



**Public Authority for Civil Aviation**

# **CAR-172**

## **Civil Aviation Regulation**

# **Air Traffic Services**

**Effective: 31<sup>st</sup> January 2020**

**Approved by: HE Dr. Mohamed bin Nasser Al-Zaabi (CEO)**

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## List of Effective Pages

Page No.	Rev No.	Date of Issue
1	03	31/01/20
2	03	31/01/20
3	03	31/01/20
4	03	31/01/20
5	03	31/01/20
6	03	31/01/20
7	03	31/01/20
8	03	31/01/20
9	03	31/01/20
10	03	31/01/20
11	03	31/01/20
12	03	31/01/20
13	03	31/01/20
14	03	31/01/20
15	03	31/01/20
16	03	31/01/20
17	03	31/01/20
18	03	31/01/20
19	03	31/01/20
20	03	31/01/20
21	03	31/01/20
22	03	31/01/20
23	03	31/01/20
24	03	31/01/20
25	03	31/01/20
26	03	31/01/20
27	03	31/01/20
28	03	31/01/20
29	03	31/01/20
30	03	31/01/20
31	03	31/01/20
32	03	31/01/20
33	03	31/01/20
34	03	31/01/20
35	03	31/01/20
36	03	31/01/20
37	03	31/01/20
38	03	31/01/20
39	03	31/01/20
40	03	31/01/20

Page No.	Rev No.	Date of Issue
41	03	31/01/20
42	03	31/01/20
43	03	31/01/20
44	03	31/01/20
45	03	31/01/20
46	03	31/01/20
47	03	31/01/20
48	03	31/01/20
49	03	31/01/20
50	03	31/01/20
51	03	31/01/20
52	03	31/01/20
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59	03	31/01/20
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61	03	31/01/20
62	03	31/01/20
63	03	31/01/20
64	03	31/01/20
65	03	31/01/20
66	03	31/01/20
67	03	31/01/20
68	03	31/01/20
69	03	31/01/20
70	03	31/01/20
71	03	31/01/20
72	03	31/01/20
73	03	31/01/20
74	03	31/01/20
75	03	31/01/20
76	03	31/01/20
77	03	31/01/20
78	03	31/01/20
79	03	31/01/20
80	03	31/01/20

Page No.	Rev No.	Date of Issue
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
100		
101		
102		
103		
104		
105		
106		
107		
108		
109		
110		
111		
112		
113		
114		
115		
116		
117		
118		
119		
120		

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**Table of Contents – CAR 172 – AIR TRAFFIC SERVICES**

List of Effective Pages .....	3
Corrigendum of Amendments .....	5
Glossary of Terms or Abbreviations.....	11
SUBPART A - GENERAL .....	15
CAR 172.001    Applicability.....	15
CAR 172.003    Definitions .....	15
CAR 172.005    Establishment of Authority .....	23
CAR 172.006    Exemptions.....	24
CAR 172.007    Requirement for Certificate .....	24
CAR 172.008    Transitional Period .....	24
CAR 172.009    Application for Certificate .....	24
CAR 172.011    Establishment and Transfer of Service.....	24
CAR 172.013    Issue of Certificate.....	24
CAR 172.015    Privileges of Certificate .....	25
CAR 172.017    Duration of Certificate .....	25
CAR 172.019    Renewal of Certificate .....	25
CAR 172.021    Transfer of Certificate .....	25
CAR 172.023    Objectives of Air Traffic Service .....	25
CAR 172.025    Divisions of Air Traffic Service .....	26
CAR 172.027    Determination of the Need for Air Traffic Services.....	26
CAR 172.029    Designation of the Portions of Airspace and Controlled Aerodromes Where Air Traffic Services will be Provided.....	26
CAR 172.031    Classification of Airspaces .....	26
CAR 172.033    Establishment and Designation of the Units Providing Air Traffic Services.....	27
CAR 172.035    Specifications for Flight Information Regions, Control Areas and Control Zones..	27
CAR 172.037    Identification of Air Traffic Service Units and Airspaces .....	28
CAR 172.039    Establishment and Identification of ATS Routes .....	28
CAR 172.041    Establishment of Change-over Points .....	28
CAR 172.043    Establishment and Identification of Significant Points .....	28
CAR 172.045    Establishment and Identification of Standard Routes for Taxiing Aircraft .....	28
CAR 172.047    Coordination Requirements – General .....	29
CAR 172.049    Coordination between Aircraft Operators and Air Traffic Service Authorities.....	29
CAR 172.051    Coordination between Military and Air Traffic Service Authorities.....	30
CAR 172.053    Coordination of Activities Potentially Hazardous to Civil Aircraft .....	30
CAR 172.055    Coordination Between Meteorological and Air Traffic Service Authorities.....	31

CAR 172.057	Coordination between Aeronautical Information Service and Air Traffic Service Authorities.....	31
CAR 172.059	Aeronautical Data.....	32
CAR 172.061	Common Reference Systems .....	32
CAR 172.063	Prohibited, Restricted and Danger Areas.....	32
CAR 172.065	Special Use Airspace.....	33
CAR 172.067	Instrument Flight Procedure Design Service .....	33
CAR 172.069	Performance-Based Navigation (PBN) Operations .....	33
CAR 172.071	Performance-Based Communication (PBC) Operations .....	33
CAR 172.073	Performance-Based Surveillance (PBS) Operations .....	33
CAR 172.075	Safety and Regulatory Audits and Inspections.....	34
CAR 172.077	Resolution of Safety Issues.....	34
SUBPART B – CERTIFICATION REQUIREMENTS.....		35
CAR 172.101	Personnel Requirements.....	35
CAR 172.103	Language Proficiency .....	35
CAR 172.105	ATS Training.....	35
CAR 172.107	Facility Requirements.....	36
CAR 172.109	Notification of Facility Status .....	38
CAR 172.111	Shift Administration .....	39
CAR 172.113	Service Disruptions.....	39
CAR 172.115	Security.....	39
CAR 172.117	Logbooks and Position Logs .....	39
CAR 172.119	Documentation .....	40
CAR 172.121	Records.....	41
CAR 172.123	Area and Approach Control Services .....	42
CAR 172.125	Aerodrome Control Service.....	43
CAR 172.127	Operation of Air Traffic Control Service.....	44
CAR 172.129	Responsibility for Control.....	45
CAR 172.131	Transfer of Responsibility for Control .....	45
CAR 172.133	Flight Information Service .....	46
CAR 172.135	Air Traffic Control Clearances .....	47
CAR 172.137	Read-Back of Clearances and Safety-Related Information .....	47
CAR 172.139	Coordination of Clearances.....	47
CAR 172.141	Deviation from an ATC Clearance .....	48
CAR 172.143	Flight Plans .....	48
CAR 172.145	Air Traffic Flow Management.....	49



CAR 172.147	Control of Persons and Vehicles at Aerodromes .....	49
CAR 172.149	Runway Safety.....	50
CAR 172.151	Contingency Arrangements.....	50
CAR 172.153	Service to Aircraft in the Event of an Emergency .....	51
CAR 172.155	In-flight Contingencies - Strayed or Unidentified Aircraft .....	51
CAR 172.157	Interception of Civil Aircraft.....	52
CAR 172.159	Time in Air Traffic Services .....	53
CAR 172.161	Requirements for Carriage and Operation of Pressure-Altitude Reporting Transponders .....	53
CAR 172.163	Fatigue Management .....	54
CAR 172.165	Safety Management System (SMS) .....	54
CAR 172.167	Quality Management System (QMS) .....	55
CAR 172.169	Operational Flight Information Service (OFIS) Broadcasts .....	55
CAR 172.171	Voice-Automatic Terminal Information Service (Voice-ATIS) .....	55
CAR 172.173	Data-Link Automatic Terminal Information Service (D-ATIS).....	56
CAR 172.175	Automatic Terminal Information Service (voice and/or data-link).....	56
CAR 172.177	VOLMET Broadcasts and D-VOLMET Service .....	59
CAR 172.179	Alerting Service – Application .....	59
CAR 172.181	Alerting Service – Notification of Rescue Coordination Centers .....	60
CAR 172.183	Alerting Service – Information to the Aircraft Operator .....	61
CAR 172.185	Alerting Service – Information to Aircraft Operating in the Vicinity of an Aircraft in a State of Emergency .....	61
CAR 172.187	Use of Communication Facilities.....	61
CAR 172.189	Plotting Aircraft in a State of Emergency.....	62
CAR 172.191	Radio and Telephone Procedures – General.....	62
CAR 172.193	Aeronautical Mobile Service (Air-Ground Communications).....	62
CAR 172.195	Aeronautical Fixed Service (Ground-Ground Communications).....	63
CAR 172.197	Communications for Surface Movement Control Service .....	65
CAR 172.199	Aeronautical Radio Navigation Service .....	65
CAR 172.201	Surveillance Services .....	66
CAR 172.203	Meteorological Information.....	66
CAR 172.205	Information on Aerodrome Conditions and the Operational Status of Associated Facilities.....	67
CAR 172.207	Information on the Operational Status of Navigation Services .....	68
CAR 172.209	Information on Unmanned Free Balloons.....	68
CAR 172.211	Information Concerning Volcanic Activity.....	68
CAR 172.213	Information Concerning Radioactive Materials and Toxic Chemical “Clouds” .....	68

CAR 172.215	Incidents .....	68
CAR 172.217	Action After Serious Incident or Accident.....	69
CAR 172.219	Priorities .....	69
CAR 172.221	Organization Exposition .....	70
SUBPART C – OPERATING REQUIREMENTS .....		73
CAR 172.301	Continued compliance .....	73
CAR 172.303	Operations Manuals.....	73
CAR 172.305	Trials .....	73
CAR 172.307	Denial of ATC Clearance .....	73
CAR 172.309	Suspension of VFR Operations .....	74
CAR 172.311	Changes to Certificate Holder’s Organization .....	74
CAR 172.313	Withdrawal or Transfer of Service .....	74
SUBPART D – OTHER AIR TRAFFIC SERVICES.....		75
CAR 172.401	General.....	75
CAR 172.403	Requirement .....	75
CAR 172.405	Operating Conditions .....	75
SUBPART E – SEPARATION CRITERIA AND MINIMA.....		77
CAR 172.501	Separation Criteria and Minima .....	77
CAR 172.503	Minimum Flight Altitudes.....	77
SUBPART F – STANDARD PHRASEOLOGY .....		79
CAR 172.601	Standard Phraseology .....	79
SUBPART G – SURVEILLANCE PROCEDURES .....		79
CAR 172.701	Verification of SSR Transponder Mode C Level Information .....	79
CAR 172.703	Provision of Radar and ADS-B .....	79
CAR 172.705	Use of Surface Movement Radar (SMR) .....	79
CAR 172.707	Speed Control.....	79

## Glossary of Terms or Abbreviations

The following terms or acronyms may be used in any manual or document published by PACA. Reproduction in part or whole is allowed without prior approval. The Document Control Office reserves the rights to include such a listing in any PACA manual or document prior to publishing.

ACAS	Airborne Collision Avoidance System
ACC	Area Control Centre
ACCID	Accident
ADREP	Accident/Incident Reporting System
AFIS	Aerodrome Flight Information Service
AFTN	Aeronautical Fixed Telecommunication Network
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
A/C	Aircraft
AMSL	Above Mean Sea Level
AOC	Air Operator Certificate
APP	Approach Control Office
ARO	Air Traffic Services Reporting Office
ATC	Air Traffic Control
ATS	Air Traffic Service
CAR	Civil Aviation Regulation
COM	Communications/Equipment
FIC	Flight Information Centre
FIR	Flight Information Region
FIS	Flight Information Service
GM	Guidance Material
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IIC	Investigator in Charge
INCID	Serious Incident
ISA	International standard atmosphere
Minister	Minister of Transport and Communications
NOTAM	Notice to Airmen
NPA	Notice of Proposed Amendment
OTSB	Oman Transport Safety Bureau
PACA	Public Authority for Civil Aviation
PL	Policy Lead
RCC	Rescue Co-ordination Centre of the Sultanate
RNAV	Area Navigation
SAR	Search and Rescue
SIGMET	Significant Meteorological Report
SRA	Surveillance Radar Approach
SSR	Secondary Surveillance Radar
TCAS	Traffic Alert and Collision Avoidance System
TL	Technical Lead
UTC	Coordinated Universal Time
VHF	Very High Frequency
WX	Weather

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## FOREWORD

- (a) The Civil Aviation Requirements for Civil Aviation Regulation Enforcement Procedures have been issued by the Public Authority for Civil Aviation of Oman (hereinafter referred to as PACA or “the AUTHORITY”) under the provisions of the Civil Aviation Law of the Sultanate of Oman.
- (b) This CAR has been modelled upon similar regulations implemented by other member States and includes the subject matter endorsed within ICAO Annex 11, *Air Traffic Services*.
- (c) CAR 172 prescribes the requirements for the establishing, implementation, and maintaining a system for the provision of air traffic services.
- (d) Amendments to the text in CAR 172 in revised editions are issued as a complete amendment of pages contained within.
- (e) The editing practices used in this document are as follows:
  - (1) ‘Shall’ and ‘Must’ are used to indicate a mandatory requirement and may appear in this CAR.
  - (2) ‘Should’ is used to indicate a recommendation.
  - (3) ‘May’ is used to indicate discretion by the AUTHORITY, or the industry as appropriate.
  - (4) ‘Will’ indicates a mandatory requirement and is used to advise of action incumbent on the AUTHORITY.

***Note: The use of the male gender implies the female gender and vice versa.***

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## SUBPART A - GENERAL

### CAR 172.001 Applicability

CAR 172 prescribes the requirements governing:

- (a) The certification and operation of organizations providing an air traffic service in the Flight Information Region of Oman; and
- (b) The operating and technical standards for providing an air traffic service by those organizations specified in CAR 172.025 (a) (b) and (c).
- (c) The requirements to provide other air traffic services as specified in CAR 172.025 (d).

### CAR 172.003 Definitions

**Accepting unit.** Air traffic control unit next to take control of an aircraft.

**Accident.** An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

- (a) A person is fatally or seriously injured as a result of:
  - (1) being in the aircraft, or
  - (2) direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
  - (3) direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

- (b) The aircraft sustains damage or structural failure which:
  - (1) adversely affects the structural strength, performance or flight characteristics of the aircraft, and
  - (2) would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or

- (c) The aircraft is missing or is completely inaccessible.

**Accuracy.** A degree of conformance between the estimated or measured value and the true value.

**ADS-C agreement.** A reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

**Advisory airspace.** An airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

**Advisory route.** A designated route along which air traffic advisory service is available.

**Aerodrome.** A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

**Aerodrome control service.** Air traffic control service for aerodrome traffic.

**Aerodrome control tower.** A unit established to provide air traffic control service to aerodrome traffic.

**Aerodrome traffic.** All traffic on the maneuvering area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

**Aeronautical fixed service (AFS).** A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

**Aeronautical Information Publication (AIP).** A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

**Aeronautical mobile service (RR S1.32).** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

**Aeronautical telecommunication station.** A station in the aeronautical telecommunication service.

**Airborne collision avoidance system (ACAS).** An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders. This system is also known as Traffic Collision Avoidance System (TCAS).

