Civil Aviation Safety Authority
of Papua New Guinea

Advisory Circular

AC172-01

Air Traffic Service Organisations - Certification

Initial Issue

25 February 2025

GENERAL

Civil Aviation Safety Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

PURPOSE

This Advisory Circular describes an acceptable means of compliance with the rules and provides explanatory material (EM) to Civil Aviation Rules Part 172 certification requirements.

RELATED CAR

This AC relates specifically to Civil Aviation Rule Part 172, Subpart A and Subpart B and other related rules in Subpart C and Subpart E.

CHANGE NOTICE

This is the initial issue.

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Subpart A - GENERAL

General

Pursuant to section 45 of the Civil Aviation Act 2000, to carry out an aviation activity in the civil aviation system, the participant must ensure he holds an appropriate aviation document and all the necessary qualification through an entry process.

The CASA has adopted a “Life Cycle” Approach to regulate civil aviation. To participate in the civil aviation system, the applicant will go through these major components of the life cycle or the regulatory process as follows:

- The entry control process.
- The compliance process.
- The enforcement process.
- The exit control process.

Section 48 of the CA Act details the application requirements for an ‘aviation document’ which is part of the initial certification requirement in the entry control process.

Certification process

172.1 Purpose

Part 172 prescribes rules governing the certification and operation of organisations providing an air traffic service in the Port Moresby Flight Information Region. Part 172 also prescribes the operating and technical standards for the provision of air traffic services operated by those organisations.

172.3 Definitions

This section contains only those definitions that have specific meaning relevant to Part 172. Other generally used definitions can be found in CAR Part 1 - Definitions and Abbreviations.

172.5 Requirement for certificate

Sets out the requirement to hold an Air Traffic Service certificate for the provision of an air traffic service in Papua New Guinea.

172.7 Application for certificate

Sets out the conditions under which a certificate will be granted. The application is made on form CAA 172/01.

172.9 EM Issue of certificate

Sets out the conditions under which a certificate will be issued.

172.11 Privileges of certificate

The air traffic service certificate specifies the air traffic services, the aerodromes and/or the airspace within which the services are provided including the training conducted that are authorised under the certificate.

172.13 Duration of certificate

Air Traffic Service Certificates will be issued or renewed for such periods as the Director sees fit depending upon the circumstances of the application and issue. In no case will a non-terminating certificate be issued.

Initial certificates are likely to be issued for short period of 6 months in accordance with section 7.2 of the CASA Certification and Surveillance Policy (PL01-11.V1A), as the initial entry control has to rely upon an on-paper evaluation of the applicant’s organisation and capabilities in relation to the

new-rules environment.

Subsequent certificates may be issued for greater periods depending on the past performance and capability of the organisation. The certificates for well-established organisations with a good performance record may be issued for a maximum period up to 5 years. After 5 years, there is likely to have been sufficient changes in the organisation, the aviation industry and the regulatory environment to require a full entry control process assessment of the organisation's structure, documentation and activities.

Expired or revoked certificates must be returned to the Director. Suspended certificates must be produced to the Director for endorsement

172.15 Renewal of certificate

The certificated organisation is required to apply for renewal in sufficient time to allow for the renewal process to be accomplished before the certificate expires. The endorsed certificate will state the validity duration of the operating certificate. The application for renewal of the certificate must be submitted no later than 30 days before the certificate expires or, prior to the renewal application date specified on the certificate. This will allow sufficient time to complete all activities before the expiry date on the current certificate.

Where the certificate has been in force for a full five-year period, the application will be subjected to a full entry control certification process. The scope of such an assessment would depend on a review of the conduct of the certificated organisation and on the safety audit programme findings over the preceding period of validity.

Subpart B – Certification Requirements

172.51(a) EM Personnel requirements – General

An ATS organisation may choose to appoint senior persons for all or any combination of the areas of responsibility but the exposition must make it clear to whom the responsibilities devolve. It is expected that these nominated senior persons will be ultimately responsible to the Chief Executive.

All nominated senior persons exercising privileges under the authority of an Air Traffic Service (ATS) Certificate are required, under section 49 of the Civil Aviation Act 2000, to meet the criteria in section 50 of the Act in respect of being a fit and proper person. This includes the Chief Executive and the nominated senior persons indicated on the Exposition.

