Public Authority for Civil Aviation

Guidance Material

for

CAR-172

Civil Aviation Regulation

Air Traffic Services

Effective: 29th November 2018

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Corrigendum of Amendments

No.	Ref	Description
01	Initial	Initial issued 29 November 2018 to accompany CAR 172 Revision 2

FOREWORD

(a) This Guidance Material has 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) In addition to providing general guidance on the implementation of specific CAR 172 elements, acceptable means of compliance are also addressed when warranted.

(c) For CAR 172 elements that are not covered by this Guidance Material, the intent is that there is sufficient detail in the original CAR element itself that precludes any further explanation.

(d) Requests for additional explanation, clarification, or questions can be sent to the Air Navigation Safety Department (ANSD) of the PACA DGCAR.

(e) As amendments are made to the original CAR, this Guidance Material shall be reviewed to ensure continued applicability.

(f) 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 Guidance Material.

(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.

SUBPART A - GENERAL

CAR 172.001 Applicability

To provide an air traffic service in the Flight Information of Oman (the Muscat FIR), the organization or entity must be certified by PACA in accordance with the operating and technical standards of CAR 172.

CAR 172.003 Definitions

The definitions in ICAO Annex 11, *Air Traffic Services*, have been the basis for the definitions in CAR 172.

CAR 172.005 Establishment of Authority

Within the Muscat FIR and any portion of airspace over the high seas where it has been determined by PACA to provide an air traffic service, PACA shall designate the service provider(s) responsible for providing such service.

CAR 172.013 Issue of Certificate

As indicated in (b), the applicant, and the applicant's senior person or persons, must be 'fit and proper persons.' The phrase 'fit and proper' is subject to interpretation by PACA, which must be satisfied that the persons indicated by the applicant can provide an air traffic service that is not contrary to the interests of aviation safety.

CAR 172.015 Privileges of Certificate

An air traffic service certificate will specifically state which air traffic services may be provided, and which specific aerodromes, if any, the certificate holder is authorized to provide service at.

CAR 172.017 Duration of Certificate

An air traffic service certificate may be granted or renewed for a period of up to 3 years, and the validity of the certificate is based upon the continued operation in accordance with CAR 172. Additionally, the validity of the certificate shall be subject to periodic audits conducted by, and at the discretion of, PACA to confirm ongoing compliance with CAR 172.

CAR 172.019 Renewal of Certificate

Whereas it is preferable to apply for a renewed certificate on-line, current certificate holders may contact PACA for consideration of other possible renewal options.

CAR 172.021 Transfer of Certificate

Although amendments to a certificate are possible, they are typically for administrative changes (i.e. change of address) or changes in service provision (to add or remove specific services). Organizational changes including, but not limited to, those related to merger, acquisition, spin-off, public-private partnership and re-branding require certificate re-application by the new organization. A new certificate should be applied for well in advance of any significant planned corporate action.

CAR 172.039 Establishment and Identification of ATS Routes

The establishment of ATS routes shall be done in coordination with the DGCAR/ANSD and require a Functional Hazard Analysis (FHA) prior to their implementation.

CAR 172.041 Establishment of Change-over Points

The establishment of change-over points shall be done in coordination with the DGCAR/ANSD and require a Functional Hazard Analysis (FHA) prior to their implementation.

CAR 172.043 Establishment and Identification of Significant Points

The establishment and identification of significant points shall be done in coordination with the DGCAR/ANSD and require a Functional Hazard Analysis (FHA) prior to their implementation.

CAR 172.045 Establishment and Identification of Standard Routes for Taxiing Aircraft

The establishment and identification of standard routes for taxiing aircraft shall be done in coordination with the DGCAR/ANSD and require a Functional Hazard Analysis (FHA) prior to their implementation.

CAR 172.047 Coordination Requirements – General

The service provider's coordination procedures shall be documented in Letters of Agreement (LoAs) and include the following entities:

(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.