**Aircraft.** Any 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.

**Air-ground communication.** Two-way communication between aircraft and stations or locations on the surface of the earth.

**AIRMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

**Air-taxiing.** Movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kt).

**Air traffic.** All aircraft in flight or operating on the maneuvering area of an aerodrome.

**Air traffic advisory service.** A service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

**Air traffic control clearance.** Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

**Air traffic control service.** A service provided for the purpose of:

- (a) Preventing collisions:
  - (1) between aircraft, and
  - (2) on the maneuvering area between aircraft and obstructions; and
- (b) Expediting and maintaining an orderly flow of air traffic.

**Air traffic control unit.** A generic term meaning variously, area control center, approach control unit or aerodrome control tower.

**Air traffic controller schedule.** A plan for allocating air traffic controller duty periods and non-duty periods over a period of time, otherwise referred to as a roster.

**Air traffic flow management (ATFM).** A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the



maximum extent possible and that the traffic volume is compatible with the capacities declared by the appropriate ATS authority.

**Air traffic service.** A generic term meaning variously, flight information service, alerting service, air traffic advisory service and air traffic control service (area control service, approach control service or aerodrome control service).

**Air traffic services airspace.** Airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

**Air traffic services reporting office.** A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

**Air traffic services unit.** A generic term meaning variously, air traffic control unit, flight information center or air traffic services reporting office.

**Airway.** A control area or portion thereof established in the form of a corridor.

**ALERFA.** The code word used to designate an alert phase.

**Alert phase.** A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

**Alerting service.** A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

**Alternate aerodrome.** An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

- (1) Take-off alternate. An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
- (2) En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en-route.
- (3) ETOPS en-route alternate. A suitable and appropriate alternate aerodrome at which an aircraft would be able to land after experiencing an engine shutdown or other abnormal or emergency condition while en-route in an ETOPS operation.
- (4) Destination alternate. An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

**Altitude.** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

**Approach control service.** Air traffic control service for arriving or departing controlled flights.

**Approach control unit.** A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

**Appropriate ATS authority.** The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

**Apron.** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fueling, parking or maintenance.

**Apron management service.** A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

**Area control center.** A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

**Area control service.** Air traffic control service for controlled flights in control areas.

**Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

*Note: Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.*

**Area navigation route.** An ATS route established for the use of aircraft capable of employing area navigation.

**ATS route.** A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.

**Automatic dependent surveillance-broadcast (ADS-B).** A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

**Automatic dependent surveillance-contract (ADS-C).** A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

**Automatic terminal information service (ATIS).** The automatic provision of current, routine information to arriving and departing aircraft throughout twenty-four (24) hours or a specified portion thereof:

- (1) Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.
- (2) Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

**Base turn.** A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

**Calendar.** Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108\*).

**Change-over point.** The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

**Clearance limit.** The point to which an aircraft is granted an air traffic control clearance.

**Conference communications.** Communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

**Control area.** A controlled airspace extending upwards from a specified limit above the earth.

**Control zone.** A controlled airspace extending upwards from the surface of the earth to a specified upper limit.

**Controlled aerodrome.** An aerodrome at which air traffic control service is provided to aerodrome traffic.

**Controlled airspace.** An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

**Controlled flight.** Any flight which is subject to an air traffic control clearance.

**Controller-pilot data link communications (CPDLC).** A means of communication between controller and pilot, using data link for ATC communications.

**Cruising level.** A level maintained during a significant portion of a flight.

**Cyclic redundancy check (CRC).** A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

**Danger area.** An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

**Data link communications.** A form of communication intended for the exchange of messages via a data link.

**Data quality.** A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.

**Datum.** Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104\*).

**Declared capacity.** A measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

**DETRESFA.** The code word used to designate a distress phase.

**Distress phase.** A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

**Downstream clearance.** A clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft.

**Duty.** Any task that an air traffic controller is required by an air traffic services provider to perform. These tasks include those performed during time-in-position, administrative work and training.

**Duty period.** A period which starts when an air traffic controller is required by an air traffic services provider to report for or commence a duty and ends when that person is free from all duties.

**Emergency phase.** A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

**ETOPS.** Extended Operations or Extended Twin Operations.

**Fatigue.** A physiological state of reduced physical or mental performance capability resulting from sleep loss, extended wakefulness, circadian phase, and/or workload (mental and/or physical activity) that can impair a person's alertness and ability to perform safety-related operational duties.

**Fatigue risk management system (FRMS).** A data-driven means of continuously monitoring and managing fatigue-related safety risks, based upon scientific principles, knowledge and operational experience that aims to ensure relevant personnel are performing at adequate levels of alertness.

**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:

- (a) At the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
- (b) 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:
  - (1) a landing can be made; or
  - (2) a missed approach procedure is initiated.

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

**Flight information center.** A unit established to provide flight information service and alerting service.

**Flight information region (FIR).** An airspace of defined dimensions within which flight information service and alerting service are provided.

**Flight information service.** A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

**Flight level.** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

**Flight plan.** Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

**Forecast.** A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

**Geodetic datum.** A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

**Gregorian calendar.** Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108\*).

**Height.** The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

**Human Factors principles.** Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

**Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

**IFR.** The symbol used to designate the instrument flight rules.

**IFR flight.** A flight conducted in accordance with the instrument flight rules.

**IMC.** The symbol used to designate instrument meteorological conditions.

**INCERFA.** The code word used to designate an uncertainty phase.

**Incident.** An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

**Instrument flight procedure design service.** A service established for the design, documentation, validation, maintenance and periodic review of instrument flight procedures necessary for the safety, regularity and efficiency of air navigation.

**Instrument meteorological conditions (IMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

**Integrity (aeronautical data).** A degree of assurance that an aeronautical data and its value has not been lost nor altered since the data origination or authorized amendment.

**Integrity classification (aeronautical data).** Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data is classified as: routine data: there is a very low probability when using corrupted data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; essential data: there is a low probability when using corrupted data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and critical data: there is a high probability when using corrupted data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

**International NOTAM office.** An office designated by a State for the exchange of NOTAM internationally.

**Level.** A generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

**Maneuvering area.** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

**Meteorological office.** An office designated to provide meteorological service for international air navigation.

**Movement area.** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and the apron(s).

**Navigation specification.** A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

- (1) Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.
- (2) Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

**Non-duty period.** A continuous and defined period of time, subsequent to and/or prior to duty periods, during which the air traffic controller is free of all duties.

**NOTAM.** A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

**Obstacle.** All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

- (1) Are located on an area intended for the surface movement of aircraft; or
- (2) Extend above a defined surface intended to protect aircraft in flight; or
- (3) Stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

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

**Performance-based communication (PBC).** Communication based on performance specifications applied to the provision of air traffic services.

**Performance-based navigation (PBN).** Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

**Performance-based surveillance (PBS).** Surveillance based on performance specifications applied to the provision of air traffic services.

**Pilot-in-command.** The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

**Printed communications.** Communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit.

**Prohibited area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

**Radio navigation service.** A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

**Radiotelephony.** A form of radio communication primarily intended for the exchange of information in the form of speech.

**RCP type.** A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

**Reporting point.** A specified geographical location in relation to which the position of an aircraft can be reported.

**Required communication performance (RCP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

**Required surveillance performance (RSP) specification.** A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

**Rescue coordination center.** A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

**Restricted area.** An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

**Runway.** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

**Runway visual range (RVR).** The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

**Safety management system (SMS).** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

**SIGMET information.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of aircraft operations.

**Significant point.** A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

**Special VFR flight.** A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

**State safety program (SSP).** An integrated set of regulations and activities aimed at improving safety.

**Station declination.** An alignment variation between the zero-degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

**Taxiing.** Movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

**Terminal control area.** A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

**Time-in-position.** The period of time when an air traffic controller is exercising the privileges of the air traffic controller's license at an operational position.

**Track.** The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

**Traffic avoidance advice.** Advice provided by an air traffic services unit specifying maneuvers to assist a pilot to avoid a collision.

**Traffic information.** Information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

**Transfer of control point.** A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.

**Transferring unit.** Air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit along the route of flight.

**Uncertainty phase.** A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

**VAAC.** Volcanic Ash Advisory Center.

**VFR.** The symbol used to designate the visual flight rules.

**VFR flight.** A flight conducted in accordance with the visual flight rules.

**Visual meteorological conditions (VMC).** Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

**VMC.** The symbol used to designate visual meteorological conditions.

**Waypoint.** A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

- (1) Fly-by waypoint. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or
- (2) Flyover waypoint. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

*\* ISO Standard*

*19104 — Geographic information — Terminology*

*19108 — Geographic information — Temporal schema*

## **CAR 172.005 Establishment of Authority**

- (a) The Public Authority for Civil Aviation (PACA), referred to in this regulation as the AUTHORITY, shall determine, in accordance with the provisions of the Civil Aviation Law of the Sultanate of Oman and this regulation, those portions of airspace and those aerodromes where air traffic services will be provided. The AUTHORITY shall arrange for such services to be established, except that, by mutual agreement, the AUTHORITY may delegate to another State the responsibility for establishing and providing air traffic services in flight information regions, control areas or control zones extending over the territories of the AUTHORITY.
- (b) Those portions of the airspace over the high seas or in airspace of undetermined sovereignty where air traffic services will be provided shall be determined on the basis of regional air navigation agreements. Where the AUTHORITY has accepted the responsibility to provide air traffic services in such portions of airspace it shall arrange for the services to be established and provided in accordance with the provisions of this CAR.
- (c) When it has been determined that air traffic services will be provided, the AUTHORITY shall designate the service provider(s) responsible for providing such services.
- (d) Where air traffic services are established, information shall be published by the AUTHORITY and/or the designated service provider to permit the utilization of such services.

**CAR 172.006 Exemptions**

The AUTHORITY may grant a temporary exemption from the provisions of CAR 172, as outlined under CAR 10, provided the exemption will not reduce the level of safety below an acceptable level. The AUTHORITY may impose conditions or restrictions on the exemption, and may also require a service provider proposal for an alternate means of compliance and/or a safety case and associated functional hazard analysis that supports the granting of the exemption.

**CAR 172.007 Requirement for Certificate**

No person shall provide an air traffic service within the Oman FIR except under the authority of, and in accordance with the provisions of, an air traffic service certificate issued under this CAR.

**CAR 172.008 Transitional Period**

- (a) The provision in CAR 172.009 shall be fulfilled within three (3) years after the issuance of this regulation.
- (b) Service providers that fail to meet the certification compliance requirements in accordance with the provisions of CAR 172.007 shall provide alternative means of compliance with this regulation in the conducting of their operational activities, subject to the approval and provisions granted by the AUTHORITY.

**CAR 172.009 Application for Certificate**

An application for an air traffic services provider certificate can be made through direct post correspondence with the AUTHORITY or, through electronic correspondence with the AUTHORITY as per the PACA website.

**CAR 172.011 Establishment and Transfer of Service**

- (a) An applicant for the grant of an air traffic service certificate shall include with its application:
  - (1) for each aerodrome and airspace, a schedule of the proposed hours of service for the first 12 months of operation; and
  - (2) in respect of an aerodrome, or airspace, not currently provided with an air traffic service, a summary of safety factors considered before seeking certification.
- (b) An applicant for the grant of an air traffic service certificate intending to assume responsibility for providing any air traffic service from an existing certificate holder, shall include with its application, full details of transitional arrangements endorsed by the chief executives of both organizations.

**CAR 172.013 Issue of Certificate**

An applicant is entitled to an air traffic service certificate if the AUTHORITY is satisfied that:

- (a) The applicant meets the requirements of Subpart B; and
- (b) The applicant, and the applicant's senior person or persons required, are fit and proper persons; and
- (c) The granting of the certificate is not contrary to the interests of aviation safety.



**CAR 172.015 Privileges of Certificate**

- (a) An air traffic service certificate specifies which of the following air traffic services, and which training and assessment for such services, the certificate holder is authorized to provide:
  - (1) area control service;
  - (2) approach control service;
  - (3) aerodrome control service;
  - (4) flight information service;
  - (5) alerting service;
  - (6) any other service provided in accordance with Subpart D.
- (b) An air traffic service certificate:
  - (1) states the aerodrome or airspace at, or within which, the service is provided; and
  - (2) may include such conditions as the AUTHORITY considers appropriate.

**CAR 172.017 Duration of Certificate**

- (a) An air traffic service certificate may be granted or renewed for a period of up to 3 years.
- (b) An air traffic service certificate remains in force until it expires or is suspended or revoked.
- (c) The holder of an air traffic service certificate that expires or is revoked shall forthwith surrender the certificate to the AUTHORITY.
- (d) The holder of an air traffic service certificate that is suspended shall forthwith produce the certificate to the AUTHORITY for appropriate endorsement.
- (e) The validity of the certificate is based upon the continued operation in accordance with this CAR.
- (f) The validity of the certificate shall be subject to periodic audits conducted by, and at the discretion of, the AUTHORITY to confirm ongoing compliance with this CAR.

**CAR 172.019 Renewal of Certificate**

- (a) An application for the renewal of an air traffic service certificate shall be made online using the PACA website.
- (b) An application for the renewal of an air traffic service certificate shall be submitted to the AUTHORITY not less than thirty (30) days before the current certificate expires.

**CAR 172.021 Transfer of Certificate**

An air traffic services certificate, granted in accordance with the requirements of this CAR, is not transferrable.

**CAR 172.023 Objectives of Air Traffic Service**

The objectives of air traffic services shall be to:

- (a) Prevent collisions between aircraft;
- (b) Prevent collisions between aircraft on the maneuvering area and obstructions on that area;
- (c) Expedite and maintain an orderly flow of air traffic;
- (d) Provide advice and information useful for the safe and efficient conduct of flights;
- (e) Notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

**CAR 172.025 Divisions of Air Traffic Service**

The air traffic services shall comprise the services identified as follows:

- (a) Air traffic control service being divided into three parts:
  - (1) area control service;
  - (2) approach control service;
  - (3) aerodrome control service;
- (b) Flight information service;
- (c) Alerting service; and
- (d) Any other service provided in accordance with SUBPART D.

**CAR 172.027 Determination of the Need for Air Traffic Services**

- (a) The need for the provision of air traffic services shall be determined by the AUTHORITY in consideration of the following:
  - (1) the types of air traffic involved;
  - (2) the density of air traffic;
  - (3) the meteorological conditions; and
  - (4) such other factors as may be relevant.
- (b) The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for air traffic services in that area.

**CAR 172.029 Designation of the Portions of Airspace and Controlled Aerodromes Where Air Traffic Services will be Provided**

When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes shall be designated by the AUTHORITY in relation to the air traffic services that are to be provided.