Each of these nominated senior persons, including the Chief Executive, must be identified on form CASA FPP1 and credentials supplied with the application. To be accepted, such nominated persons should have adequate knowledge and experience relative to their position and responsibilities.

172.51(a)(1) EM Personnel Requirements (Chief Executive)

Each applicant for an Air Traffic Service Certificate is required to nominate a person to be identified as the Chief Executive. This person must have the overall authority within the organisation, including financial authority, to ensure that the necessary resources including facilities are available to provide the services listed in their exposition. The Chief Executive must ensure that the organisation's activities with respect to the air traffic service are carried out in accordance with the procedures contained in their exposition.

172.51(a)(2) EM Personnel Requirements (Senior Persons)

The senior person or persons nominated in the exposition represent the management structure of the ATS organisation. They should be suitably qualified and experienced for the position held and must be ultimately responsible for compliance with the requirements of this Part and the applicant's exposition.

Titles and responsibilities of the nominated senior persons will vary from organisation to organisation depending on the services provided. Responsibilities may be subdivided under individuals or combined in any number of ways.

Irrespective of the titles used or the number of senior persons nominated, the following areas are expected to be addressed by such person(s)—

a) the organisation's compliance with its exposition and with Part 172.

b) ensuring that the organisation's exposition and associated procedures continue to meet the requirements specified in Part 172 and reflect the organisation's current activities.

c) ensuring the implementation of measures to correct deficiencies detected during internal quality assurance reviews, or regulatory audits and inspections of the organisation.

d) ensuring that the organisation complies with conditions attached to the organisation's certificate or to an exemption.

172.51(a)(3) EM Personnel Requirements

Sufficient number of qualified and experienced personnel should be employed to manage, provide and support air traffic services including any associated ATS training or assessment.

Manpower planning is essential to ensure that there is always sufficient trained staff available to meet the demands of the service. Such planning should forecast future manpower requirements for at least five years. In planning for manpower requirements acquisition of reliable data plays as important a role as does determining the methods of handling the traffic. Personnel requirements are usually determined by a study based on a comprehensive assessment of the duties to be performed.

A properly balanced workload scheme not only justifies the number of persons employed but it also protects against the overloading of any particular work position. In the latter capacity, it acts as a safeguard because employees who are frequently overloaded cannot be expected to be as efficient as those working under normal conditions.

A workload system should provide a basis, but not necessarily a rigid yardstick, for the assessment of the number of staff required at each unit, to identify periods of significant activities at units and to ensure that adequate safety margins are maintained. A review should be conducted to determine which modifications of working arrangements or facilities are needed to provide relief, or whether additional staff is required.

The rule does not define sufficient personnel; however, the service provider must be able to justify the number of personnel employed at each ATS unit by providing the methodology or mechanism used to determine that number. The intent of this rule is to reduce or minimise over-loading of ATS personnel that could result in unsafe situations.

ATC capacity should be expressed as the maximum number of aircraft which can be accepted over a given period of time within the airspace or at the aerodrome concerned.

172.51(b)(1) EM ATS personnel competency

It is essential that authorised staff have adequate knowledge of the organisation's procedures relevant to their roles in air traffic services. Competency checks should be carried out at regular intervals with appropriate refresher training to maintain the competence level of those persons authorised to provide air traffic service, as well as those who are authorised to train and assess

operational personnel. Continuation training should include awareness on changes in regulatory requirements and standards, and changes to the ATM systems, procedures and exposition.

172.51(b)(2) EM Authorised personnel

Job descriptions outlining the duties and responsibilities of the various positions is an effective tool for competency assessment. All personnel who carry out activities that can affect the safe and expeditious provision of air traffic service should define their responsibilities, authority and their interrelationships. This is particularly important for personnel who need the organisational freedom and authority to—

1) initiate action to prevent unsafe situations developing;
2) identify and report problems that may affect safety;
3) initiate, recommend or provide solutions through designated channels;
4) verify the implementation of solutions; and
5) control further activities following the detection of unsafe situations until deficiencies have been corrected.

