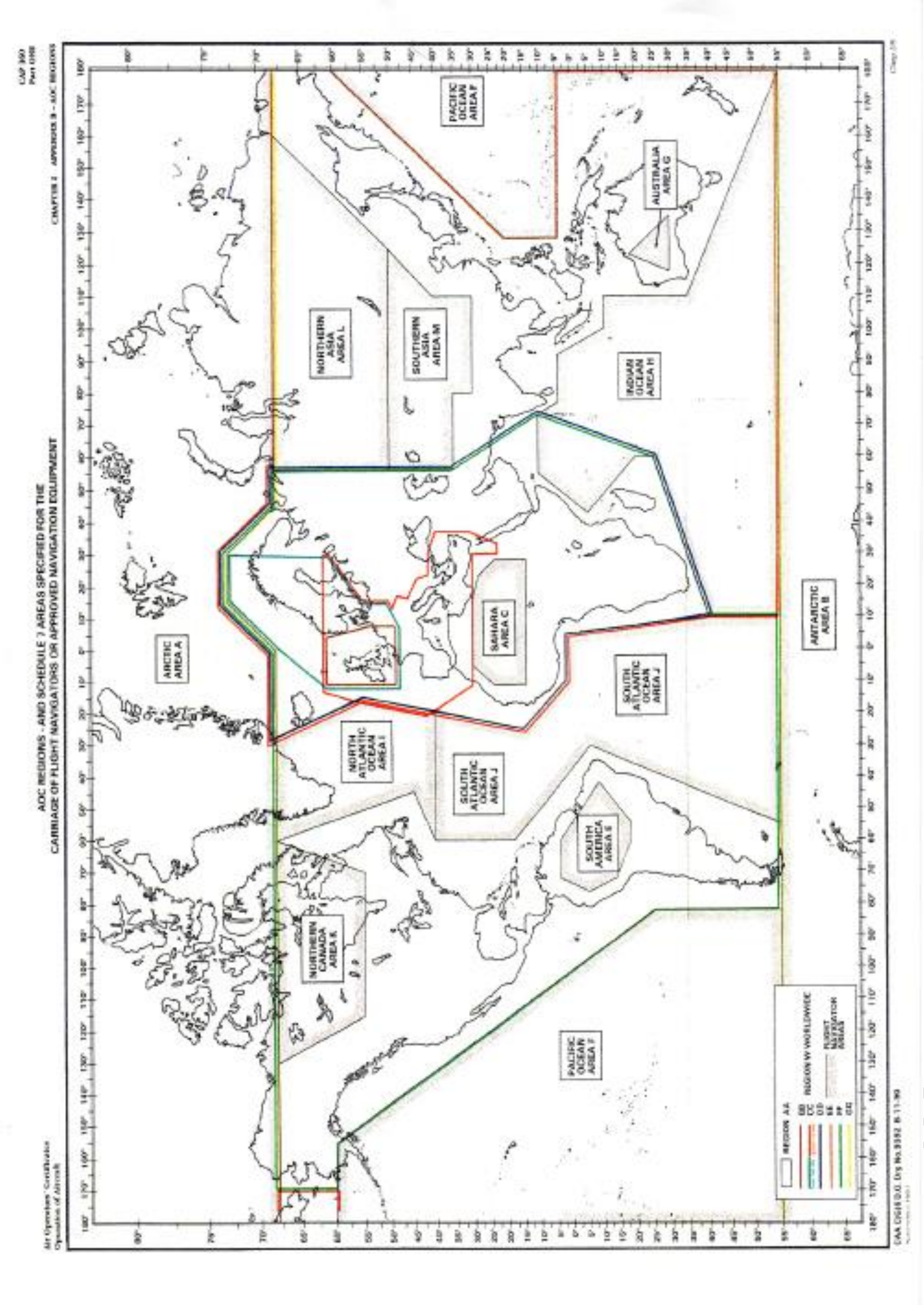
Gama Aviation (UK) Limited will not conduct wet-leasing at this time

13.4.2 Dry/Wet/Damp Lease

Dry Leasing is defined under EU regulations as an "agreement between undertakings pursuant to which the aircraft is operated under the AOC of the Lessee". In the UK, the period of transfer will not normally exceed seven months. However, it is possible to extend this dry lease period for up to a further five months, totalling a maximum of 12 months for the dry lease agreement. Wet leasing is defined under EU regulations as an agreement between air carriers pursuant to which the aircraft is operated under the AOC of the lessor. Damp lease is defined as a wet-leased aircraft that includes a cockpit crew but not cabin attendants.