The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:

- (a) Flight information regions. Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.
- (b) Control areas and control zones. Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights shall be designated as control areas or control zones.
  - (1) Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights shall be designated as B, C, or D airspace.
  - (2) Where designated within a flight information region, control areas and control zones shall form part of that flight information region.
- (c) Controlled aerodromes. Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic shall be designated as controlled aerodromes.

**CAR 172.031 Classification of Airspaces**

- (a) Except as noted in this CAR, classification of airspaces shall be in accordance with ICAO Annex 11, Chapter 2.6.

*Note: Class G airspace within the Muscat FIR may provide a radar derived advisory service to IFR and VFR flights operation outside CAS. Muscat ACC when required may provide a radar derived advisory service to IFR and VFR traffic in uncontrolled airspace.*

- (b) The AUTHORITY shall select those airspace classes appropriate to its needs.
- (c) Unless otherwise determined by the AUTHORITY, the requirements for flights within each class of airspace shall be as shown in ICAO Annex 11, Appendix 4.

### **CAR 172.033 Establishment and Designation of the Units Providing Air Traffic Services**

Air traffic services shall be provided by units established and designated as follows:

- (a) Flight information centers shall be established to provide flight information service and alerting service within flight information regions unless this is assigned to an air traffic control unit with adequate facilities.
- (b) Air traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

### **CAR 172.035 Specifications for Flight Information Regions, Control Areas and Control Zones**

- (a) Flight information regions:
  - (1) shall be delineated to cover the whole of the air route structure to be served by such regions.
  - (2) shall include all airspace within its lateral limits, except as limited by an upper flight information region.
  - (3) where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in ICAO Annex 2, Appendix 3.
- (b) Control areas including, *inter alia*, airways and terminal control areas:
  - (1) shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in the area.
  - (2) a lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft).
  - (3) an upper limit of a control area shall be established when either:
    - i. air traffic control service will not be provided above such upper limit; or
    - ii. the control area is situated below an upper control area, in which case the upper limit shall coincide with a VFR cruising level of the tables in ICAO Annex 2, Appendix 3.
- (c) Control zones:
  - (1) the lateral limits of control zones shall encompass at least those portions of airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions.
  - (2) the lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the center of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

- (3) if a control zone is located within the lateral limits of a control area, it shall extend upwards from the surface of the earth to at least the lower limit of the control area.

### **CAR 172.037 Identification of Air Traffic Service Units and Airspaces**

- (a) An area control center or flight information center should be identified by the name of a nearby town, city, or geographic feature.
- (b) An aerodrome control tower or approach control unit should be identified by the name of the aerodrome at which it is located.
- (c) A control zone, control area, or flight information region should be identified by the name of the unit having jurisdiction over such airspace.

### **CAR 172.039 Establishment and Identification of ATS Routes**

- (a) When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.
- (b) ATS routes shall be identified by designators.
- (c) Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principals set forth in ICAO Annex 11, Appendix 1 and Attachment A.
- (d) Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in ICAO Annex 11, Appendix 3.

### **CAR 172.041 Establishment of Change-over Points**

- (a) Change-over points should be established on ATS route segments defined by reference to VHF omnidirectional radio ranges and should be limited to route segments of 110 km (60 NM) or more, except where route complexity, density of NAVAIDs, technical, or operational reasons warrant the establishment of change-over points on shorter segments.
- (b) Unless otherwise established in relation to the performance of navigational aids or frequency protection criteria, the change-over point should be the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.

### **CAR 172.043 Establishment and Identification of Significant Points**

- (a) Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.
- (b) Significant points shall be identified by designators.
- (c) Significant points shall be established and identified in accordance with the principles set forth in ICAO Annex 11, Appendix 2.

### **CAR 172.045 Establishment and Identification of Standard Routes for Taxiing Aircraft**

- (a) Where necessary, standard routes for taxiing aircraft should be established on an aerodrome between runways, aprons and maintenance areas. Such routes should be direct, simple and where practicable, designed to avoid traffic conflicts.

- (b) Standard routes for taxiing aircraft should be identified by designators distinctively different from those of the runways and ATS routes.

#### **CAR 172.047 Coordination Requirements – General**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that coordination can be effected between all of the ATS units listed in its exposition and the following:
  - (1) aircraft operators;
  - (2) search and rescue authorities;
  - (3) adjacent or adjoining ATS units not part of the applicant's exposition;
  - (4) adjacent aerodrome flight information service units;
  - (5) meteorological authorities;
  - (6) aeronautical information service authorities;
  - (7) aeronautical telecommunication authorities;
  - (8) any other ATS unit with which regular operational co-ordination is required; and

If the ATS unit listed in the applicant's exposition is an aerodrome control tower:

- (9) the airport operator; and
  - (10) the apron management service, if the service is not provided by the aerodrome control unit or the airport operator.
- (b) An applicant for the grant of an air traffic service certificate shall establish procedures for ensuring that an ATS letter of agreement for coordination is in place between each ATS unit listed in its exposition and the entities listed in paragraph (a).
- (c) An applicant for the grant of an air traffic service certificate shall establish procedures for ensuring that each ATS letter of agreement in paragraph (b):
  - (1) details matters that are necessary for effective co-ordination between the units party to the agreement; and
  - (2) is kept current; and
  - (3) is signed by senior representatives of the participating units; and
  - (4) is part of the applicant's operations manual.
- (d) An applicant for the grant of an air traffic service certificate shall provide systems and procedures for facilitating communications between those ATS units that have an operational requirement to communicate with each other.
- (e) An applicant for the grant of an air traffic service certificate shall provide systems and procedures for ensuring that ATS units, aircraft operators, and aviation meteorological service providers, if they require the information, are provided, through the exchange of ATS messages, with details of:
  - (1) the intended movement of each aircraft for which a flight plan has been filed, and any amendments to the flight plan; and
  - (2) current information on the actual progress of the flight.
- (f) An applicant for the grant of an air traffic service certificate shall establish procedures for ensuring that ATS messages are prepared and transmitted in accordance with procedures detailed and cross-referenced in Document 4444 (Chapter 11 – Air Traffic Services Messages).

#### **CAR 172.049 Coordination between Aircraft Operators and Air Traffic Service Authorities**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that air traffic service units, in carrying out their objectives, shall have due regard for the

requirements of the aircraft operators consequent on their obligations as specified in ICAO Annex 6, and, if so required by the aircraft operators, shall make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.

- (b) When so requested by an operator, messages (including position reports) received by air traffic service units and relating to the operation of the aircraft for which operational control service is provided by that operator shall, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

### **CAR 172.051 Coordination between Military and Air Traffic Service Authorities**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft. Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with CAR 172.053.
- (b) The applicant's procedures shall ensure that arrangements are made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic service units and appropriate military units.
- (c) The applicant's procedures shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, the applicant shall designate any areas or routes where the requirements of ICAO Annex 2 concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all pertinent data is available in appropriate air traffic service units specifically for the purpose of facilitating identification of civil aircraft.
- (d) The applicant's procedures shall ensure that:
  - (1) air traffic service units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary; and
  - (2) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

### **CAR 172.053 Coordination of Activities Potentially Hazardous to Civil Aircraft**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that arrangements for activities potentially hazardous to civil aircraft, whether over the territory of Oman or over the high seas, are coordinated with the appropriate air traffic service units. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities.
- (b) The objective of the coordination shall be to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.
- (c) The applicant's procedures shall ensure that the appropriate air traffic service units shall be responsible for initiating the promulgation of information regarding the activities.
- (d) The applicant's procedures shall include the measures and actions to be taken to prevent the emission of laser beams from adversely affecting flight operations. Such measures and actions shall include reporting procedures to the appropriate Oman authority which is responsible for investigating laser beam emission incidents.

**CAR 172.055 Coordination Between Meteorological and Air Traffic Service Authorities**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that aircraft receive the most up-to-date meteorological information for aircraft operations; arrangements shall be made, where necessary, between meteorological and air traffic services authorities for air traffic services personnel:

- (a) In addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon;
- (b) To report as soon as possible to the associated meteorological office, meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report; and
- (c) To report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centers and flight information centers shall report the information to the associated meteorological watch office and volcanic ash advisory centers (VAACs).
- (d) To maintain close coordination between area control centers, flight information centers and associated meteorological watch offices to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

**CAR 172.057 Coordination between Aeronautical Information Service and Air Traffic Service Authorities**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that aeronautical information service units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information; arrangements shall be made between aeronautical information service and air traffic service authorities to report to the responsible aeronautical information services unit, with a minimum of delay:
  - (1) information on aerodrome conditions;
  - (2) the operational status of associated facilities, services and navigation aids within their area of responsibility;
  - (3) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and
  - (4) any other information considered to be of operational significance.
- (b) Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation. To ensure timely provision of the information to the aeronautical information service, close coordination between those services concerned is therefore required.
- (c) Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Regulation and Control (AIRAC) system, as specified in ICAO Annex 15, Chapter 6 and Appendix 4. The predetermined, internationally agreed AIRAC effective dates, in addition to fourteen (14) days' postage time, shall be observed by the responsible air traffic service provider when submitting the raw information/data to aeronautical information services.
- (d) The air traffic service provider responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do so while taking into account accuracy and integrity requirements for aeronautical data as specified in appropriate ICAO documentation.

**CAR 172.059 Aeronautical Data**

- (a) Determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity requirements set forth in appropriate ICAO documentation, while taking into account the established quality system procedures. Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level, and in that respect, three types of positional data shall be identified: surveyed points (e.g. navigation aids positions), calculated points and declared points.
- (b) An air traffic services provider shall ensure that the integrity of aeronautical data is maintained throughout the data process from survey/origin to the next intended user. Based on the applicable integrity classification, the validation and verification procedures shall:
  - (1) for routine data: avoid corruption throughout the processing of the data;
  - (2) for essential data: assure corruption does not occur at any stage of the entire process and may include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and
  - (3) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance procedures to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.
- (c) Electronic aeronautical data sets shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets. This shall apply to the protection of all integrity levels of data sets as specified in paragraph (b).
- (d) Geographical coordinates indicating latitude and longitude shall be determined and reported to the aeronautical information services authority in terms of the World Geodetic System-1984 (WGS-84) geodetic reference datum, identifying those geographical coordinates which have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the requirements in appropriate ICAO documentation.
- (e) The order of accuracy of the field work and determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phases of flight will be within the maximum deviations, with respect to an appropriate reference frame, as indicated in appropriate ICAO documentation.

**CAR 172.061 Common Reference Systems**

- (a) Horizontal reference system:  
World Geodetic System-1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for air navigation. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.
- (b) Vertical reference system:  
Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for air navigation.
- (c) Temporal reference system:  
The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for air navigation. When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of the Oman Aeronautical Information Publication (AIP).

**CAR 172.063 Prohibited, Restricted and Danger Areas**

- (a) Each prohibited area, restricted area, or danger area established by the AUTHORITY shall, upon initial establishment, be given an identification and full details shall be promulgated.



- (b) The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.
- (c) The identification shall be composed of a group of letters and figures as follows:
  - (1) nationality letters for location indicators assigned to Oman;
  - (2) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and
  - (3) a number, unduplicated within Oman.
- (d) To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

### **CAR 172.065 Special Use Airspace**

An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that separation is provided between controlled flights and active designated special use airspace, except when:

- (1) The pilot has approval from the AUTHORITY to operate in the airspace; or
- (2) In the case of a danger area or a volcanic hazard zone, the pilot has notified an express intention to operate in the danger area or the volcanic hazard zone, as the case may be; or
- (3) It is known, or reasonably believed, that the pilot of a VFR flight or an IFR flight navigating by visual reference is aware that the airspace is active; or
- (4) On a request by the pilot, the flight is cleared to maintain its own separation from the airspace.

### **CAR 172.067 Instrument Flight Procedure Design Service**

The AUTHORITY shall ensure that an instrument flight procedure design service is in place in accordance with CAR 173, *Instrument Flight Procedure Design Organization*.

### **CAR 172.069 Performance-Based Navigation (PBN) Operations**

- (a) The AUTHORITY shall prescribe the specifications when applying performance-based navigation with consideration of regional air navigation agreements and navigation infrastructure or specific navigation functionality requirements.
- (b) The prescribed navigation specification shall be appropriate to the level of communications, navigation and air traffic services provided in the airspace concerned.

### **CAR 172.071 Performance-Based Communication (PBC) Operations**

- (a) The AUTHORITY shall prescribe the required communication performance (RCP) specifications when applying performance-based communication with consideration of regional air navigation agreements.
- (b) The prescribed RCP specification shall be appropriate to the air traffic services provided.

### **CAR 172.073 Performance-Based Surveillance (PBS) Operations**

- (a) The AUTHORITY shall prescribe the required surveillance performance (RSP) specifications when applying performance-based surveillance with consideration of regional air navigation agreements.
- (b) The prescribed RSP specification shall be appropriate to the air traffic services provided.

- (c) Where the AUTHORITY has prescribed an RSP specification for performance-based surveillance, ATS units shall have equipment capable of performance consistent with the prescribed RSP specification.

### **CAR 172.075 Safety and Regulatory Audits and Inspections**

- (a) The AUTHORITY shall conduct an initial certification audit and thereafter audits at intervals not exceeding two (2) years at the certificate holder's office and/or unit or facility.
- (b) The AUTHORITY may require the certificate holder to provide such documentation and information as the AUTHORITY considers relevant to the audit or inspection.
- (c) The AUTHORITY shall be granted, by the applicant or certificate holder, unrestricted access to the applicant's or certificate holder's facilities and shall be permitted to carry its own equipment (e.g. computers, cameras and recording devices) under all conditions while carrying out its oversight functions.

### **CAR 172.077 Resolution of Safety Issues**

- (a) When objective evidence is found showing regulatory non-compliance by the holder of an air traffic services certificate, the finding shall be classified as follows:
  - (1) a level one finding is any significant non-compliance which reduces the level of safety.
  - (2) a level two finding is any non-compliance that does not result in an immediate risk to safety.
  - (3) a level three finding is any item where it has been identified, by objective evidence, to contain potential problems that could lead to a non-compliance. These are considered as observations only and will not impact a certificate.
- (b) After a certificate holder receives notification of a finding:
  - (1) a level one finding must be rectified immediately or within the timescale specified by the AUTHORITY.
  - (2) a level two finding shall be addressed in a corrective action plan with a resolution period specified by the AUTHORITY and shall be appropriate to the nature of the finding, but in any circumstance shall not be more than ninety (90) days. In certain circumstances, the AUTHORITY may extend the ninety (90) day period subject to justification that is acceptable to the AUTHORITY.
  - (3) the certificate holder's corrective action plan shall:
    - i. be submitted by the date specified by the AUTHORITY;
    - ii. identify the root cause of the non-compliance;
    - iii. indicate the person, position, department or entity responsible for the corrective action;
    - iv. indicate the corrective action required including any multiple steps; and
    - v. be acceptable to the AUTHORITY.
- (c) Upon the completion and/or implementation of a corrective action, the service provider shall notify the AUTHORITY and provide evidence of its resolution.
- (d) In the event of level one or level two findings, the certificate may be subject to revocation or a partial or full suspension or restriction.