172.51(b)(3) EM ATS personnel licences and ratings

ATS personnel authorised to provide air traffic services must hold appropriate licences and current ratings issued under Part 65 to exercise the privileges of the ratings.

172.51(b)(4) EM Prior to exercising the privileges of the ratings

Prior to taking over an operating position, a controller should:

1) ensure that he has a full understanding of the air traffic situation including an awareness of clearances issued but not yet acted upon and any developing situation requiring early attention;
2) familiarize himself with the serviceability of all equipment under his charge and liable to be used during his tour of duty (e.g. radar, radio, approach aids, telephone lines and aerodrome lighting);
3) obtain all relevant information and familiarize himself with the meteorological situation and trends for his tour of duty and where practicable get a personal briefing from a meteorological office;
4) ensure he is fully conversant with the latest promulgated orders, instructions, notices and information, particularly with reference to the serviceability of aerodromes and other air navigation facilities;
5) sign on in the log or at the operating position, as applicable, as having accepted responsibility for the position.

172.51(b)(5) EM Compliance with the recent experience requirement of Part 65

Where the privileges of an air traffic service personnel licence issued under Part 65 have not been exercised within the specified perod, the licence holder must comply with the requirements of Part 65 before the privileges of that licence may be exercised again.

Before the privileges of a rating may be exercised again, ATS personnel must comply with the recent experience requirements of Part 65.

172.51(b)(6) EM Medical requirements

An air traffic controller must be medically fit before exercising the privileges of a rating, and procedures should be establish procedures to undertake a medical check in the event when a decrease in medical fitness of ATS personnel occur while on duty.

172.51(c) EM Recruitment and retention policy and procedures

The rule requires the service provider to develop and implement a policy and procedures for:

1) recruiting ATS personnel; and
2) retaining qualified and experienced ATS personnel.

The intent of (2) is to ensure the provision of air traffic service is not disrupted due to qualified and experienced ATS personnel leaving employment with the ATS provider.

172.53 EM ATS Training

172.53(a) requires procedures on training and assessment of ATS personnel engaged in an operational environment and the relevant support staff.

172.53(b) specifies the requirement for on-the-job instructors (OJT) to hold current ATS Instructor ratings in accordance with CAR Part 65. The ATS provider should establish criteria for on-the-job-trainers selection. This should include knowledge, skills, seniority and/or a duration on the position among others.

On-the-job training is aimed at permitting the trainee to integrate his basic knowledge with actual practice. It should concentrate on specific local conditions and offer opportunities to perform the functions of each operating or duty position under actual conditions and with adequate supervision.

On-the-job training is arranged by attaching the individual concerned, whether a basic trainee or otherwise, as a supernumerary to the operating position for which he will later be rated. He is then trained by the assigned occupant of that position, or by attachment to a training officer who has an ATS instructor rating. Training is continued until the trainee has reached the standard necessary for the issue of the licence and appropriate rating. The training officer should recommend to the ATSI (check) for the competency check for rating. The level of competence expected is that where the trainee will be able to operate without supervision.

172.53(c) requires procedures to ensure that personnel carrying out assessment for the issue of licences, or the issue or validation of ratings, is a rated ATS instructor (CHK) or is an authorised ATS examiner under Part 183.

172.53(d) specifies the need to establish and implement training programmes for all personnel providing and supporting the provision of ATS. The programme must ensure the initial, refresher and specialised segments of the training are fulfilled.

172.53(e) specifies that ATS training must be conducted in accordance with Appendix B of Part 172.

Refresher training and assessment is conducted multiple times to ensure that competencies are maintained. There may be specific instances where additional training is required, such as training for system upgrades or training after a long period away from an operational position.

172.57 EM Facility Requirement

172.57(a) This rule provides the minimum facility requirement for each air traffic service the certificate holder is authorised to provide.The ATS provider must maintain a facility schedule for each unit as provided in this rule that are mandatory for the provision of air traffic services. Appendix C provides the minimum facility requirements. The service provider must establish the facilities that are appropriate to the services listed in the exposition.

1) aerodrome control towers:
2) approach control units:
3) area control centres:
4) aerodrome flight information units:
5) flight information centres:
6) dedicated training and assessment facilities.