Additional coordination requirements can be found in the following CAR elements:

- CAR 172.049 Coordination between Aircraft Operators and Air Traffic Service Authorities;
- CAR 172.051 Coordination between Military and Air Traffic Service Authorities;
- CAR 172.053 Coordination of Activities Potentially Hazardous to Civil Aircraft;
- CAR 172.055 Coordination Between Meteorological and Air Traffic Service Authorities; and
- CAR 172.057 Coordination between Aeronautical Information Service and Air Traffic Service Authorities.

CAR 172.055 Coordination Between Meteorological and Air Traffic Service Authorities

To ensure that aircraft receive the most up-to-date weather information available, arrangements shall be made between the air traffic services provider and the meteorological service provider; this arrangement shall be documented in an LoA. In addition to information received from indicating instruments, other requirements must be addressed including:

(a) Information 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;

(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); and

(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 172.063 Prohibited, Restricted and Danger Areas

Each prohibited area, restricted area, or danger area established by the AUTHORITY shall be done in coordination with the affected service provider. Each prohibited area, restricted area, or danger area established by the service provider shall be done in coordination with the DGCAR/ANSD and require a Functional Hazard Analysis (FHA) prior to its implementation.

CAR 172.067 Instrument Flight Procedure Design Service

The AUTHORITY, in coordination with the air traffic and PANS-OPS service providers, shall ensure that an instrument flight procedure design service is in place in accordance with CAR 173, *Instrument Flight Procedure Design Organization*.

The minimum qualification requirements for those responsible for the design of instrument flight procedures are documented in CAR 173.

CAR 172.069 Performance-Based Navigation (PBN) Operations

The AUTHORITY, in coordination with the service provider, shall prescribe the specifications when applying performance-based navigation with consideration of regional air navigation agreements and navigation infrastructure or specific navigation functionality requirements.

Flight operations approvals for aircraft conducting PBN operations are the responsibility of the DGCAR Flight Safety Department.

CAR 172.075 Safety and Regulatory Audits and Inspections

As part of the DGCAR/ANSD mandate to provide safety and regulatory oversight, the ANSD shall conduct audits and inspections of the ATS service providers. After an initial certification audit, subsequent audits will be carried out at intervals not exceeding two years. In addition to audits, the ANSD shall also conduct inspections including periodic random inspections. For purposes of audit and inspection, the ANSD will require unrestricted access to the service provider's facilities and documentation.

CAR 172.077 Resolution of Safety Issues

Failure by a service provider to comply with the requirements and time-lines for the submission and implementation of a corrective action plan may result in one or more of the following enforcement actions by the DGCAR:

- restrictions placed on the current certificate;
- suspension of the current certificate;
- revocation of the current certificate;
- administrative penalties; and/or
- financial penalties.

SUBPART B – CERTIFICATION REQUIREMENTS

CAR 172.101 Personnel Requirements

To satisfy the sufficient ATS personnel requirement of (a)(3), the ATS system capacity, including the number of staff required, must be completed as specified in (b)(7).

With regard to (b)(8), the recruitment and retention policy must be documented and periodically reviewed to ensure effective implementation.

(1) With regard to (b)(9), ATS service provider job descriptions shall include the following:
(2) air traffic controllers;
(3) flight information personnel;
(4) air traffic assistants;
(5) air traffic supervisors, examiners and instructors;
(6) any employee directly involved in supporting (1) thru (4) above; and
(7) any employee involved with operational coordination or communication.

CAR 172.105 ATS Training

The service provider must ensure that as per (d), 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.

With regard to CAR 172.105 (f), all completed training shall be recorded and subject to periodic review by the AUTHORITY.

CAR 172.107 Facility Requirements

With regard to (b)(5)(xiii) and (c)(2)(viii), the voice and, if applicable, data recording equipment can be either analog or digital but must meet the reliability, availability and redundancy requirements of (f).

CAR 172.111 Shift Administration

The adequate time requirements for the beginning and end of each shift shall be documented in the service provider's Operations Manual.

CAR 172.113 Service Disruptions

In addition to the contingency plan requirements of CAR 172.151, the service provider must establish and document procedures for any planned or unplanned service disruptions that could have an impact on safety. Disruptions that are considered reportable and the time requirements for reporting them to the AUTHORITY are listed in (a) and (b).