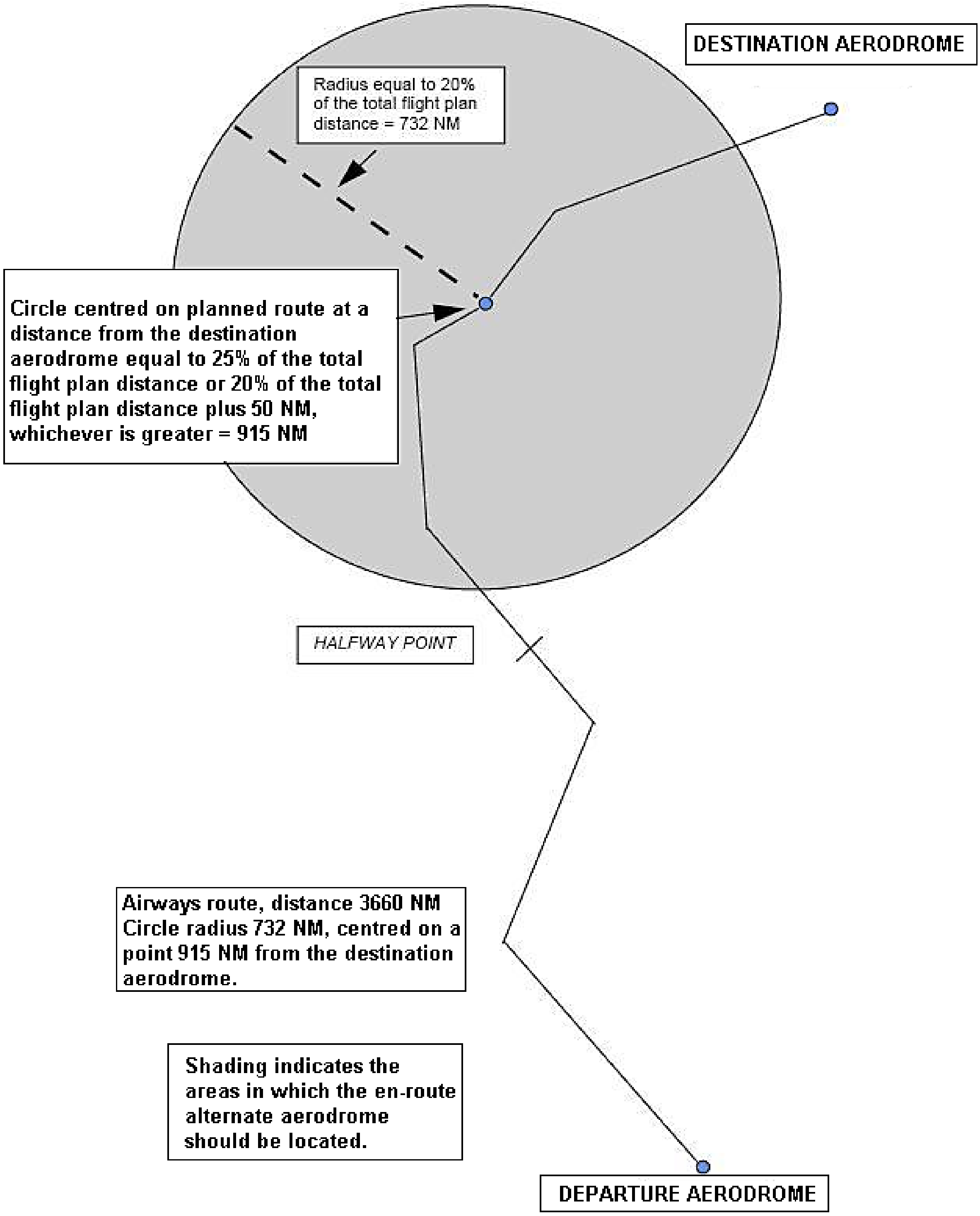
Note: Refer also to CAA Official Records Series 4.