## SUBPART B – CERTIFICATION REQUIREMENTS

### CAR 172.101 Personnel Requirements

- (a) An applicant for the grant of an air traffic service (ATS) Certificate shall engage, employ, or contract:
- (1) a senior person identified as the Chief Executive who has the authority within the applicant's organization to ensure that each air traffic service listed in its exposition:
    - i. can be financed; and
    - ii. is provided in accordance with the requirements prescribed by this CAR; and
  - (2) a senior person or persons who are responsible for ensuring that the applicant's organization complies with the requirements of this CAR. Such nominated person or persons shall be ultimately responsible to the Chief Executive; and
  - (3) sufficient personnel to manage, support, and provide the air traffic services and any associated training or assessment listed in the applicant's exposition.
- (b) The applicant shall establish policies and procedures to:
- (1) ensure the competence of those personnel who are authorized by the applicant to provide the air traffic services, and training and assessment for those services, listed in the applicant's exposition; and
  - (2) provide those authorized personnel with written evidence of the scope of their authorization; and
  - (3) ensure that those authorized personnel hold appropriate current licenses and ratings; and
  - (4) ensure, where practicable, that authorized personnel only exercise the privileges of their rating or ratings if they are familiar with all relevant and current information; and
  - (5) facilitate, for rated air traffic service license holders, compliance with the recent experience requirements; and
  - (6) ensure, where practicable, that an air traffic controller shall not exercise the privileges of their rating or ratings:
    - i. unless they comply with any endorsements on their medical certificate; and
    - ii. when any decrease in their medical fitness might render them unable to safely exercise these privileges; and
    - iii. unless they comply with the English language proficiency requirements; and
  - (7) determine the capacity of the ATS system, including the number of staff required, to ensure the provision of an adequate ATS system; and
  - (8) enable recruitment and retention of appropriately qualified and experienced ATS staff; and
  - (9) provide job descriptions for operational ATS staff and significant support positions.

### CAR 172.103 Language Proficiency

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control (ATC) service shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in ICAO Annex 1.
- (b) Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for such communications.

### CAR 172.105 ATS Training

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures and programs for the training and assessment of the following personnel as appropriate:

- (1) air traffic controllers;
- (2) flight service operators;
- (3) personnel directly involved in the provision of an HF aeronautical telecommunication service;
- (4) personnel directly involved in activities supporting:
  - i. rated air traffic controllers; and
  - ii. rated flight service operators.
- (b) The applicant's procedures shall ensure that personnel giving instruction in an operational environment hold an appropriate current ATS instructor rating issued under CAR-FCL Supplement.
- (c) The applicant's procedures shall ensure that personnel carrying out assessment for the issue of licenses, or the issue or validations of ratings, hold an appropriate current ATS examiner rating.
- (d) The applicant's programs shall ensure that the following types of training are provided:
  - (1) initial training;
  - (2) refresher (recurrent) training;
  - (3) on-the-job (OJT) training;
  - (4) specialized training for new facilities, procedures and equipment; and
  - (5) human factors training.
- (e) The applicant's procedures shall ensure that all training syllabi are reviewed and approved by the AUTHORITY.
- (f) The applicant's procedures shall ensure that training records are maintained for:
  - (1) air traffic controllers, including:
    - i. ATC instructors;
    - ii. ATC examiners;
  - (2) flight service operators;
  - (3) personnel directly involved in the provision of an HF aeronautical telecommunication service;
  - (4) personnel directly involved in activities supporting:
    - i. rated air traffic controllers; and
    - ii. rated flight service operators.

### **CAR 172.107 Facility Requirements**

- (a) An applicant for the grant of an air traffic service certificate shall establish the following facilities that are appropriate to the air traffic services listed in the applicant's exposition:
  - (1) aerodrome control towers;
  - (2) approach control offices;
  - (3) area control centers;
  - (4) flight information centers;
  - (5) dedicated training and assessment facilities.
- (b) Except as provided in paragraph (h), an applicant for an aerodrome control service shall establish procedures to ensure that any aerodrome control tower, including any temporary tower or office, listed in the applicant's exposition, is:
  - (1) constructed and situated to provide:
    - i. the maximum practicable visibility of aerodrome traffic; and
    - ii. protection from glare and reflection; and
    - iii. protection from noise; and

- (2) safeguarded from any development that would affect the requirements of paragraph (b)(1); and
  - (3) at solo watch locations, provided with:
    - i. toilet facilities that ensure the minimum possible interruption to, or degradation of, air traffic services; and
    - ii. storage and preparation facilities for food and drink in the visual control room; and
  - (4) provided with equipment for two-way voice communication with:
    - i. any aircraft, in or adjacent to airspace for which the applicant has responsibility; and
    - ii. any aircraft, vehicle, and person, on, or adjacent to, the maneuvering area; and
  - (5) provided with the following minimum equipment:
    - i. a display system or systems designed to show the disposition of current and pending aerodrome traffic together with ancillary information for individual aircraft;
    - ii. a power supply;
    - iii. appropriate and current maps and charts;
    - iv. binoculars;
    - v. clocks;
    - vi. log keeping system;
    - vii. outside temperature indicator;
    - viii. QNH display;
    - ix. signal lamp with green, red, and white functions;
    - x. telephone communications;
    - xi. status monitors for approach and landing aids and any road or rail signaling equipment affecting the use of a runway;
    - xii. visibility and cloud height checkpoints;
    - xiii. voice and, if applicable, data recording equipment;
    - xiv. wind direction and wind speed display;
    - xv. an audible emergency alerting system;
    - xvi. an AFTN terminal or, if provided for in an ATS letter of agreement, an alternative means of reception and transmission of information normally conveyed by AFTN;
    - xvii. if applicable, airfield lighting controls panel; and
  - (6) provided with two (2) independent sources of the current altimeter setting, at least one (1) of which must be an aneroid barometer or barometric altimeter situated in the visual control room.
- (c) The applicant shall establish procedures to ensure that an area control center, a flight information center, and an approach control office is:
- (1) provided with equipment enabling:
    - i. to the fullest extent practical, two-way voice communication; and
    - ii. if applicable, data communication with any aircraft in, or adjacent to, airspace for which the applicant has responsibility; and
  - (2) provided with the following minimum equipment:
    - i. a display system or systems designed to show the disposition of current and pending flights together with ancillary information for individual aircraft;
    - ii. a power supply;
    - iii. appropriate and current maps and charts;
    - iv. clocks;

- v. log keeping system;
  - vi. status monitors as appropriate for navigation, approach, and landing aids;
  - vii. telephone communications;
  - viii. voice recording equipment and, if applicable, data recording equipment;
  - ix. an AFTN terminal;
  - x. for an approach control operating position, an ILS/MLS status monitor at the approach control or approach control radar operating position for the aerodrome concerned;
  - xi. for an approach control operating position responsible for aircraft on final approach, or aircraft landing or taking off, a wind direction and wind speed display fed from the same source as the corresponding equipment in the aerodrome control tower.
- (d) The applicant shall establish procedures to ensure that the aeronautical telecommunications equipment required by paragraphs (b) and (c) are operated in accordance with the requirements of CAR 171.
- (e) The applicant shall establish procedures to ensure that any visual display unit used by an air traffic service is positioned with due regard to the relative importance of the information displayed and ease of use by the staff concerned.
- (f) The equipment required by paragraphs (b)(4) and (5), and paragraphs (c)(1) and (2), must have a level of reliability, availability, and redundancy, that minimizes the possibility of failure, non-availability, or significant degradation of performance.
- (g) The applicant shall establish procedures to ensure that the status monitors required by paragraph (b)(5)(xi) and paragraphs (c)(2)(vi) and (x) are fitted with:
- (1) an aural signal to indicate a change of status; and
  - (2) a visual indication of the current status.
- (h) A temporary aerodrome control tower is not required to be provided with the equipment required under paragraphs (b)(5)(xi), (xvi) and (xvii) if it is impracticable to do so and other appropriate measures are taken, as the case may be, to:
- (1) provide the person providing the air traffic service from the temporary tower or office with the information that would be available from the equipment required under paragraphs (b)(5)(xi) and (xvi); and
  - (2) control the airfield lighting if applicable.

### **CAR 172.109 Notification of Facility Status**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to notify the users of its air traffic services and/or relevant operational information and of any changes in the operational status of each facility or service listed in the applicant's exposition.
- (b) The applicant's procedures shall ensure that the procedures established under paragraph (a) require:
- (1) operational information for each of the applicant's air traffic services to be forwarded to the holder of the aeronautical information service certificate; and
  - (2) the users of the applicant's air traffic services to be notified without delay of any change in operational status of a facility or service that may affect the safety of air navigation, and
  - (3) except if the change is temporary in nature, information concerning any change in operational status is forwarded to the holder of the aeronautical information service certificate for the NOTAM service.

**CAR 172.111 Shift Administration**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that:

- (1) adequate time is provided at the beginning and end of each shift, for the performance of those duties required:
  - i. before providing an air traffic service; and
  - ii. after ceasing to provide an air traffic service; and
- (2) a minimum of five (5) minutes is provided for each transfer of watch at an ATS operational position.

**CAR 172.113 Service Disruptions**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to:
  - (1) advise the AUTHORITY of any planned disruption to the provision of air traffic services that could have an impact on safety; and
  - (2) investigate any unplanned disruption to the provision air traffic services; and
  - (3) report to the AUTHORITY, within forty-eight (48) hours of the occurrence, the circumstances surrounding any unplanned disruption to air traffic services when the disruption affected, or could have affected, the safety of air traffic.
- (b) Disruptions reportable under paragraph (a) shall include, but are not limited to, any:
  - (1) failure to open watch within fifteen (15) minutes of the promulgated opening time; and
  - (2) any interruption, of greater than ten (10) minutes, to the normal provision of an air traffic service; and
  - (3) curtailment of watch, by greater than thirty (30) minutes, from the promulgated off watch time.

**CAR 172.115 Security**

- (a) An applicant for the grant of an air traffic service certificate shall prepare an ATS security program.
- (b) Each ATS security program shall specify the physical security requirements, practices, and procedures to be followed for the purposes of minimizing the risk of destruction of, damage to, or interference with the operation of, any ATS unit operated by the applicant where such destruction, damage, or interference is likely to endanger the safety of aircraft.
- (c) Without limiting the generality of paragraph (b), the security program shall specify such physical security requirements, practices, and procedures as may be necessary:
  - (1) to ensure that entrances to permanent ATS facilities operated by the applicant are subject to positive access control at all times, so as to prevent unauthorized entry; and
  - (2) to protect personnel on duty; and
  - (3) to be followed in the event of a bomb threat or other threat of violence against an ATS unit; and
  - (4) to monitor unattended ATS unit buildings to ensure that any intrusion or interference is detected.

**CAR 172.117 Logbooks and Position Logs**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that a logbook or electronic logbook, with sequentially numbered pages, is kept at each ATS unit, and, where a unit has physically separate operations areas, at each such location within the unit.

- (b) The procedure shall ensure that:
- (1) the logbook is maintained by the senior person on duty, or the person on watch at a nominated operating position; and
  - (2) the logbook is maintained throughout the hours of watch of the unit or operations room; and
  - (3) all entries include the time of entry; and
  - (4) the person responsible for maintaining a logbook signs "On Watch", and effects transfer of responsibility by successive "On Watch" entries; and
  - (5) logbook entries are:
    - i. in chronological sequence and in ink; and
    - ii. without erasure, defacement, or obliteration; and
    - iii. corrected by drawing a single line through the erroneous information and initialing the correction; and
  - (6) actual times of opening and closing watch are recorded in the logbook, together with the reason for every variation from published hours of service; and
  - (7) logbooks are retained for a period of three (3) years from the date of final entry.
- (c) Each applicant shall establish a system or procedure to ensure the keeping of an operating position log consisting of the elements in paragraph (d)(1), when such information is not available in the logbook required by paragraphs (a) and (b).
- (d) The system or procedure shall ensure that the operating position log:
- (1) contains sufficient information to identify:
    - i. the name of the operational position; and
    - ii. when that position was in operation; and
    - iii. all of the services and/or functions being provided from that position during the period it was operational including:
      - operational services such as ATC;
      - on-the-job training;
      - operational assessment, validation, or examination;
      - monitoring;
    - iv. the identity of the individual(s) in (iii) above; and
    - v. if the position had other operational positions combined with it; and
  - (2) is retained for a period of thirty-one (31) days from the date of filing.

### **CAR 172.119 Documentation**

- (a) An applicant for the grant of an air traffic service certificate shall hold copies of the relevant technical manuals, and all other documents, necessary for the provision and operation of the services listed in its exposition.
- (b) The applicant shall establish a procedure to control all the documentation required by paragraph (a). The procedure shall ensure that:
- (1) all incoming documentation is reviewed, and actioned as required, by authorized personnel; and
  - (2) all documentation is reviewed and authorized before issue; and
  - (3) current issues of all relevant documentation are available to personnel at all locations where they need access to such documentation for the provision and operation of air traffic services; and
  - (4) all obsolete documentation is promptly removed from all points of issue or use; and



- (5) any obsolete documents retained as archives are suitably identified as obsolete; and
- (6) changes to documentation are reviewed and approved by authorized personnel who shall have access to pertinent background information upon which to base their review and approval; and
- (7) the current version of each item of documentation can be identified to preclude the use of out-of-date editions.

### **CAR 172.121 Records**

- (a) An applicant for the grant of an air traffic service certificate shall establish systems and procedures to identify, collect, index, file, archive, secure, maintain, access, and dispose of, records necessary for:
  - (1) the operational provision of air traffic services; and
  - (2) the purpose of assisting with any accident or incident investigation.
- (b) The records shall include:
  - (1) telephone communications; and
  - (2) radio broadcasts and communications; and
  - (3) air-ground digital data exchanges; and
  - (4) radar and/or surveillance information; and
  - (5) filed flight plans including standard and repetitive plans; and
  - (6) flight progress strips where used or equivalent electronic flight strips; and
  - (7) staff duty rosters; and
  - (8) appropriate meteorological and aeronautical information, except where the information is retained for an equivalent period by a meteorological or AIS organization; and
  - (9) a record of each internal quality assurance review carried out under the procedures required by CAR 172.167. The record shall detail the activities reviewed and any necessary follow-up corrective and preventive actions.
- (c) The applicant shall establish systems and procedures to ensure the electronic recording of:
  - (1) all ATS radio and telephone communications; and
  - (2) all high-frequency air-ground communications; and
  - (3) all relevant data from primary and secondary radar equipment, or obtained through automatic dependent surveillance (ADS) or any other system, used in providing or supporting an ATC service; and
  - (4) any transfer and acceptance of control process not conducted by telephone.
- (d) The applicant shall establish systems and procedures to ensure that electronic records required by paragraph (c):
  - (1) include time recording, correct to within five (5) seconds of UTC, as determined by reference to a standard time station or GPS time standard; and
  - (2) either:
    - i. replicate the voice communications, and, if applicable, the situation display, applying at the particular operating position; or
    - ii. are accompanied by a statement fully describing the differences between the recording supplied and a recording in accordance with paragraph (d)(2)(i).
- (e) For the purposes of paragraph (d)(2) the term "situation display" includes any visual presentation of aircraft position, however derived.
- (f) The option provided by paragraph (d)(2)(ii) shall apply only to equipment in service on the date this CAR comes into force.