CAR 172.117 Logbooks and Position Logs

Unless all of the operational information required in (d)(1) is contained in the watch logbook, a separate operating position log is required. If the operating position log will be in an electronic format, then it shall be available for download from the ATM system with minimal delay.

CAR 172.119 Documentation

With regard to (b)(3), operational documentation including, but not limited to, Operations Manuals, Letters of Agreement, Memorandums of Understanding, emergency and contingency plans, technical manuals, temporary procedures and safety related information shall be available in both hard copy and electronic forms.

Additionally, all hard copy documentation must be kept in good condition and appropriately bound.

CAR 172.121 Records

All records and recordings shall be available for download with minimal delay.

CAR 172.123 Area and Approach Control Services

As per (c), the applicable separation criteria for area and approach control services must be in accordance with either:

(1) CAR 172 Subpart E; or
(2) Annex 11; or
(3) Document 4444; or
(4) Document 7030.

CAR 172.125 Aerodrome Control Service

As per (a)(4), the applicable separation criteria for aerodrome control service must be in accordance with either:

(1) CAR 172 Subpart E; or
(2) Annex 11; or
(3) Document 4444; or
(4) Document 7030.

CAR 172.127 Operation of Air Traffic Control Service

With regard to (e)(1), whereas the aircraft flight plan will indicate whether or not the aircraft is approved for RVSM, the actual initial approval is given by the DGCAR Flight Safety Department. With regard to (e)(2), the ICAO MID Region has a Regional Monitoring Agency (RMA) with which PACA exchanges height deviation information.

CAR 172.133 Flight Information Service

Where air traffic service units also provide flight information service, the provision of ATC service shall have precedence over flight information service whenever ATC service so requires. Additionally, flight information service shall include the provision of the following MET elements:

(1) SIGMET and AIRMET information;
(2) information on weather conditions reported or forecast at departure, destination, and alternate aerodromes;
(3) information concerning pre-eruption volcanic activity, volcanic eruptions, and volcanic ash clouds; and
(4) weather conditions reported or forecast at departure, destination and alternate aerodromes.

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

The requirements for read-back of safety related clearances shall be documented in the service provider's Operations Manual. The requirements shall include the read-back of the following clearances:

(1) ATC route clearances;
(2) clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway;
(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.

CAR 172.145 Air Traffic Flow Management

The service provider shall document its procedures for air traffic flow management including a clear published statement of capacities for sectors, aerodromes and applicable ATS routes.

CAR 172.147 Control of Persons and Vehicles at Aerodromes

The service provider shall document its procedures for the control of persons and vehicles at aerodromes including ground movement priorities. The procedures shall also include any additional procedures required during low visibility procedures (LVP).

CAR 172.149 Runway Safety

The service provider's Runway Safety Program shall include the stakeholders identified in (a). As an acceptable means of compliance, the service provider may participate in an aerodrome Runway Safety Program if the stakeholders in (a) are included, provided that the service provider keeps a record of meeting minutes and the applicable items listed in (b).

CAR 172.151 Contingency Arrangements

The service provider must ensure that its contingency plan covers the following elements:

(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.

Additionally, the contingency plan 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.

CAR 172.153 Service to Aircraft in the Event of an Emergency

The service provider shall document its 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, is given maximum consideration, assistance, and priority over other aircraft as may be necessitated by the circumstances.

CAR 172.155 In-flight Contingencies - Strayed or Unidentified Aircraft

The service provider shall document its procedures to assist strayed or unidentified aircraft and include the following points:

(1) if the aircraft's position is unknown;
(2) if the aircraft's position is known;
(3) if the service provider is aware of an unidentified aircraft in its area; and
(4) if the aircraft may be the subject of unlawful interference.

CAR 172.157 Interception of Civil Aircraft

The service provider shall document its procedures regarding the interception of civil aircraft in its Operations Manual and should include the procedures as an ATCO refresher training item.

CAR 172.165 Safety Management System (SMS)

The service provider's SMS shall follow the framework in (a) and 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.

The service provider's SMS shall also provide for continuous monitoring and regular assessment of safety performance including the performance of safety reviews by appropriately trained and qualified personnel.