172.57(b) An aerodrome control tower has two major operational requirements for an air traffic controller to be able to properly control aircraft operating on and in the vicinity of the aerodrome. Those requirements are:

1) the tower must permit the controller to survey those portions of the aerodrome and its vicinity over which he exercises control;

2) the tower must be equipped so as to permit the controller rapid and reliable communications with aircraft with which he is concerned

172.57(c)(3) – additional to air-ground communication facility, ATS must install the emergency frequency 121.5MHz on each control position serving international aerodromes and international alternate aerodromes. Where two or more of above facilities are co-located, provision of 121.5 MHz at one position would meet the requirement. The reasons for this requirement are stated below.

The emergency channel (121.5MHz) must be used only for genuine emergency purposes, as broadly outlined in the following:

a) to provide a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilized for other aircraft;

b) to provide a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

c) to provide a common VHF communication channel between aircraft, either civil or military, and between such aircraft and surface services, involved in common search and rescue operations, prior to changing when necessary to the appropriate frequency;

d) to provide air-ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

e) to provide a channel for the operation of emergency locator transmitters (ELTs), and for communication between survival craft and aircraft engaged in search and rescue operations;

f) to provide a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and air traffic services units in the event of interception of the civil aircraft.

This rule requires the emergency frequency 121.5 MHz to be provided at:

a) all area control centres and flight information centres;

b) aerodrome control towers and approach control offices serving international aerodromes and international alternate aerodromes; and

c) any additional location designated by the appropriate ATS authority, where the provision of that frequency is considered necessary to ensure immediate reception of distress calls or to serve the purposes specified above.

The emergency channel should be guarded continuously during the hours of operation of the units at which it is installed.

A standard facility schedule for aerodrome control, approach control, area control centre and flight information centre is provided in Appendix C.

172.59 EM Establishment and transfer of service.

172.59(a) requires the applicant to provide proposed hours of operation for each ATS unit (aerodrome) and airspace.

172.59(b) Details of transitional arrangements should be provide with the certificate application if the applicant intends to assume responsibility for providing ATS from another existing ATS certificate holder.

172.61 EM Shift administration

The hours of operation of ATS units usually require a shift change at least once a day. During such shift changes, a number of actions are to be taken to ensure continuity of operation; this applies particularly to a comprehensive hand-over/take-over procedure. Since the specific actions, which need to be taken at each unit and at each operating position, may vary, they should be specified in unit operating instructions. The time required for handover at shift change will depend on the complexity of the operating position and the traffic situation at the time of the change.

172.63 EM Documentation

172.63(a) All ATS technical manuals including procedure manuals, instructions or directives etc, relevant for the provision of air traffic service listed in the exposition should be available at each ATS unit.

172.63(b) specifies the need to establish document control procedures and to implement those procedures.

172.67 EM Coordination requirements

This rule describes the requirement for coordination in airspace and traffic management within ATS, particularly in relation to the resolution of often conflicting demands on the use of airspace, the development of procedures to be used, and the efforts that are necessary to ensure services and facilities are organized to the best advantage of all users of the airspace. Without adequate co-ordination, misunderstandings as a result of lack of knowledge of each other's intentions may occur, and safety in the air may be compromised.

Systems and procedures should be established for coordination between each ATS unit for the provision of the exchange of all air traffic service messages.

Furthermore, ATS should work closely with other agencies or service providers and operators. These agencies include meteorological services, telecommunications services, instrument flight procedure design service, aeronautical information service, search and rescue services, airport management and aircraft operators.

It will be necessary to establish arrangements for coordination of information with each of the service providers including MET, AIS, telecommunication and the aerodrome operator. These arrangements should outline all aspects of cooperation between ATS and the services involved, including responsibility regarding the type of information required, its periodic updating and renewal in case of sudden and significant changes and the format in which the information is to be provided. In the case of renewing information, it is also important that both ATS and the cooperating service concerned are reasonably familiar with each others' operation in order to have a clear understanding of the other duties each of the services is required to perform. This understanding applies particularly to ATS whose primary duties are to provide the required service to aircraft in flight and which, for this reason, must take priority over any other tasks.