- (g) The applicant shall establish systems and procedures to ensure that all records, except where replication is required by paragraph (d)(2)(i), are of sufficient clarity to convey the required information.
- (h) The applicant shall establish procedures to ensure that the records referred to in paragraph (b) are retained for thirty-one (31) days from the date of entry, except for:
  - (1) staff duty rosters; and
  - (2) written records associated with the requirements of CAR 172.113 paragraphs (a)(2) and (3) which shall be retained for two (2) years.
- (i) An applicant for the grant of an air traffic service certificate shall ensure that the determination and reporting of air traffic services related aeronautical data shall be in accordance with the accuracy and integrity requirements set forth in CAR 175.

### **CAR 172.123 Area and Approach Control Services**

- (a) An applicant for the grant of an air traffic service certificate in respect of an area or approach control service shall establish systems and procedures to:
  - (1) determine from information received, the positions of known aircraft relative to each other; and
  - (2) provide for the issue of ATC clearances, instructions, and information in accordance with the airspace classification and type of flight for the purpose of preventing collisions between aircraft under the control of the unit, and for expediting and maintaining a safe and efficient flow of traffic; and
  - (3) co-ordinate clearances with other ATC units as necessary; and
  - (4) display information on aircraft movements together with a record of clearances issued, in a manner that permits ready analysis of such information.
- (b) Except as provided in paragraph (d) and CAR 172.141, the procedures required by paragraph (a)(2) must specify that vertical or horizontal or composite separation in accordance with paragraph (c) must be provided between:
  - (1) all IFR flights in airspace Classes A, B, C, D and E;
  - (2) all VFR flights in airspace Classes B, C and D;
  - (3) all special VFR flights;
  - (4) all aerodrome traffic at controlled aerodromes.
- (c) The separation required by paragraph (b) must be in accordance with the applicable criteria and minima prescribed by:
  - (1) Subpart E; or
  - (2) Annex 11; or
  - (3) Document 4444; or
  - (4) Document 7030.
- (d) In Class D or E airspace, the ATC separation required by paragraph (b)(2) does not apply to an IFR flight if the pilot has been cleared to maintain own separation from other IFR flights. The clearance must not be issued unless:
  - (1) the clearance is in response to a specific request from the pilot of the aircraft; and
  - (2) the flight is during the day and visual meteorological conditions exist; and
  - (3) a radar control service is not available; and
  - (4) the clearance is for a specific portion of the flight; and
  - (5) the pilots of all flights that will be essential traffic agree with the application of the procedure; and

- (6) essential traffic information is passed to the pilots of all affected flights; and
- (7) the flights concerned are on the same ATC frequency.

### **CAR 172.125 Aerodrome Control Service**

- (a) An applicant for the grant of an air traffic service certificate in respect of an aerodrome control service shall establish systems and procedures to:
  - (1) determine, from information received and visual observation, the relative positions of known aircraft to each other; and
  - (2) provide for the issue of ATC clearances, instructions, and information, for the purpose of preventing collisions between:
    - i. aircraft flying in the vicinity of an aerodrome; and
    - ii. aircraft landing and taking off; and
    - iii. aircraft operating on the maneuvering area; and
    - iv. aircraft, vehicles, and persons, operating on the maneuvering area; and
    - v. aircraft on the maneuvering area and obstructions on that area; and
  - (3) provide for the issue of ATC clearances, instructions, and information, for the purpose of expediting and maintaining a safe and efficient flow of traffic; and
  - (4) except as provided in CAR 172.141, provide runway and wake turbulence separation in accordance with criteria and minima prescribed by:
    - i. Annex 11; or
    - ii. Document 4444; or
    - iii. Document 7030; or
    - iv. Subpart E; and
  - (5) ensure that emergency vehicles responding to an aircraft emergency are given priority over all other surface movement traffic; and
  - (6) provide for the control of the movement of persons or vehicles, including towed aircraft, on the maneuvering area, as necessary to avoid hazard to them or to aircraft landing, taxiing, or taking off; and
  - (7) co-ordinate as necessary with other ATS units; and
  - (8) display, at operating positions, continuously updated information on aircraft movements.
- (b) The applicant's procedures shall ensure that, when radio communication is not available, basic clearances, instructions, and information required by paragraph (a)(2) can be conveyed by the use of the light signals described in CAR-OPS 0.185.
- (c) The applicant's procedures shall ensure that when required by either the weather, or category of approach, or both:
  - (1) aircraft on an ILS or MLS approach are informed of ILS/MLS critical area incursions, or the imminent possibility of an incursion; or
  - (2) the applicable ILS/MLS critical areas are protected from incursion when an aircraft is on an ILS or MLS approach, or has reached a point on the approach from which protection from incursion is necessary.
- (d) The applicant's procedures shall ensure that, except as provided in CAR 172.141, and subject to authorization by the applicable approach control unit, aerodrome control units provide separation between:
  - (1) IFR flights and Special VFR flights; and
  - (2) Special VFR flights when the flight visibility is reported to be less than five (5) km.

- (e) The applicant's procedures shall ensure that, when authority has been delegated by, and accepted from, the applicable area or approach control unit, aerodrome control units provide separation between controlled flights in accordance with the delegation.
- (f) The separation required by paragraphs (d) and (e) shall be obtained by the use of vertical or horizontal or composite separation, in accordance with criteria and minima prescribed by:
  - (1) Annex 11; or
  - (2) Document 4444; or
  - (3) Document 7030; or
  - (4) Subpart E.

### **CAR 172.127 Operation of Air Traffic Control Service**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish systems and procedures to ensure that air traffic control units shall:
  - (1) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;
  - (2) determine from the information received, the relative positions of known aircraft to each other;
  - (3) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;
  - (4) coordinate clearances as necessary with other units:
    - i. whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;
    - ii. before transferring control of an aircraft to such other units.
- (b) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish systems and procedures to ensure that information on aircraft movements, together with a record of air traffic control clearances issued to such aircraft, shall be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.
- (c) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish systems and procedures to ensure that clearances issued by air traffic control units shall provide separation:
  - (1) between all flights in airspace Classes A and B;
  - (2) between IFR flights in airspace Classes C, D and E;
  - (3) between IFR flights and VFR flights in airspace Class C;
  - (4) between IFR flights and special VFR flights;
  - (5) between special VFR flights when so prescribed by the appropriate ATS authority.
- (d) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish systems and procedures to ensure that separation by an air traffic control unit shall be obtained by at least one of the following:
  - (1) vertical separation, obtained by assigning different levels selected from:
    - i. the appropriate table of cruising levels in Appendix 3 of ICAO Annex 2, or
    - ii. a modified table of cruising levels, when so prescribed in accordance with Appendix 3 of ICAO Annex 2 for flight above FL 410, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances;
  - (2) horizontal separation, obtained by providing:

- i. longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or
  - ii. lateral separation, by maintaining aircraft on different routes or in different geographical areas;
- (e) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish systems and procedures for all airspace where a reduced vertical separation minimum (RVSM) of 300 m (1,000 ft) is applied between FL 290 and FL 410 inclusive to ensure:
  - (1) aircraft are approved for operation in RVSM airspace;
  - (2) a program is instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the implementation and continued application of this vertical separation minimum meets the safety objectives. The coverage of the height-monitoring facilities provided under this program shall be adequate to permit monitoring of the relevant aircraft types of all operators that operate in RVSM airspace;
  - (3) the information obtained from paragraph (2) is exchanged with the ICAO Regional Monitoring Agency (RMA); and
  - (4) large height deviations and RVSM coordination failures are reported to the RMA.

#### **CAR 172.129 Responsibility for Control**

An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that:

- (1) a controlled flight shall be under the control of only one air traffic control unit at any given time;
- (2) responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

#### **CAR 172.131 Transfer of Responsibility for Control**

An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure the transfer of responsibility of an aircraft from one air traffic control unit to another.

- (a) The applicant's procedures shall consider the place or time of transfer including:
  - (1) between two units providing area control service;
  - (2) between a unit providing area control service and a unit providing approach control service;
  - (3) between a unit providing approach control service and an aerodrome control tower; and
  - (4) between control sectors/positions within the same air traffic control unit.
- (b) The applicant's procedures shall consider the coordination of the transfer including:
  - (1) consent of the accepting control unit;
  - (2) appropriate parts of the current flight plan and any control information pertinent to the transfer; ~~and~~

- (3) the control information pertinent to the transfer regarding the position and, if required, the track and speed of the aircraft as observed by radar or ADS-B prior to the transfer where transfer of control is effected by using radar or ADS-B; and
- (4) the recording of the transfer including the handover and takeover between controllers.
- (c) The applicant's procedures as the accepting control unit shall:
  - (1) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and
  - (2) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of the transfer.
- (d) The accepting control unit shall notify the transferring control unit when it has established two-way voice and/or by data link communications with and assumed control of the aircraft concerned, unless specified by agreement between the two control units concerned.
- (e) Applicable coordination procedures, including transfer of control points, shall be specified in letters of agreement and ATS unit instructions as appropriate.

### **CAR 172.133 Flight Information Service**

- (a) An applicant for the grant of an air traffic service certificate must establish procedures to ensure that a flight information service is provided to the following:
  - (1) each aircraft being provided with an ATC service that is likely to be affected by the information in paragraph (c);
  - (2) each aircraft being provided with an aerodrome flight information service that is likely to be affected by the information in paragraph (c);
  - (3) each aircraft operating IFR that is likely to be affected by the information in paragraph (c);
  - (4) any aircraft operating VFR for which the pilot has submitted a VFR flight plan to an ATS unit;
  - (5) any aircraft operating VFR if the pilot makes a specific request to an ATS unit for flight information.
- (b) Where air traffic service units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.
- (c) The applicant shall ensure that the procedures required by paragraph (a) for the provision of the flight information service includes the provision of available and relevant:
  - (1) SIGMET and AIRMET information; and
  - (2) information on weather conditions reported or forecast at departure, destination, and alternate aerodromes; and
  - (3) information concerning pre-eruption volcanic activity, volcanic eruptions, and volcanic ash clouds; and
  - (4) information concerning the release into the atmosphere of radioactive materials or toxic chemicals; and
  - (5) information on changes in the serviceability of navigation aids; and
  - (6) information on changes in the condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice, or significant depth of water; and
  - (7) information on unmanned free balloons; and

- (8) other information likely to affect safety.
- (d) Flight information service provided to flights shall include, in addition to that outlined in paragraph (c), the provision of information concerning:
  - (1) weather conditions reported or forecast at departure, destination and alternate aerodromes;
  - (2) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;
  - (3) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.

### **CAR 172.135 Air Traffic Control Clearances**

An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that air traffic control clearances contain the following elements:

- (1) aircraft identification as shown in the flight plan;
- (2) clearance limit;
- (3) route of flight;
- (4) level(s) of flight for the entire route or part thereof and changes of levels if required;
- (5) any necessary instructions or information on other matters such as approach or departure maneuvers, communications and the time of expiry of the clearance.

### **CAR 172.137 Read-Back of Clearances and Safety-Related Information**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that air traffic control clearances and instructions always include read-backs when they pertain to:
  - (1) ATC route clearances;
  - (2) clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway; and
  - (3) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts,
  - (4) transition levels.
- (b) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.
- (c) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that the controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

### **CAR 172.139 Coordination of Clearances**

An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that an air traffic control clearance is coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as follows:

- (a) An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

- (1) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or
  - (2) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.
- (b) When coordination as in paragraph (a) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, with holding instructions being issued as appropriate.
  - (1) when prescribed by the appropriate air traffic service provider, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.
  - (2) aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.
  - (3) a clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.
  - (4) unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.
- (c) When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centers concerned, coordination with the subsequent area control center shall be effected prior to issuance of the departure clearance.
- (d) When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently reenter the same or another control area, a clearance from point of departure to the aerodrome of first intended landing may be issued.
- (e) Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

### **CAR 172.141 Deviation from an ATC Clearance**

- (a) Subject to paragraph (b), an applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that instructions issued by ATC to restore a loss of separation do not hinder the responses of a pilot to:
  - (1) an ACAS or TCAS resolution advisory; or
  - (2) a GPWS or TAWS alert; or
  - (3) a weather, or other emergency situation that necessitates a deviation from an ATC clearance.
- (b) The procedures required by paragraph (a) must specify that if any separation has been lost it is restored once the emergency situation has been resolved.

### **CAR 172.143 Flight Plans**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures for the acceptance and actioning of flight plans.
- (b) The applicant's procedures shall ensure that the acceptance procedures required by paragraph (a) include, for the first ATS unit receiving a filed flight plan:
  - (1) a check for compliance with any prescribed flight plan format and data convention; and



- (2) a check for completeness, and to the extent practical, for accuracy; and
  - (3) provision for any action necessary to make the plan acceptable to ATS.
- (c) Any applicant intending to provide air traffic services from more than one location may nominate a single ATS unit within the applicant's organization to accept filed flight plans on behalf of any or every unit.
- (d) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service intending to operate a centralized flight planning office shall ensure the office is equipped with:
  - (1) AFTN, facsimile, and computer data-link connection facilities, for the acceptance of flight plans from aircraft operators and any other ATS unit; and
  - (2) facilities for the advance filing, retention, and activation of standard or repetitive elements of flight plan information; and
  - (3) e-mail.

### **CAR 172.145 Air Traffic Flow Management**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish flow control procedures where, due to limitations in ATS system capacity or aerodrome capacity, air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.
- (b) The procedures shall take account of:
  - (1) the requirements of affected aerodrome operators including their traffic handling priorities; and
  - (2) the needs of aircraft operators, and other ATS providers, who will be affected by the procedures; and
  - (3) the requirements of the aeronautical information service, including advance notice, and information on the method of activation and de-activation.