CAR 172.167 Quality Management System (QMS)

The service provider's QMS shall 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 172.171 Voice-Automatic Terminal Information Service (Voice-ATIS)

An aerodrome control service provider shall ensure that when Voice-ATIS is provided, it shall include:

(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.

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

Whenever Voice-ATIS and/or D-ATIS is provided, the information communicated shall be updated immediately if a significant change occurs such as in weather conditions or the status of navigational aids. The meteorological information used for the ATIS shall be extracted from the local meteorological routine or special report. 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.

CAR 172.193 Aeronautical Mobile Service (Air-Ground Communications)

With regard to (a)(2), Oman does not currently prescribe RCP types. With regard to (a)(3) and (a)(4), pilot/controller two-way radiotelephony on all channels shall be recorded and kept for 30 days. This CAR element also prescribes the air-ground requirements for flight information service and area, approach and aerodrome control services in (b), (c), (d) and (e).

CAR 172.195 Aeronautical Fixed Service (Ground-Ground Communications)

Paragraph (a) of this CAR element includes the direct speech (or data link) requirement for ground-ground communications for air traffic purposes.

Additionally, specific ground-ground requirements are covered in the following paragraphs:

(b) Communications within a flight information region between air traffic service units;
(c) Communications within a flight information region between air traffic service units and other units;
(d) Communications within a flight information region – description of communication facilities; and
(e) Communications between flight information regions.

CAR 172.195 also specifies which communication elements require recording and the retention period of 30 days.

Additional communication requirements for surface movement control service are listed in CAR 172.197.

CAR 172.203 Meteorological Information

An air traffic service provider shall ensure that all aviation related meteorological requirements are documented in an LoA with the MET service provider. The LoA shall include, *inter alia*:

- The requirement to promptly provide up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective ATS functions. The information shall be supplied in such a form as to require a minimum of interpretation on the part of ATS personnel and with a frequency which satisfies the requirements of the air traffic services units concerned as outlined in CAR 172.203 paragraphs (a) to (c).
- The requirement to provide approach control units with information on wind shear, which could adversely affect aircraft on the approach or take-off paths or during circling approach.
- The requirement to provide aerodrome control towers 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 aerodrome and/or approach air traffic service provider shall ensure that the requirements to receive information on aerodrome conditions and the operational status of associated facilities are documented in a LoA with the aerodrome operator or entity responsible for the provision of such information.

CAR 172.207 Information on the Operational Status of Navigation Services

ATS units shall ensure that the procedures necessary to be kept currently informed on the 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 are documented in the ATS unit's Operations Manual and/or LoA if applicable.

CAR 172.215 Incidents

In addition to the reporting, notification (to the DGCAR/ANSD), investigation and follow-up of incidents, the air traffic service provider should keep a separate record of the ATS incidents that are used in the determination of an Acceptable Level of Safety Performance (ALoSP). These incidents include:

- Separation Minima Infringement;
- Runway Incursion;
- Deviation from ATC Clearance;
- Level Bust;
- Airspace Infringement; and
- ACAS/TCAS RA.

Additionally, if the ATS service provider's organization includes a CNS section or department then the following CNS incidents should also be included for the ALoSP:

- Communication Outage;
- NAVAID Outage;
- Surveillance Outage; and
- Other CNS Outage.

CAR 172.217 Action After Serious Incident or Accident

The service provider shall ensure that the immediate actions to be taken after a serious incident or accident are documented. With the understanding that air navigation facilities may have been a contributing factor and might affect successive operations, the immediate actions the actions to be taken should be readily available at the supervisor's watch desk as a separate laminated document or card.

CAR 172.219 Priorities

The priorities listed in 172.219 should be documented in the service provider's Operations Manual and included as a review item for ATCO refresher training.

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SUBPART E – SEPARATION CRITERIA AND MINIMA

CAR 172.501 Separation Criteria and Minima

CAR 172 SUBPART E provides additional information on the prescribed separation minima to be used and the factors that affect implementation. Of note is the fact that the AUTHORITY will consult with the service provider in what shall be established as necessary.

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