Appendix 1 - Map of Area of Operation



Appendix 2 - Fuel Plan

Figure 1: Location of the fuel ERA aerodrome for the purposes of reducing contingency fuel to 3 %



Appendix 3 - Example Flight Plogs

```
PLAN 7658               EGLF TO LFPB BA10  HSC/F  IFR  16/09/04
NONSTOP COMPUTED 1230Z  FOR ETD 1600Z PROGS   1600ADF  GGMAB    LBS

           FUEL   TIME  DIST ARRIVE TAKEOFF  LAND    AV PLD  OPNLWT
DEST LFPB 001056 00/32 0195  1632Z  021009 019845  000000  018455
RESV      000108 00/05
ALTN EBBR 000740 00/29 0140  1702Z
HOLD      000650 00/30
REQD      002554 01/37                     NAM       AV WIND
TAXI      000100                           0187      305T/30
XTRA      000000 00/00

TOTL      002654 01/37
EGLF..GWC..BOGNA ATS HARDY UM605 DPE DPE4P LFPB

WIND P030   MXSH 2/DPE
TAS 471  FL  290  WET/DRY

TAKE OFF                       IMMEDIATE RETURN
--------                       ----------------
POWER    ...... %              VREF     ...... KTS

V1       ...... KTS            V2       ...... KTS

VR       ...... KTS            VFS      ...... KTS

V2       ...... KTS            BFL      ...... FT

VFS      ...... KTS            POWER    ...... %

BFL      ...... FT

DEP ATIS
________


CLEARANCE
_________


CAPT  ............  T/O FUEL  .......   BLON  ....... LDG  .......

COPLT ............  LND FUEL  .......   BLOFF ....... T/O  .......

F/E   ............  FUEL USED .......   BTIME ....... F/T  .......

EGLF ELEV  00238FT

CPT   FLT T   WIND  S   AWY   MCS  DIST   ETE/ETR  FU     FR
FREQ  TRO TDV COMP  TAS MSA   TCS  GRS    ETA/ATA  FF/E   AFR
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
GWC                     ..    181  025   0006/0026        02209
114.75                  022   178        ..../....        .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
BOGNA                   ..    118  021   0003/0023        02053
                        021   115        ..../....        .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
TOC   290               ATS   118  004   0001/0022        02024
                        021   116        ..../....        .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
HARDY 290  35 30029 1   ATS   118  027   0003/0019 00139  01885
       43 P07  P029 471 021   116  500   ..../.... 01303  .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
XIDIL 290  35 31030 1   UM605 144  009   0001/0018 00047  01838
       43 P07  P029 471 021   141  500   ..../.... 01301  .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
DPE   290  36 31030 2   UM605 143  032   0004/0014 00169  01669
115.8  43 P06  P030 471 024   141  501   ..../.... 01322  .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
TOD   290  36 32032 1   DPE4P 152  002   0000/0014 00010  01659
       43 P06  P032 471 024   149  503   ..../.... 01285  .....
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
CRL46                          DPE4P 152  21    0004/0010       01613
                               024   149        ..../....       .....
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
CRL43                          DPE4P 150  03    0001/0009       01607
                               024   148        ..../....       .....
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
MOKNO                          DPE4P 151  08    0001/0008       01590
                               024   150        ..../....       .....
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
LFPB                           DPE4P 133  43    0008/0000       01498
ELEV  00218FT                  024   131        ..../....       .....
ARR ATIS
________

EGLF  N51166W000466  GWC    N50513W000454  BOGNA  N50421W000151
HARDY N50283E000295  XIDIL  N50211E000385  DPE    N49555E001102
CRL46 N49363E001281  CRL43  N49332E001311  MOKNO  N49265E001371
LFPB  N48582E002265

FIRS  LFFF/1614
                         LANDING MINIMA

AIRFIELD . . . . . . . . . . . .   AIRFIELD . . . . . . . . . . . .

R/W AID  . . . . . . . . . . . .   R/W AID  . . . . . . . . . . . .

DHT/RVR  . . . . . . . . . . . .   DHT/RVR  . . . . . . . . . . . .

CIRCLE   . . . . . . . . . . . .   CIRCLE   . . . . . . . . . . . .

LAND  VREF    ...... KTS

      V2      ...... KTS

      VFS     ...... KTS

      BFL     ...... FT

      POWER   ...... %
                     MSA  TTK  DIST  FL   W/C   TIME  FUEL
ALTERNATE  - 1  EBBR  031 034   140  280  M016  00.29 740

RVSM ALTITUDE CHECK
-------------------

     GND   HR1   HR2   HR3   HR4   HR5   HR6   HR7

ALT1 ....  ....  ....  ....  ....  ....  ....  ....

ALT2 ....  ....  ....  ....  ....  ....  ....  ....

     HR8   HR9   HR10  HR11  HR12  HR13  HR14

ALT1 ....  ....  ....  ....  ....  ....  ....

ALT2 ....  ....  ....  ....  ....  ....  ....

(FPL-GMA123-IN
-H25C/M-SXHIGRWY/S
-EGLF1600
-N0471F290 DCT GWC DCT BOGNA DCT HARDY UM605 DPE
-LFPB0032 EBBR
-EET/LFFF0014
 REG/GGMAB SEL/QRGM OPR/GAMA RVR/550
-E/0137 P/ R/V S/M J/L D/01 012 C YELLOW
 A/WHT/BLU/GLD)

JAR OPS QUALIFICATION

                     MSA  TTK  DIST  FL   TIME  ETA   FUEL
ALTERNATE - 1  EBBR  031  034  0140  236  0.29  1702  000740
```