In the case of relations between a TWR and/or an APP with the MET service, it is particularly important that provisions regarding assistance to aircraft encountering severe weather phenomena (thunderstorms, hail, etc.), be developed. Such provisions should cover:

a) the occasions when such data will be required;

b) the sources from which data on such phenomena will be derived (MET weather radar, ATC radar and observation, pilots' reports including wind shear)

ATS must be kept fully informed about the air navigation situation in their own area of responsibility and also in adjacent areas to the extent that such information may have an influence on the flow of air traffic of concern to them (e.g. status of radio navigation aids, military exercises, etc.). It is therefore essential that AIS provide ATS units with the latest information available.

Further co-operative efforts concern the manner in which changes to the ATS system requiring NOTAM action should be notified to AIS for the issue of an appropriate NOTAM with regard to:

a) the contents of the NOTAM;

b) its expected period of validity;

c) its editorial arrangement.

ATS units should be kept currently informed about the status of ground-ground communication circuits used for ATS purposes, particularly on the voice circuits between adjacent ATS units. In case of failure of any of these circuits, the ATS unit should be kept informed by the telecommunication service provider of the expected time of restoration to full service of the faulty circuit and of alternative means which may be used in the meantime to compensate for the temporary loss of the circuit in question.

ACCs and FICs must be provided with current information on the operating status of radio navigation aids used during the en-route phase of flight and in TMAs. Such information is essential to confirm that flights are able to conduct their flight as planned or cleared, except in those cases where individual aircraft encounter failure of their own equipment. It is therefore necessary to provide ACCs/FICs with appropriate control indicators to permit controllers to verify the operating status of the aids with which they are directly concerned.

Aerodrome control towers and APPs should be kept currently informed about the status of the aerodromes for which they are providing services. It will be necessary to reach very clear-cut arrangements regarding co-operation and respective responsibilities of ATS and the airport operator. These arrangements should not only cover the exchange of information regarding the status of services and facilities at the aerodrome in question but should also include information on planned or actual maintenance and/or construction work on the air side of the aerodrome, including details of temporary obstructions resulting from such work and affecting the provision of ATS. Such provisions should also cover the manner in which aerodrome services should comply with specific ATS requirements. More obvious cases in question are restoration of faulty visual aids to service, instructions to the fire fighting services when aircraft require their assistance, and other situations such as standby locations for landings under difficult conditions, provision of emergency aid for passengers in a critical situation, special security measures in case of unlawful interference, etc.

Where appropriate, arrangements should also cover the prompt reporting of runway conditions when the presence of water and the removal of foreign objects or unauthorized persons and wildlife from the movement area.

172.67(a) requires the establishment of coordination procedures between ATS units listed in the exposition. Additionally, the applicant is required to establish coordination procedures with other agencies for exchange of information, where applicable. Service level agreements with these agencies will meet this requirement.

172.67(b) & (c) requires the applicant to establish letter of agreements with ATS units responsible for the adjoining airspace, detailing all necessary matters for coordination. Additionally, the agreement must be regularly updated, signed by senior representatives of the participating units and the agreed procedures must be included in the operations manual.

172.67(d)–(f) specifies facility requirements and procedures for coordination with automatic recording between ATS units.

172.67(g)–(h) require procedures for the exchange of ATS messages between ATS, MET and air operators in accordance with the format described in chapter 11 of ICAO Doc 4444.

172.69 EM Notification of facility status.

The applicant should establish procedures to notify users of its air traffic services of relevant

operational information and of any changes in the operational status of each facility listed in the exposition to be published in the PNGAIP and notify AIS for the issue of NOTAM, when necessary.

172.71 EM General information requirements.

The applicant should establish procedures to receive information from aircraft on activities that could affect flights within the airspace. In addition to volcanic activity, CAR Part 91, Appendix F.4 provides a list of other natural phenomenon to be reported to air traffic service when observed by aircraft.

Furthermore, the applicant should establish procedures to be kept informed of the:

a) operational status of visual and non-visual navigation aids;
b) existence of temporary hazards and the operational status of any associated facilities on the movement area and at the aerodrome.