### **CAR 172.147 Control of Persons and Vehicles at Aerodromes**

- (a) An applicant for the grant of an air traffic service certificate in respect of an aerodrome control service shall establish procedures to control the movement of persons and/or vehicles including towed aircraft on the maneuvering area as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.
- (b) In conditions where low visibility procedures are in operation:
  - (1) persons and vehicles operating on the maneuvering area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;
  - (2) subject to the provisions in paragraph (c), the minimum separation between vehicles and taxiing aircraft shall be prescribed by the appropriate ATS authority taking into account the aids available;
  - (3) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.
- (c) Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

- (d) Subject to the provisions in paragraph (c), vehicles on the maneuvering area shall be required to comply with the following rules:
- (1) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing;
  - (2) vehicles shall give way to other vehicles towing aircraft;
  - (3) vehicles shall give way to other vehicles in accordance with ATS unit instructions;
  - (4) notwithstanding the provisions of paragraphs (1), (2) and (3), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

### **CAR 172.149 Runway Safety**

An applicant for the grant of an air traffic service certificate in respect of an aerodrome control service shall establish and implement a runway safety program.

- (a) The runway safety program shall include the establishment of local runway safety teams at individual aerodromes comprising representatives, where applicable, from:
- (1) aerodrome operations;
  - (2) air traffic services;
  - (3) airlines or aircraft operators;
  - (4) pilot and air traffic controller associations; and
  - (5) any other groups with a direct involvement in runway operations.
- (b) The runway safety program shall develop objectives to reduce the type, severity and frequency of runway incursions including:
- (1) to improve runway safety data collection, analysis and dissemination;
  - (2) to check that signage and markings are ICAO-compliant and visible to pilots and drivers;
  - (3) to develop initiatives for improving the standard of communications;
  - (4) to identify potential new technologies that may reduce the possibility of a runway incursion;
  - (5) to ensure that procedures are compliant with ICAO Standards and Recommended Practices (SARPs); and
  - (6) to initiate local awareness by developing and distributing runway safety education and training material to controllers, pilots and personnel driving vehicles on the aerodrome.
- (c) The runway safety teams shall meet on a regular basis, which may be coordinated by a central authority, and develop an action plan for runway safety including:
- (1) advising management as appropriate on potential runway incursion issues;
  - (2) recommending strategies for hazard removal; and
  - (3) mitigation of residual risk.

### **CAR 172.151 Contingency Arrangements**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall develop and promulgate contingency plans for implementation in the event of disruption, potential disruption, interruption, or temporary withdrawal of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

- (b) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall ensure that contingency procedures are developed and implemented for:
  - (1) radio communications contingencies;
  - (2) emergency separation;
  - (3) natural disasters;
  - (4) public health emergencies; and
  - (5) if applicable, for:
    - i. Short-Term Conflict Alert (STCA);
    - ii. Minimum Safe Altitude Warning (MSAW); and
    - iii. aircraft equipped with ACAS or TCAS.
- (c) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall ensure that procedures are established and implemented for air-ground communications failure. The procedures shall specifically address actions to be taken by ATC units when unable to maintain two-way communication with an aircraft.
- (d) Contingency arrangements shall consider the planning material in ICAO Annex 11, Attachment C.

### **CAR 172.153 Service to Aircraft in the Event of an Emergency**

- (a) An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures to ensure that an aircraft known or believed to be in a state of emergency, including aircraft bomb threats, emergency descents, radio communication failures, and aircraft being subjected to unlawful interference, shall be given maximum consideration, assistance, and priority over other aircraft as may be necessitated by the circumstances.
- (b) The applicant's procedures shall ensure that when an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.
- (c) The applicant's procedures shall ensure that when an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by Oman and exchange necessary information with the operator or its designated representative.

### **CAR 172.155 In-flight Contingencies - Strayed or Unidentified Aircraft**

An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures to ensure that as soon as an air traffic service unit becomes aware of a strayed aircraft it shall take all necessary steps to assist the aircraft and to safeguard its flight.

- (a) The applicant's procedures shall ensure that if the aircraft's position is not known, the air traffic service unit shall:
  - (1) attempt to establish two-way communication with the aircraft, unless such communication already exists;
  - (2) use all available means to determine its position;
  - (3) inform other ATS units into whose area the aircraft may have strayed or may stray, considering all the factors which may have affected the navigation of the aircraft in the circumstances;

- (4) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning the strayed aircraft;
  - (5) request from the units referred to in paragraphs (3) and (4) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.
- (b) The applicant's procedures shall ensure that when the aircraft's position is established, the air traffic service unit shall:
  - (1) advise the aircraft of its position and corrective action to be taken; and
  - (2) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.
- (c) An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures to ensure that as soon as an air traffic service unit becomes aware of an unidentified aircraft in its area, it shall endeavor to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:
  - (1) attempt to establish two-way communication with the aircraft;
  - (2) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft;
  - (3) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft; and
  - (4) attempt to obtain information from other aircraft in the area.
- (d) The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.
- (e) Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by the AUTHORITY shall immediately be informed, in accordance with locally agreed procedures.

### **CAR 172.157 Interception of Civil Aircraft**

- (a) An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures to ensure that as soon as an air traffic service unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:
  - (1) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists;
  - (2) inform the pilot of the intercepted aircraft of the interception;
  - (3) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;
  - (4) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;
  - (5) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft; and
  - (6) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

- (b) An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures to ensure that as soon as an air traffic service unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:
  - (1) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with paragraph (a);
  - (2) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

### **CAR 172.159 Time in Air Traffic Services**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that air traffic service units use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.
- (b) The applicant's procedures shall ensure that air traffic services units are equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.
- (c) The applicant's procedures shall ensure that air traffic services unit clocks and other time-recording devices are checked as necessary to ensure the correct time to within plus or minus five (5) seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within one (1) second of UTC.
- (d) The applicant's procedures shall ensure that the correct time is obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.
- (e) The applicant's procedures shall ensure that aerodrome control towers, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. air traffic service units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

### **CAR 172.161 Requirements for Carriage and Operation of Pressure-Altitude Reporting Transponders**

The AUTHORITY shall establish requirements for carriage and operation of pressure-altitude reporting transponders within defined portions of airspace. An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that:

- (a) QNH altimeter settings are in hectopascals rounded down to the nearest whole hectopascal; and
- (b) The appropriate aerodrome QNH altimeter setting or area QNH zone altimeter setting is provided to all aircraft on initial radio contact, including aircraft that advise having received the current applicable ATIS broadcast, except when it is known the aircraft has already received the information; and
- (c) ATS units provide to an aircraft on request, the current applicable aerodrome QNH altimeter setting or area QNH zone altimeter setting.

**CAR 172.163 Fatigue Management**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish and implement a Fatigue Risk Management System (FRMS) for the purpose of managing fatigue with the aim of ensuring that ATCOs perform at an adequate level of alertness. The FRMS developed by the air traffic service provider shall be subject to approval by the AUTHORITY.
- (b) The FRMS implemented by the air traffic service provider shall ensure that:
  - (1) evidence that schedule limitations are not being exceeded and that non-duty period requirements are met;
  - (2) the air traffic service provider familiarizes its personnel with the principles of fatigue management and its policies with regard to fatigue management; and
  - (3) the FRMS has processes to integrate FRMS functions with its other safety management functions.

**CAR 172.165 Safety Management System (SMS)**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish and implement a Safety Management System (SMS) in order to achieve an acceptable level of safety in civil aviation. The SMS framework shall be as follows:
  - 1. Safety policy and objectives
    - 1.1 Management commitment and responsibility
    - 1.2 Safety accountabilities
    - 1.3 Appointment of key safety personnel
    - 1.4 Coordination of emergency response planning
    - 1.5 SMS documentation
  - 2. Safety risk management
    - 2.1 Hazard identification
    - 2.2 Safety risk assessment and mitigation
  - 3. Safety assurance
    - 3.1 Safety performance monitoring and measurement
    - 3.2 The management of change
    - 3.3 Continuous improvement of the SMS
  - 4. Safety promotion
    - 4.1 Training and education
    - 4.2 Safety communication
- (b) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall ensure that their SMS:
  - (1) is appropriate for the size and complexity of the applicant's organization;
  - (2) identifies safety hazards;
  - (3) ensures the implementation of remedial action necessary to maintain agreed safety performance;
  - (4) provides for continuous monitoring and regular assessment of safety performance including the performance of safety reviews by appropriately trained and qualified personnel;
  - (5) aims at a continuous improvement of the overall performance of the safety management system; and
  - (6) is acceptable to the AUTHORITY.

- (c) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall ensure that their SMS provides hazard analyses and safety assessments for any significant safety-related change to the ATS system including, but not limited to:
- (1) new ATS procedures;
  - (2) implementation of reduced separation minima;
  - (3) new ATS systems or equipment;
  - (4) airspace reorganization; and
  - (5) new facilities or infrastructure.

### **CAR 172.167 Quality Management System (QMS)**

- (a) An applicant for the grant of an air traffic service Certificate in respect of an air traffic control service shall establish and implement a Quality Management System (QMS) in order to ensure compliance with, and the adequacy of, the procedures required by this CAR.
- (b) The applicant's QMS shall establish their quality policy and objectives and ensure that the organization has in place those elements necessary to improve efficiency and reduce service-related risk including procedures for monitoring the performance of all aspects of the organization including such elements as:
- (1) design and documentation of procedures (Standard Operation Procedures Manual);
  - (2) inspection and testing methods;
  - (3) monitoring of equipment and operations;
  - (4) internal and external audits;
  - (5) monitoring of corrective actions taken; and
  - (6) use of appropriate statistical analysis, when required.

### **CAR 172.169 Operational Flight Information Service (OFIS) Broadcasts**

An applicant for the grant of an air traffic service certificate shall ensure that the meteorological information and operational information concerning radio navigation services and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

### **CAR 172.171 Voice-Automatic Terminal Information Service (Voice-ATIS)**

An applicant for the grant of an air traffic service certificate in respect of an aerodrome control service shall provide a Voice-automatic terminal information service (Voice-ATIS) at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels.

- (a) When provided, they shall comprise:
- (1) one broadcast serving arriving aircraft; or
  - (2) one broadcast serving departing aircraft; or
  - (3) one broadcast serving both arriving and departing aircraft; or
  - (4) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.
- (b) A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the

most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

- (c) Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.
- (d) Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.
- (e) The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and take-off, whenever the message has not been prepared by that (those) unit(s).
- (f) Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.

### **CAR 172.173 Data-Link Automatic Terminal Information Service (D-ATIS)**

- (a) Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast.
- (b) Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the content, for the purpose of maintaining the same designator, shall be considered identical.
- (c) Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice-ATIS and D-ATIS shall be updated simultaneously.

### **CAR 172.175 Automatic Terminal Information Service (voice and/or data-link)**

- (a) Whenever Voice-ATIS and/or D-ATIS is provided:
  - (1) the information communicated shall relate to a single aerodrome;
  - (2) the information communicated shall be updated immediately if a significant change occurs;
  - (3) the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services;
  - (4) individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages shall be in alphabetical order;
  - (5) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower, as appropriate;
  - (6) the appropriate ATS unit shall, when replying to the message in paragraph (5) above or, in the case of arriving aircraft, at such other time as may be prescribed by the appropriate ATS authority, provide the aircraft with the current altimeter setting;
  - (7) the meteorological information shall be extracted from the local meteorological routine or special report;
  - (8) Voice-ATIS shall comprise:
    - i. one broadcast serving arriving aircraft; or
    - ii. one broadcast serving departing aircraft; or
    - iii. one broadcast serving both arriving and departing aircraft; or
    - iv. two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.



- (b) A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.
- (c) Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.
- (d) Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.
- (e) The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and takeoff, whenever the message has not been prepared by that (those) unit(s).
- (f) Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.
- (g) When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages shall indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.
- (h) Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with (a)(6).
- (i) If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.
- (j) ATIS messages for arrivals and departures shall contain the following elements in the order listed:
  - (1) name of aerodrome;
  - (2) arrival and/or departure indicator;
  - (3) contract type, if communication is via D-ATIS;
  - (4) designator;
  - (5) time of observation, if appropriate;
  - (6) type of approach(s) to be expected;
  - (7) the runway(s) in use; status of arresting system constituting a potential hazard, if any;
  - (8) significant runway surface conditions and, if appropriate, braking action;
  - (9) holding delay, if appropriate;
  - (10) transition level, if applicable;
  - (11) other essential operational information;
  - (12) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
  - (13) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
  - (14) present weather;
  - (15) cloud below 1,500 m (5,000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
  - (16) air temperature;
  - (17) dew point temperature;
  - (18) altimeter setting(s);

- (19) any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;
  - (20) trend forecast, when available; and
  - (21) specific ATIS instructions.
- (k) ATIS messages containing arrival information only shall contain the following elements of information in the order listed:
- (1) name of aerodrome;
  - (2) arrival indicator;
  - (3) contract type, if communication is via D-ATIS;
  - (4) designator;
  - (5) time of observation, if appropriate;
  - (6) type of approach(s) to be expected;
  - (7) main landing runway(s); status of arresting system constituting a potential hazard, if any;
  - (8) significant runway surface conditions and, if appropriate, braking action;
  - (9) holding delay, if appropriate;
  - (10) transition level, if applicable;
  - (11) other essential operational information;
  - (12) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
  - (13) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
  - (14) present weather;
  - (15) cloud below 1,500 m (5,000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
  - (16) air temperature;
  - (17) dew point temperature;
  - (18) altimeter setting(s);
  - (19) any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;
  - (20) trend forecast, when available; and
  - (21) specific ATIS instructions.
- (l) ATIS messages containing departure information only shall contain the following elements of information in the order listed:
- (1) name of aerodrome;
  - (2) departure indicator;
  - (3) contract type, if communication is via D-ATIS;
  - (4) designator;
  - (5) time of observation, if appropriate;
  - (6) type of approach(s) to be expected;
  - (7) runway(s) to be used for takeoff; status of arresting system constituting a potential hazard, if any;

- (8) significant runway surface conditions and, if appropriate, braking action;
- (9) departure delay, if appropriate;
- (10) transition level, if applicable;
- (11) other essential operational information;
- (12) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- (13) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
- (14) present weather;
- (15) cloud below 1,500 m (5,000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;
- (16) air temperature;
- (17) dew point temperature;
- (18) altimeter setting(s);
- (19) any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;
- (20) trend forecast, when available; and
- (21) specific ATIS instructions.

### **CAR 172.177 VOLMET Broadcasts and D-VOLMET Service**

An applicant for the grant of an air traffic service certificate shall ensure HF and/or VHF VOLMET broadcasts and/or D-VOLMET service is provided. VOLMET broadcasts shall use standard radiotelephony phraseologies.

### **CAR 172.179 Alerting Service – Application**

An applicant for the grant of an air traffic service certificate shall establish procedures to provide an alerting service.

- (a) Alerting service shall be provided:
  - (1) for all aircraft provided with air traffic control service;
  - (2) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services; and
  - (3) to any aircraft known or believed to be the subject of unlawful interference.
- (b) Flight information centers or area control centers shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination center.
- (c) In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit, such unit shall notify immediately the flight information center or area control center responsible which shall in turn notify the rescue coordination center, except that notification of the area control center, flight information center,

or rescue coordination center shall not be required when the nature of the emergency is such that the notification would be superfluous.