Appendix 4 - Example Flight Brief
(page 3-expenses form, not shown)

Gama Aviation

GAL376

FLIGHT NUMBER: GMA	
DATE	
A/C	
REGN	
COMMANDER	
F/O	
F/A	
CUSTOMER	
CONTACT	

Sign for airport categories______________________________

FLT TYPE	Charter		Private	

FLIGHT BRIEF

TWO FLIGHT CREW ACCLIMATISED

Local time of start	Sectors							
	1	2	3	4	5	6	7	≥8
0600-0759	13	12¼	11½	10¾	10	9½	9	9
0800-1259	14	13¼	12½	11¾	11	10½	10	9½
1300-1759	13	12¼	11½	10¾	10	9½	9	9
1800-2159	12	11¼	10½	9¾	9	9	9	9
2200-0559	11	10¼	9½	9	9	9	9	9

TOTAL NO. OF BAGS LOADED:	1		2		3		4		5		6	

	ROUTE	Z to LCL	PAX	SCHEDULE BLOCK DEP ARR	SCHEDULE FLIGHT DEP ARR	SCHEDULE SECT. BLOCK TIME	SCHEDULE SECT. FLIGHT TIME	ACTUAL SECTOR TIMES BLOCK DEP ARR	ACTUAL SECTOR TIMES FLIGHT DEP ARR	ACTUAL SECTOR TIMES SECT. BLOCK TIME	ACTUAL SECTOR TIMES SECT. FLIGHT TIME	PILOT HANDLING (INITIALS)
1												
2												
3												
4												
5												
6												
					TOTALS				TOTALS			

FLIGHT DUTY PERIOD 1			*FLIGHT DUTY PERIOD 2*			*FLIGHT DUTY PERIOD 3*		
TIME (Z)			TIME (Z)			TIME (Z)		
Date			Date			Date		
Off FDP			Off FDP			Off FDP		
On FDP			On FDP			On FDP		
Total			Total			Total		
Norm All.			Norm All.			Norm All.		
Split/Amb			Split/Amb			Split/Amb		
Max All.			Max All.			Max All.		
Latest			Latest			Latest		
Off Duty			Off Duty			Off Duty		
Split at			Split at			Split at		
Split On			Split On			Split On		
Split Off			Split Off			Split Off		