172.73 EM Meteorological information and reporting

The applicant should establish procedures for meteorological information received from the Part 174 certification holder to be up-to-date information on existing and forecast meteorological conditions. The information should be supplied in such a form as to require a minimum of interpretation by air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

Adverse weather observations by air traffic service and those reported by aircraft should be coordinated to the Met service. Such exchange of information should be established through a formal arrangement between the two service providers.

172.81 EM Responsibility for control

172.81(d) The responsibility for the control of an aircraft transferred from an ATC unit to the next unit should be at the time of crossing the common control area boundary as determined by the unit having control of the aircraft or at such other point or time as has been agreed between the two units.

Where specified in letters of agreement between the ATC units concerned, and when transferring an aircraft, the transferring unit should notify the accepting unit that the aircraft is in position to be transferred, and specify that the responsibility for control should be assumed by the accepting unit forthwith at the time of crossing the control boundary or other transfer control point specified in letters of agreement between the ATC units or at such other point or time coordinated between the two units.

If the transfer of control time or point is other than forthwith, the accepting ATC unit should not alter the clearance of the aircraft prior to the agreed transfer of control time or point without the approval of the transferring unit.

If transfer of communication is used to transfer an aircraft to a receiving ATC unit, responsibility for control should not be assumed until the time of crossing the control area boundary or other transfer of control point specified in letters of agreement between the ATC units.

When transfer of control of identified aircraft is to be effected using surveillance methods, the appropriate procedures specified in ICAO Doc 4444, Chapter 8, Section 8.7.4, should be applied.

172.83 EM Priorities

172.83(a) An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, should be given priority over other aircraft.

The provision of air traffic control service in respect of communication or processing of the approach sequence should be established in a manner which will facilitate arrival of the maximum number of aircraft with the least average delay. Priority should be given to:

a) an aircraft which anticipates being compelled to land because of factors affecting the safe operation of the aircraft (engine failure, shortage of fuel, etc.);

b) hospital aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention;

c) aircraft engaged in search and rescue operations; and

d) other aircraft as may be determined by the appropriate authority.

172.83(c) An aircraft at a cruising level should normally have priority over other aircraft requesting that cruising level. When two or more aircraft are at the same cruising level, the preceding aircraft should normally have priority.

172.83(d) If an aircraft enters an aerodrome traffic circuit without proper authorization, it should be permitted to land if its actions indicate that it so desires. If circumstances warrant, aircraft which are in contact with the controller may be instructed by the controller to give way so as to remove as soon as possible the hazard introduced by such unauthorized operation. In no case shall permission to land be withheld indefinitely.

In cases of emergency it may be necessary, in the interests of safety, for an aircraft to enter a traffic circuit and effect a landing without proper authorization. Controllers should recognize the possibilities of emergency action and render all assistance possible.

An aircraft landing or in the final stages of an approach to land should normally have priority over an aircraft intending to depart from the same or an intersecting runway.

172.83(i) All vehicles and pedestrians should give way to aircraft which are landing, taxiing or taking off, except that emergency vehicles proceeding to the assistance of an aircraft in distress should be afforded priority over all other surface movement traffic. In the latter case, all movement of surface traffic should, to the extent practicable, be halted until it is determined that the progress of the emergency vehicles will not be impeded.

172.87 EM ATC clearances

172.87(c)(5) The movement of pedestrians or vehicles on the manoeuvring area is subject to authorization by the aerodrome control tower. Persons, including drivers of all vehicles, are required to obtain authorization from the aerodrome control tower before entry to the manoeuvring area. Notwithstanding such an authorization, entry to a runway or runway strip or change in the operation authorized should be subject to a further specific authorization by the aerodrome control tower.

In compliance to rule 172.67(a) on coordination, the agreement should contain documented ground-to-ground radio communication requirements between ATC and vehicle drivers operating or intending to operate on the manoeuvring area. This should include but not limited to:

a) maintenance of continuous two-way radio communication;
b) clearance and information required from the drivers;
c) read back requirement of safety-related parts of ATC instructions; and
d) meaning of the visual signals in case of radiocommunication failure.

172.91 EM Deviation from an ATC clearance

An identified aircraft observed to deviate significantly from its intended route or designated holding pattern should be advised accordingly. Appropriate action should also be taken if, in the opinion of the controller, such deviation is likely to affect the service being provided.