- (d) Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

### **CAR 172.181 Alerting Service – Notification of Rescue Coordination Centers**

An applicant for the grant of an air traffic service certificate shall ensure that their procedures to provide an alerting service include the notification of rescue coordination centers as outlined in (a) through (c) below.

- (a) Without prejudice to any other circumstances that may render such notification advisable, air traffic service units shall, except as prescribed in CAR 172.183 paragraph (a), notify rescue coordination centers immediately if an aircraft is considered to be in a state of emergency in accordance with the following:

(1) Uncertainty phase when:

- i. no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or when
- ii. an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later, except when no doubt exists as to the safety of the aircraft and its occupants.

(2) Alert phase when:

- i. following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or when
- ii. an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when
- iii. information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely, except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or when
- iv. an aircraft is known or believed to be the subject of unlawful interference.

(3) Distress phase when:

- i. following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or when
- ii. the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or when
- iii. information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when
- iv. information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing, except when there is reasonable certainty that the

aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

- (b) The notification shall contain such of the following information as is available in the order listed:
  - (1) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;
  - (2) agency and person calling;
  - (3) nature of the emergency;
  - (4) significant information from the flight plan;
  - (5) unit which made last contact, time and means used;
  - (6) last position report and how determined;
  - (7) color and distinctive marks of aircraft;
  - (8) dangerous goods carried as cargo;
  - (9) any action taken by the reporting office; and
  - (10) other pertinent remarks.
- (c) Further to the notification in (a), the rescue coordination center shall, without delay, be furnished with:
  - (1) any useful additional information, especially on the development of the state of emergency through subsequent phases; or
  - (2) information that the emergency situation no longer exists.

#### **CAR 172.183 Alerting Service – Information to the Aircraft Operator**

An applicant for the grant of an air traffic service certificate shall ensure that their procedures to provide an alerting service include information to the aircraft operator as outlined in (a) and (b) below.

- (a) When an area control or a flight information center decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the operator prior to notifying the rescue coordination center.
- (b) All information notified to the rescue coordination center by an area control or flight information center shall, whenever practicable, also be communicated, without delay, to the operator.

#### **CAR 172.185 Alerting Service – Information to Aircraft Operating in the Vicinity of an Aircraft in a State of Emergency**

- (a) An applicant for the grant of an air traffic service certificate shall ensure that when it has been established by an air traffic service unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in paragraph (b), be informed of the nature of the emergency as soon as practicable.
- (b) When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

#### **CAR 172.187 Use of Communication Facilities**

An applicant for the grant of an air traffic service certificate shall ensure that air traffic services units shall, as necessary, use all available communication facilities to endeavor to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

**CAR 172.189 Plotting Aircraft in a State of Emergency**

An applicant for the grant of an air traffic service certificate shall ensure that when a state of emergency is considered to exist, the flight of the aircraft involved shall be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position. The flights of other aircraft known to be operating in the vicinity of the aircraft involved shall also be plotted in order to determine their probable future positions and maximum endurance.

**CAR 172.191 Radio and Telephone Procedures – General**

- (a) An applicant for the grant of an air traffic service certificate shall establish systems and procedures to ensure that:
  - (1) the standard telephony and radiotelephony phraseology prescribed in paragraph (b) is used; and
  - (2) in all radiotelephony communications discipline is observed, by transmitting only those messages that are necessary for the provision of an air traffic service, or that otherwise contribute to safety; and
  - (3) communications procedures are in accordance with the applicable communication procedures prescribed in ICAO Annex 10 Volume II, except that procedures relating to call-signs for domestic use by Omani registered aircraft are those required in CAR-OPS 0.205.
- (b) The applicant shall establish procedures to ensure that, for the purposes of paragraph (a), the standard phraseology, and the circumstances in which it is used, is that published in:
  - (1) Subpart F; or
  - (2) ICAO Annex 10; or
  - (3) Document 4444; or
  - (4) Document 9432.
- (c) For the purposes of paragraph (b), where differences occur between the stated documents, the particular phraseology shall be selected according to the order of precedence of the documents as listed.

**CAR 172.193 Aeronautical Mobile Service (Air-Ground Communications)**

An applicant for the grant of an air traffic service certificate shall establish systems and procedures to provide aeronautical mobile service (air-ground communications) as outlined in (a) through (e) below.

- (a) General:
  - (1) radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.
  - (2) where RCP types have been prescribed by the AUTHORITY for ATM functions, ATS units shall, in addition to the requirements specified in paragraph (1), be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP type(s).
  - (3) when direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.
  - (4) recordings of communications channels as required in paragraph (3) shall be retained for a period of at least thirty (30) days.
- (b) For flight information service:

Air-ground communication facilities shall enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.

(c) For area control service:

Air-ground communication facilities shall enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area(s).

(d) For approach control service:

(1) air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

(2) where the unit providing approach control service functions as a separate unit, air-ground communications shall be conducted over communication channels provided for its exclusive use.

(e) For aerodrome control service:

Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

### **CAR 172.195 Aeronautical Fixed Service (Ground-Ground Communications)**

An applicant for the grant of an air traffic service certificate shall establish systems and procedures to provide aeronautical fixed service (ground-ground communications) as outlined in paragraphs (a) through (e) below.

(a) General:

(1) direct-speech and/or data link communications shall be used in ground-ground communications for air traffic services purposes.

(2) where RCP types have been prescribed by the AUTHORITY for ATM functions, ATS units shall, in addition to the requirements specified in (1), be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP type(s).

(b) Communications within a flight information region between air traffic service units:

(1) a flight information center shall have facilities for communications with the following units providing a service within its area of responsibility:

- i. the area control center, unless collocated;
- ii. approach control units;
- iii. aerodrome control towers.

(2) an area control center, in addition to being connected to the flight information center as prescribed in paragraph (1), shall have facilities for communications with the following units providing a service within its area of responsibility:

- i. approach control units;
- ii. aerodrome control towers;
- iii. air traffic services reporting offices, when separately established.

(3) an approach control unit, in addition to being connected to the flight information center and the area control center as prescribed in (1) and (2), shall have facilities or communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

- (4) an aerodrome control tower, in addition to being connected to the flight information center, the area control center and the approach control unit as prescribed in (1), (2) and (3), shall have facilities for communications with the associated air traffic services reporting office, when separately established.
- (c) Communications within a flight information region between air traffic service units and other units:
  - (1) a flight information center and an area control center shall have facilities for communications with the following units providing a service within their respective area of responsibility:
    - i. appropriate military units;
    - ii. the meteorological office serving the center;
    - iii. the aeronautical telecommunications station serving the center;
    - iv. appropriate operator's offices;
    - v. the rescue coordination center or, in the absence of such center, any other appropriate emergency service;
    - vi. the international NOTAM office serving the center.
  - (2) an approach control unit and an aerodrome control tower shall have facilities for communications with the following units providing a service within their respective area of responsibility:
    - i. appropriate military units;
    - ii. rescue and emergency services (including ambulance, fire, etc.);
    - iii. the meteorological office serving the unit concerned;
    - iv. the aeronautical telecommunications station serving the unit concerned;
    - v. the unit providing apron management service, when separately established.
  - (3) the communication facilities required under paragraph (1)(i) and paragraph (2)(i) shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.
- (d) Communications within a flight information region – description of communication facilities:
  - (1) the communication facilities required under paragraphs (b), (c)(1)(i) and (c)(2)(i), (ii) and (iii) shall include provisions for:
    - i. communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and
    - ii. printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.
  - (2) In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.
  - (3) The communication facilities required under paragraphs (c)(2)(i), (ii) and (iii) shall include provisions for communications by direct speech arranged for conference communications.
  - (4) All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under paragraphs (c)(1) and (c)(2) shall be provided with automatic recording.
  - (5) Recordings of data and communications as required in paragraphs (d)(2) and (d)(4) shall be retained for a period of at least thirty (30) days.



- (e) Communications between flight information regions:
- (1) Flight information centers and area control centers shall have facilities for communications with all adjacent flight information centers and area control centers.
  - (2) These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.
  - (3) Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centers serving contiguous control areas shall, in addition, include provisions for direct-speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.
  - (4) When so required by agreement between Oman and the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centers or area control centers other than those mentioned in paragraph (3) shall include provisions for direct speech alone, or in combination with data link communications.
  - (5) The communication facilities shall be provided with automatic recording.
  - (6) In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.
  - (7) Recordings of data and communications as required in paragraph (5) shall be retained for a period of at least thirty (30) days.

### **CAR 172.197 Communications for Surface Movement Control Service**

An applicant for the grant of an air traffic service certificate in respect of an aerodrome control service shall establish systems and procedures to provide communications for the control of vehicles other than aircraft on maneuvering areas at controlled aerodromes as outlined in paragraphs (a) to (c) below.

- (a) Two-way radiotelephony communication facilities shall be provided for aerodrome control service for the control of vehicles on the maneuvering area, except where communication by a system of visual signals is deemed to be adequate.
- (b) Where conditions warrant, separate communication channels shall be provided for the control of vehicles on the maneuvering area. Automatic recording facilities shall be provided on all such channels.
- (c) Recordings of communications as required in (b) shall be retained for a period of at least thirty (30) days.

### **CAR 172.199 Aeronautical Radio Navigation Service**

An applicant for the grant of an air traffic service certificate shall establish systems and procedures to provide automatic recording of surveillance data as outlined in (a) and (b) below.

- (a) Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, or ADS-C), used as an aid to air traffic services, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

- (b) Automatic recordings shall be retained for a period of at least thirty (30) days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

### **CAR 172.201 Surveillance Services**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that, where radar is used to support the provision of an air traffic service:

- (a) all radar services are provided in accordance with procedures published in:
  - (1) Document 4444;
  - (2) Document 7030 (as applicable to the Middle East/Asia Region); and
  - (3) Subpart G; and
- (b) SSR code allocation for international flights is in accordance with the code assignment system published in the applicable ICAO Air Navigation Plan; and
- (c) an SSR code management plan is in place for domestic flights that:
  - (1) conforms to the applicable principles contained in Document 4444; and
  - (2) does not conflict with the SSR code allocation tables of CAR-OPS 0.200, and
- (d) full information is made available to pilots and aircraft operators on:
  - (1) the nature and extent of the radar services provided; and
  - (2) any significant limitations regarding such radar services; and
- (e) the information displayed at individual radar operating positions is that required for the air traffic services to be provided.

### **CAR 172.203 Meteorological Information**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that air traffic service units are supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions. The information shall be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned as outlined in paragraphs (a) to (c) below:

- (a) Flight information centers and area control centers:
  - (1) Flight information centers and area control centers shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.3, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.
  - (2) Flight information centers and area control centers shall be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information center or area control center concerned.
- (b) Units providing approach control service:
  - (1) Units providing approach control service shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.2 for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they

- are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.
- (2) Units providing approach control service shall be provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.
  - (3) Units providing approach control service for final approach, landing and take-off shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.
  - (4) Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding displays in the aerodrome control tower and in the meteorological station, where such a station exists.
  - (5) Units providing approach control service for final approach, landing and take-off shall be supplied with information on wind shear, which could adversely affect aircraft on the approach or take-off paths or during circling approach.
- (c) Aerodrome control towers:
- (1) Aerodrome control towers shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.1 for the aerodrome with which they are concerned. Special reports and amendments to forecasts shall be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.
  - (2) Aerodrome control towers shall be provided with current pressure data for setting altimeters for the aerodrome concerned.
  - (3) Aerodrome control towers shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensor(s) are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.
  - (4) Aerodrome control towers at aerodromes where runway visual range values are measured by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.
  - (5) Aerodrome control towers shall be supplied with information on wind shear, which could adversely affect aircraft on the approach or take-off paths or during circling approach and aircraft on the runway during the landing roll or take-off run.

### **CAR 172.205 Information on Aerodrome Conditions and the Operational Status of Associated Facilities**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that aerodrome control towers and units providing approach control service shall be kept currently informed of the operationally significant conditions of the movement area, including the existence of

temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

### **CAR 172.207 Information on the Operational Status of Navigation Services**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that ATS units be kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility and those radio navigation services and visual aids essential for surface movement.

### **CAR 172.209 Information on Unmanned Free Balloons**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that operators of unmanned free balloons shall keep the appropriate air traffic services units informed of details of flights of unmanned free balloons in accordance with the provisions contained in ICAO Annex 2.

### **CAR 172.211 Information Concerning Volcanic Activity**

- (a) An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that ATS units shall be informed, in accordance with local agreement, of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, which could affect airspace used by flights within their area of responsibility.
- (b) Area control centers and flight information centers shall be provided with volcanic ash advisory information issued by the associated Volcanic Ash Advisory Center (VAAC).

### **CAR 172.213 Information Concerning Radioactive Materials and Toxic Chemical “Clouds”**

An applicant for the grant of an air traffic service certificate shall establish procedures to ensure that ATS units shall be informed, in accordance with local agreement, of the release into the atmosphere of radioactive materials or toxic chemicals, which could affect airspace used by flights within their area of responsibility.

### **CAR 172.215 Incidents**

An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures for:

- (a) The notification and reporting, investigation, and follow-up of incidents;
- (b) The forwarding of facility malfunction reports required by CAR-OPS 0.395 to the applicable aeronautical telecommunication service certificate holder;
- (c) The forwarding of all occurrence and incident data and investigation reports as requested by the AUTHORITY.

**CAR 172.217 Action After Serious Incident or Accident**

An applicant for the grant of an air traffic service certificate for an air traffic control service shall establish procedures regarding a serious incident or accident to:

- (a) Determine if any air navigation facilities have contributed to the event; and
- (b) Ensure immediate action is taken to:
  - (1) warn other aircraft that may be using or intending to use the facilities; and
  - (2) advise the operator of the facility of the occurrence, and that the facility may be implicated; and
- (c) Assist the operator of the facility with the prompt promulgation of any decision to withdraw the equipment from service; and
- (d) Ensure that any facility identified in paragraph (a) is not used in the provision of separation to IFR aircraft until cleared for use by the relevant holder of an aeronautical telecommunications service certificate issued under CAR 171.