Discretion Report Required?	Yes	No	If yes, state amount of discretion	:

Please forward a copy of this Flight Brief to Operations at the end of each day:
flightdocs@gamaaviation.com

Crew are reminded to issue Passenger Boarding Cards

Owner Ground Operations Manager
Date January 2015

Revision 2
Page **1** of **3**

Gama Aviation

GAL376

Airport	PPR/Slot No. In	PPR/Slot No. Out	Customs	Fuel

Airport	Agent	Freq.	Telephone	Remarks

Airport	Hotel	Address	Telephone

Passenger names (and sectors)

Crews are reminded to confirm passenger names and issue boarding cards

Operational information

Airfield Category Information	
Overflight/Diplomatic Clearance	

Catering

VOYAGE REPORT

Tick box if submitted/reported:		Explanatory Note:
Air Safety Report		
Risk Assessment Report		
Discretion Report		
Airprox/Bird Strike/Lightening/Wake		
SAFA Report		
Feedback Form		
Operational Delay*		

* ATC/PASSENGERS/BAGS/FUEL/HANDLING/WEATHER TECHNICAL/OPERATIONS/REGULATORY/REACTIONARY
Ring as appropriate

Owner	Ground Operations Manager	Revision	2
Date	January 2015	Page	**2 of 3**

Appendix 5 - Technical Log *(FRM-MG-300)*

Gama aviation **Technical Log**

DATE	A/C TYPE	REG	FLT No. /CALLSIGN	SRP SERIAL No. ....

PRE-FLIGHT COMPLETED DATE .... TIME .... SIGNATURE	* Captain pre-flight acceptance signature confirms correct completion of pre-flight inspection, quality ground de-icing, acceptance of aircraft / defect state and sufficient fuel and oil for the planned flight.	Next check due at Hours .... Date	1 Commercial / Private 2 Commercial / Private 3 Commercial / Private 4 Commercial / Private

Capt.	F/O	Cabin	F/E	OUT OF PHASE ITEMS	DATE	HOURS	LANDING

Sector No.	Fuel Uplift LBS / KGS Planned	Fuel Uplift LBS / KGS Actual	Departure Fuel	Oil Uplift L/R/APU	Ground De-icing	Captains Acceptance Signature*	SECTOR From	SECTOR To	Depart (UTC)	Arrive (UTC)	Sector Total Hours	Sector Total Landings	PSID Actual	AFTER FLIGHT Arrival Fuel	AFTER FLIGHT Defect Report	AFTER FLIGHT Captains Post Flight Signature & Defect Report
Arrival fuel carried forward from last sector record page							TOTAL BROUGHT FORWARD FROM LAST SRP									
1					Yes / No											
2					Yes / No											
3					Yes / No											
4					Yes / No											
									Total carried forward to next SRP							Last ARR fuel carried forward to Next Sector record page

Defect No.	Defect Report Details	Action Taken Details		SIGNATURE	AUTHORITY	DATE
1			Check here if Def. MEL Ref.			
2			Check here if Def. MEL Ref.			
3			Check here if Def. MEL Ref.			
4			Check here if Def. MEL Ref.			

POST-FLIGHT DATE .... COMPLETED TIME .... SIGNATURE	EPR/APR ACTIVATION T/R > 70%	TOTAL APU HOURS / CYCLES	CERTIFICATE OF RELEASE TO SERVICE Certifies that the work specified except as otherwise specified was carried out in accordance with Part-145 and in respect to that work the aircraft / aircraft component is considered ready for release to service. Part - 145 approval no:

FRM-MG-300 Issue 0

Appendix 6 - Deferred Defect Sheet

Gama aviation

Business Aviation Centre
Farnborough Airport, Hants GU14 6XA

AEROPLANE TYPE ....

REGISTRATION ....