**CAR 172.219 Priorities**

- (a) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that, providing safety is not jeopardized, ATC units apply the following priorities:
  - (1) an aircraft known or believed to be in a state of emergency or impaired operation has priority over other aircraft;
  - (2) an aircraft landing, or in the final stages of an approach to land, has priority over a departing aircraft;
  - (3) an aircraft landing or taking off has priority over a taxiing aircraft.
- (b) The applicant's procedures shall ensure that, where practical, following a request from a pilot, an aircraft involved in, or positioning for, the following activities is granted priority:
  - (1) ambulance or mercy mission;
  - (2) search and rescue;
  - (3) civil defense or police emergency;
  - (4) carriage of head-of-State, head-of-government, or equivalent dignitary.
- (c) The applicant's procedures shall ensure that an aircraft at a cruising level generally has priority over other aircraft requesting that level.
- (d) An applicant for an air traffic service certificate in respect of an area control service may establish procedures regarding priorities to be applied in airspace designated as RNP airspace.
- (e) Subject to the requirements of paragraphs (a) and (b), an applicant may put in place schemes for the determination of priorities for arriving and departing flights, provided that consultation with interested parties is undertaken prior to implementing the scheme.
- (f) The applicant shall establish procedures to ensure that, if priorities are established under paragraphs (d) or (e), relevant information including details regarding the handling of complaints, is published in the AIP.
- (g) The applicant shall establish procedures to ensure that, providing safety is not jeopardized, due regard is given to those priorities determined in conjunction with the aerodrome operator for:
  - (1) aircraft arriving and departing the aerodrome; and
  - (2) other operations in a control zone associated with the aerodrome.
- (h) The applicant shall establish procedures to ensure that, except when applying priority in accordance with other provisions of this CAR, priority for arriving and departing flights is allocated on a first-come first-served basis.

- (i) The applicant shall establish procedures to ensure that the provision of an ATC service takes precedence:
  - (1) over the provision of a flight information service whenever the situation so requires; and
  - (2) over the performance of any other non-ATC tasks.

### **CAR 172.221 Organization Exposition**

- (a) An applicant for the grant of an air traffic service certificate must provide the AUTHORITY with an exposition containing:
  - (1) a statement signed by the Chief Executive on behalf of the applicant's organization confirming that the exposition and any included manuals:
    - i. define the organization and demonstrate its means and methods for ensuring ongoing compliance with this and any other applicable CAR; and
    - ii. are required to be complied with by its personnel at all times; and
  - (2) the titles and names of the senior person or persons required by CAR 172.101 paragraphs (a)(1) and (2); and
  - (3) the duties and responsibilities of the senior person or persons specified in CAR 172.101 paragraph (a)(2), including matters for which they have responsibility to deal directly with the AUTHORITY on behalf of the organization; and
  - (4) an organization chart showing lines of responsibility of the senior persons specified in paragraph CAR 172.101 (a)(2), and extending to each location listed under CAR 172.221 paragraph (a)(5)(i); and
  - (5) in the case of an organization providing air traffic services from more than 1 ATS unit, a table listing:
    - i. locations of ATS units; and
    - ii. the aerodrome or airspace being serviced; and
    - iii. the services provided; and
  - (6) details of the applicant's staffing structure for each ATS unit; and
  - (7) details of procedures required by CAR 172.101 paragraphs (b)(1) through (9); and
  - (8) the information required by CAR 172.011 regarding hours of service, the establishment of an air traffic service, and any transitional arrangements; and
  - (9) details of the systems and procedures required by CAR 172.047 through CAR 172.057 regarding co-ordination requirements; and
  - (10) details of the procedures required by CAR 172.103 regarding language proficiency; and
  - (11) details of procedures required by CAR 172.105 regarding the training and assessment of ATS personnel, and regarding the qualifications of ATS training personnel; and
  - (12) a description of the display systems to be used in meeting the requirements of CAR 172.107(b)(5)(i) and CAR 172.107(c)(2)(i); and
  - (13) details of the procedures required by CAR 172.109 regarding the notification of facility status; and
  - (14) procedures regarding shift administration required by CAR 172.111; and
  - (15) details of the procedures required by CAR 172.113 regarding disruptions to service; and
  - (16) details of the program required by CAR 172.115 regarding security arrangements; and
  - (17) details of the procedures required by CAR 172.117 regarding the keeping of logbooks and position logs; and
  - (18) details of the procedures required by CAR 172.119 regarding the control of documentation; and

- (19) details of systems and procedures required by CAR 172.121 regarding the gathering and management of records; and
- (20) details of systems and procedures required by CAR 172.123 regarding the provision of area control and approach control services; and
- (21) details of systems and procedures required by CAR 172.125 regarding the provision of aerodrome control service; and
- (22) details of the procedures required by CAR 172.129 regarding responsibility for control and CAR 172.131 regarding transfer of responsibility; and
- (23) details of systems and procedures required by CAR 172.133 regarding the provision of flight information service; and
- (24) details of the procedures required by CAR 172.135 and CAR 172.137 regarding ATC clearances; and
- (25) details of the procedures required by CAR 172.141 regarding deviations from an ATC clearance; and
- (26) details of the procedures required by CAR 172.143 regarding the processing of flight plans; and
- (27) details of the procedures required by CAR 172.145 regarding air traffic flow management; and
- (28) details of the procedures required by CAR 172.147 regarding control of persons and vehicles at aerodromes; and
- (29) details of the runway safety program required by CAR 172.149; and
- (30) the contingency arrangements and plans required by CAR 172.151; and
- (31) details of the procedures required by CAR 172.153 through CAR 172.157 regarding aircraft emergencies, in-flight contingencies and interceptions; and
- (32) details of the procedures required by CAR 172.159 regarding time; and
- (33) details of altimeter setting procedures required by CAR 172.161; and
- (34) details of the systems, procedures, and programs required by CAR 172.165 regarding the Safety Management System (SMS); and
- (35) details of the systems, procedures, and programs required by CAR 172.167 regarding the Quality Management System (QMS); and
- (36) details of systems and procedures required by CAR 172.179 through CAR 172.185 regarding the provision of alerting service; and
- (37) details of the radio and telephone procedures required by CAR 172.191; and
- (38) details of the procedures required by CAR 172.201 regarding the provision of surveillance services; and
- (39) details of the systems and procedures required by CAR 172.203 regarding meteorological information and reporting; and
- (40) details of the systems and procedures required by CAR 172.205 through CAR 172.213 regarding information requirements; and
- (41) details of the procedures required by CAR 172.215 regarding incidents; and
- (42) details required by CAR 172.217 regarding procedures following a serious incident or accident; and
- (43) details of the procedures required by CAR 172.219 regarding the application of priorities; and
- (44) details of the procedures required by CAR 172.501 regarding separation criteria and minima; and
- (45) details of the procedures required by CAR 172.503 regarding the allocation of minimum flight altitudes; and

- (46) procedures to control, amend and distribute the exposition.
- (b) The applicant's exposition must be acceptable to the AUTHORITY.



## **SUBPART C – OPERATING REQUIREMENTS**

### **CAR 172.301 Continued compliance**

Each holder of an air traffic service certificate shall:

- (a) Hold at least one complete and current copy of its exposition at each ATS unit listed in its exposition, except that manuals relating solely to a particular location need only be held at principal locations and the unit concerned; and
- (b) Comply with all procedures and standards detailed in its exposition; and
- (c) Make each applicable part of its exposition available to personnel who require those parts to carry out their duties; and
- (d) Continue to meet the standards and comply with the requirements of Subpart B prescribed for certification under this CAR; and
- (e) Promptly notify the AUTHORITY of any change of address for service, telephone number, or facsimile number.

### **CAR 172.303 Operations Manuals**

- (a) Each holder of an air traffic service certificate shall provide, for compliance by its personnel, an operations manual or system of manuals for the services listed in its exposition.
- (b) A holder certificated to provide more than one air traffic service, or an air traffic service or services from more than one location, may publish a core manual together with manual supplements specific to each service or location.

### **CAR 172.305 Trials**

- (a) The AUTHORITY may, upon application in writing from the holder of an air traffic service certificate, approve, subject to such conditions on that approval as the AUTHORITY considers necessary in the interests of aviation safety, the conduct of trials regarding:
  - (1) separation minima; or
  - (2) standard phraseology; or
  - (3) surveillance procedures.
- (b) A trial may be approved by the AUTHORITY for a single period of no longer than three (3) months, and upon further application in writing by the certificate holder, be extended by the AUTHORITY for a single period of no longer than three (3) months.
- (c) A trial approved under this CAR may be terminated by the AUTHORITY at any time.

### **CAR 172.307 Denial of ATC Clearance**

- (a) The holder of an air traffic service certificate in respect of an aerodrome control service shall not deny the pilot of an aircraft an ATC clearance on the basis of non-payment of charges owed to the certificate holder unless:
  - (1) the aircraft is on the ground; and
  - (2) that clearance is for entry onto the maneuvering area.
- (b) The certificate holder shall continue to provide normal ATC service for any aircraft entering the maneuvering area without an ATC clearance.

**CAR 172.309 Suspension of VFR Operations**

Each holder of an air traffic service certificate for an approach control service or aerodrome control service may, when appropriate for safety reasons, suspend any or all controlled VFR operations within a control zone.

**CAR 172.311 Changes to Certificate Holder's Organization**

- (a) A holder of an air traffic service certificate must ensure that the holder's exposition is amended so as to remain a current description of the holder's organization and services.
- (b) The holder of an air traffic service certificate must ensure that any amendment made to the holder's exposition:
  - (1) meets the applicable requirements of this CAR; and
  - (2) complies with the amendment procedures contained in the holder's exposition.
- (c) The holder of an air traffic service certificate must provide the AUTHORITY with a copy of each amendment to the holder's exposition as soon as practicable after its incorporation into the exposition, except that, for the holder's operational manual or manuals, the holder must forward to the AUTHORITY:
  - (1) a copy of each amendment, at least twenty-one (21) days in advance of the effective date; and
  - (2) subject to special consideration by the AUTHORITY, an amendment of an urgent or immediate nature, when the service provider has a legitimate need, will be considered with minimal delay.
- (d) If the holder of an air traffic service certificate proposes to make a change to any of the following, prior notification to and acceptance by the AUTHORITY is required:
  - (1) the Chief Executive; or
  - (2) the listed senior persons; or
  - (3) any aspect of air traffic management that may have an adverse impact on air traffic services provided by a State responsible for adjacent airspace.
- (e) The AUTHORITY may specify conditions under which the holder of an air traffic service certificate may operate during or following any of the changes specified in paragraph (d).
- (f) The holder of an air traffic service certificate must comply with any condition specified under paragraph (e).
- (g) If any of the changes referred to in this CAR require an amendment to the certificate, the holder of the air traffic service certificate must forward the certificate to the AUTHORITY as soon as practicable.
- (h) The holder of an air traffic service certificate must make amendments to the holder's exposition as the AUTHORITY considers necessary in the interests of aviation safety.

**CAR 172.313 Withdrawal or Transfer of Service**

- (a) Each holder of an air traffic service certificate who wishes to permanently withdraw an air traffic service shall give the AUTHORITY at least ninety (90) days-notice of the proposal and include in that notice a summary of factors considered in arriving at the decision to withdraw the service.
- (b) Each holder of an air traffic service certificate who intends to permanently reduce the hours of operation of an air traffic service shall provide to the AUTHORITY a thirty (30) days' minimum advance notice of, and the reasons for, the proposed reduction.
- (c) Each holder of an air traffic service certificate who is the outgoing provider of an air traffic service shall not hinder the preparation and execution of the transitional arrangements required by CAR 172.011 paragraph (b).

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**SUBPART D – OTHER AIR TRAFFIC SERVICES****CAR 172.401 General**

- (a) A person may request the AUTHORITY to determine whether an aviation related service is an air traffic service under paragraph (d) of the definition of the term in CAR 172.025 by application in writing, including a definition, and details of, the proposed service.
- (b) The AUTHORITY may, in consultation with such persons as the AUTHORITY considers necessary, determine whether any aviation related service is an air traffic service under paragraph (d) of the definition of the term.

**CAR 172.403 Requirement**

No person shall provide a service that the AUTHORITY determines to be an air traffic service in accordance with CAR 172.401 except under the authority of, and in accordance with, the provisions of an air traffic service certificate issued under this Subpart.

**CAR 172.405 Operating Conditions**

Each holder of a certificate issued under this Subpart shall provide the air traffic service in accordance with the conditions attached to the certificate.

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## **SUBPART E – SEPARATION CRITERIA AND MINIMA**

### **CAR 172.501 Separation Criteria and Minima**

The selection of separation minima for application within a given portion of airspace shall be as follows:

- (a) The separation minima shall be selected from those prescribed by the provisions of the PANS-ATM (Doc 4444) and the Regional Supplementary Procedures as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered by current ICAO provisions, other separation minima shall be established as necessary by:
  - (1) the AUTHORITY, following consultation with the air traffic service provider and with operators, for routes or portions of routes contained within the sovereign airspace of the Sultanate;
  - (2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.
- (b) The selection of separation minima shall be made in consultation between the appropriate air traffic service providers responsible for the provision of air traffic services in neighboring airspace when:
  - (1) traffic will pass from one into the other of the neighboring airspaces;
  - (2) routes are closer to the common boundary of the neighboring airspaces than the separation minima applicable in the circumstances.
- (c) Details of the selected separation minima and of their areas of application shall be notified:
  - (1) to the ATS units concerned; and
  - (2) to pilots and operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

### **CAR 172.503 Minimum Flight Altitudes**

- (a) Minimum flight altitudes shall be determined and promulgated the AUTHORITY for each ATS route and control area over its territory. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned.
- (b) An applicant for the grant of an air traffic service certificate in respect of an air traffic control service shall establish procedures to ensure that cruising levels allocated within the Muscat FIR are selected in accordance with CAR-OPS 0.380 for IFR flights, or CAR-OPS 0.300 for VFR flights, except that, within controlled airspace:
  - (1) for both IFR and VFR flights, correlation of cruising level with track need not apply; and
  - (2) VFR flights may be allocated IFR levels.

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## **SUBPART F – STANDARD PHRASEOLOGY**

### **CAR 172.601 Standard Phraseology**

Standard phraseology shall be in accordance with those specified in ICAO PANS-ATM 4444 and Document 9432.

## **SUBPART G – SURVEILLANCE PROCEDURES**

### **CAR 172.701 Verification of SSR Transponder Mode C Level Information**

- (a) Subject to paragraph (b), aerodrome control may verify the Mode C level information of a departing aircraft when the tower radar indicates a positive rate of climb from the aerodrome elevation.
- (b) Mode C information shall not be used when the displayed level varies by more than 300 feet from the aerodrome elevation during the take-off roll.

### **CAR 172.703 Provision of Radar and ADS-B**

Radar and ADS-B ground systems should provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

### **CAR 172.705 Use of Surface Movement Radar (SMR)**

In the absence of visual observation of all or part of the maneuvering area or to supplement visual observation, surface movement radar (SMR) provided in accordance with the provisions of ICAO Annex 14, Volume I, or other suitable surveillance equipment, should be utilized to:

- (1) monitor the movement of aircraft and vehicles on the maneuvering area;
- (2) provide directional information to pilots and vehicle drivers as necessary; and
- (3) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the maneuvering area.

### **CAR 172.707 Speed Control**

Speed control shall not be applied or continued after a point 4 nm from the runway threshold on final approach.

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