SRP SERIAL NO. (Pre Serialised at printing) 0076

DEFERRED DEFECT DETAILS FROM SECTOR RECORD PAGE								DEFECT CLEARED		
Defect No.	Transferred from Sector Record Page Page / Item No.	Defect Report Details	MEL Ref	Signed	Date Deferred	Category	Defect Deferred to (State Limit)	Transferred to Sector Record Page Number	Signed	Date
1										
2										
3										
4										
5										
6										

Before the Defect Cleared sections of this page are completed, details of the Deferred Defect, its number, the original Sector Record Page number and the rectification action, must be recorded and certified on the current Sector Record Page to provide a duplicate record.

Appendix 7 - Example Load Sheet (type specific)

Gama aviation

OPERATIONS MANUAL PART B

LOADSHEET - LEAR 45

Aircraft	Flight No	Date	From	To

Load Distribution and Limitations				Mass in Kgs	LMC
APS Mass					
Row 1	* M	* F	* C		
Row 2	* M	* F	* C		
Row 3	* M	* F	* C		
Row 4	* M	* F	* C		
Cabin Baggage					
Aft Baggage Mass *					
Zero Fuel Mass *(<7,258 kgs)**					
Fuel Fuselage and Wing Tanks					
Ramp Mass *(<9,865 kgs)*					
Taxi Burn Off					
Take Off Gross Mass *(<9,752 kgs)*					
Less Planned Sector Fuel Burn					
Landing Weight Mass *(<8,709 kgs)*					

Passenger Masses are Standard / Actual *
Baggage Masses are Standard / Actual *

M = 91 kgs F = 73 kgs C = 35 kgs

(Delete as appropriate)*

Non Standard Loading

C of G Positon .... % MAC

LOADING CERTIFICATE

I hereby certify that the loading of this aircraft is in accordance with the Instructions contained in the Company's Operations Manual pursuant to the requirements in JAR Ops 1.

Captain's Signature .... Date .... Time ....

Feb 2004

Appendix 8 – Example Discretion Reports

Gama Aviation	Gama Aviation (UK) Limited	GAL220
Commander's Discretion Report		

Commander: ....

First Officer: ....

Date: .... **Flight Number:** ....

Aircraft Type: .... **Aircraft Registration:** ....

Extension of Flying Duty Period

Report:

Signed: ______________________

Date: ______________________

Operators Remarks:

Signed: ______________________

Date: ______________________

Notes:

Attach a copy of the Captain's Flight Brief containing details of the **Schedule** and **Actual** duty period.

If Discretion is over 2 hours then forward to the CAA.

Forward to the CAA **Yes / No**

Name : .... **Date :** ....

Owner DFO
Date August 2015

Page 1-1
Revision 3

Gama Aviation	Gama Aviation (UK) Limited	GAL220B
Commander's Discretion Report – Reduction of Rest		

NOTE: All times to be recorded as date / time six-figure groups, expressed in UTC and Local time.

Commander: ____________________

Date: ____________________ Flight Number: ____________________

Aircraft Type: ____________________ Aircraft Registration: ____________________

NOTE: If discretion exercised for part crew or individuals state name(s) and operating capacity below.

Last duty started ………………………… UTC/Local

Last duty ended ………………………… UTC/Local

Rest earned ………………………… Hrs/Mins

Calculated earliest next available ………………………… TC/Local

Actual start of next FDP ………………………… TC/Local

Rest period reduced by ………………………… Hrs/Mins

Crew affected: …………………………

Commander's Report:

Signed: ____________________

Date: ____________________

Owner DFO
Date August 2015

Page 1-2
Revision 3

Gama Aviation	Gama Aviation (UK) Limited	GAL220B
Commander's Discretion Report – Reduction of Rest		

Operators Remarks/ Action:

Signed: ____________________

Date: ____________________

Forwarded to the CAA if over 1 Hour **Tick** **Yes / No**

Name : ____________________ **Date :** ____________________

Owner DFO
Date August 2015

Page 2-2
Revision 3

Appendix 9 – MOR Certificate *(SRG 1601)*

CIVIL AVIATION AUTHORITY

To be sent to: Safety Data and Analysis Unit
Aviation House
Gatwick Airport South
West Sussex RH6 0YR

CAA Occurrence No.

If report is confidential – annotate prominently at the top and provide contact address/Tel No. SDAU will respect your wish.

OCCURRENCE REPORT

AIRCRAFT TYPE & SERIES	REGISTRATION	OPERATOR	DATE	LOCATION/POSITION/RW	TIME (UTC)	Day / Night / Twilight

FLIGHT CREW REPORT

FLIGHT NR	ROUTE FROM	ROUTE TO	FL/ALT/HT (FT)	IAS (KTS)	ETOPS Yes	ETOPS No

NATURE OF FLIGHT	Pax	Freight	Positioning	Ferry	Test	Training	Business	Agricultural	Survey	Pleasure	Club/Group	Private	Parachuting	Towing

FLIGHT PHASE	Parked	Taxying	Take off	Init Climb	Climb	Cruise	Descent	Holding	Approach	Landing	Circuit	Aerobatics	Hover

ENVIRONMENT DETAILS

WIND		CLOUD			PRECIPITATION				OTHER METEOROLOGICAL CONDITIONS								RUNWAY STATE				
DIRN	SPEED (kts)	TYPE	HT (ft)	8TH	Rain	Snow	Sleet	Hail	VISIBILITY	ICING			TURBULENCE			OAT(°C)	Dry	Wet	Ice	Snow	Slush
					Light	Mod	Heavy		km/m	Light	Mod	Severe	Light	Mod	Severe		CATEGORY		I	II	III

BRIEF TITLE

DESCRIPTION OF OCCURRENCE

Continue on back as necessary

Any procedures, manuals, pubs (eg AIC, AD, SB etc) directly relevant to occurrence and (when appropriate) compliance state of aircraft, equipment or documentation

GROUND STAFF REPORT

A/C CONSTRUCTORS NR	ENGINE TYPE/SERIES	ETOPS APPROVED Yes	ETOPS APPROVED No	GROUND PHASE	AIRCRAFT BELOW 5700 kg ONLY – MAINTENANCE ORGANISATION
				Maintenance	
				Ground Handling	
				Unattended	Tel No.

COMPONENT/PART	MANUFACTURER	PART NR	SERIAL NR	MANUAL REF	COMPONENT OH/REPAIR ORGANISATION

CA 1673

Continued overleaf

DESCRIPTION OF OCCURRENCE CONTINUED	

ORGANISATION	NAME	POSITION	SIGNATURE	DATE

If report is submitted voluntarily (ie. not subject to mandatory requirements) can the information be disseminated in the interests of safety?	Yes	Address & Tel No. (If Reporter wishes to be contacted privately)
	No	

NOTE: If additional information, as below, is available please provide

REPORTING ORGANISATION – REPORT

ORGANISATION COMMENTS – ASSESSMENT/ACTION TAKEN/SUGGESTIONS TO PREVENT

UTILISATION – AIRCRAFT				UTILISATION – ENGINE/COMPONENT				MANUFACTURER ADVISED	
	TOTAL	SINCE OH/REPAIR	SINCE INSPECTION		TOTAL	SINCE OH/REPAIR	SINCE INSPECTION		
Hours Cycles Landings				Hours Cycles Landings				Yes	No

ORGANISATION	TEL/FAX	REPORTERS REF	REPORT		REPORTERS INVESTIGATION			FOR RECORD RETAINED	
			New	Suppl	All	Closed	Open	Yes	No

NAME	POSITION	SIGNATURE	DATE

Appendix 10 - Operator/aircraft Certificates, Approvals and Exemptions

The following list of items can be found in the Aircraft Library (Type Specific):

- Air Operators Certificate.
- Commanders Exemption.
- Regulations of Flight Times.
- Operational Approval for RVSM/MNPS *(if applicable)*.
- Unlicensed Aerodromes – Air Ambulance *(King Air).*
- Aerodrome Without prescribed Radio Navigational Aids.
- CAT.IDE Checklist
- Electronic Navigation Data Management – Letters of Acceptance (LoA).