The pilot of an aircraft requesting navigation assistance from an air traffic control unit providing ATS surveillance services should state the reason (e.g. to avoid areas of adverse weather or unreliable navigational instruments) and should give as much information as possible in the circumstances.

When a pilot reports an ACAS resolution advisory (RA), the controller should not attempt to modify the aircraft flight path until the pilot reports “Clear of Conflict”.

Once an aircraft departs from its ATC clearance or instruction in compliance with an RA, or a pilot reports an RA, the controller ceases to be responsible for providing separation between that aircraft

and any other aircraft affected as a direct consequence of the manoeuvre induced by the RA. The controller will resume responsibility for providing separation for all the affected aircraft when:

a) the controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or

b) the controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.

When the pilot initiates communications with ATC, a rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response. When necessary, the pilot should initiate the communications using the urgency call "PAN PAN" (preferably spoken three times).

The pilot should inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to its cleared route.

172.93 EM Flight information service

In general, the flight information service (FIS) is intended to supplement and update during the flight, information on weather, status of navigation aids, aerodromes and other pertinent matters (exercises, airspace reservations, etc.) relevant the safe and efficient conduct of his flight.

Traffic Information

Traffic information should be 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.

In controlled airspace essential traffic information should be provided. Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum.

Note: This information will inevitably relate to controlled flights cleared subject to maintaining own separation and remaining in visual meteorological conditions and also whenever the intended separation minimum has been infringed.

172.93(g) Essential traffic information

Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum.

Essential traffic information shall be given to controlled flights concerned whenever they constitute essential traffic to each other.

Essential traffic information should include:

a) direction of flight of aircraft concerned;

b) type and wake turbulence category (if relevant) of aircraft concerned;

c) cruising level of aircraft concerned; and

1) estimated time over the reporting point nearest to where the level will be crossed; or
2) relative bearing of the aircraft concerned in terms of the 12-hour clock as well as distance from the conflicting traffic; or
3) actual or estimated position of the aircraft concerned.

Information on essential local traffic known to the controller must be transmitted without delay to departing and arriving aircraft concerned. Essential local traffic must be described so as to be easily identified.

Note: Essential local traffic in this context consists of any aircraft, vehicle or personnel on or near the runway to be used, or traffic in the take-off and climb-out area or the final approach area, which may constitute a collision hazard to a departing or arriving aircraft.

This fact does not, however, apply to information provided in uncontrolled airspace regarding other traffic operating in the vicinity of a given aircraft. This traffic information should be given whenever it is likely that such information will assist pilots concerned to avoid the risk of collision. In addition, since in uncontrolled airspace such information can only be given about aircraft whose presence is known; and since even that information may be of doubtful accuracy as to position and intentions of the aircraft concerned, the unit providing FIS will not assume responsibility for its provision at all times nor for its accuracy once it is issued. Pilots should be given an appropriate indication of this fact when such information is provided to them.

172.101 AMC Time

Coordinated Universal Time (UTC) shall be used and shall be expressed in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

A time check shall be obtained prior to operating a controlled flight and at such other times during the flight as may be necessary.

Wherever time is utilized in the application of data link communications, it shall be accurate to within 1 second of UTC.

172.105 EM Radio and telephone procedures

There should be no superfluous transmissions of unnecessary or anonymous signals, messages or data in all radiotelephony necessary for the provision of an air traffic service.

The air-ground radiotelephony communications should be conducted in the English language in accordance with the Aeronautical Information Publication (AIP).

Word spelling in radiotelephony. When proper names, service abbreviations and words of which the spelling is doubtful are spelled out in radiotelephony, those published in AIP GEN 3.4-9, para 4.1.1 should be used.

172.105 (a)(3) Ensure the applicable communication procedures are established in accordance with Annex 10 Vol II for the following:

a) voice communication procedures for;

   1) radiotelephony;
   2) HF message handling
   3) SELCAL procedures
   4) Distress and urgency radiotelephony communication
   5) Coomunication related to acts of unlawful interference.

b) data link communication procedures for;

   1) establishment of CPDLC
   2) exchange of operational CPDLC messages
   3) free test message elements
   4) emergencies, hazards and equipment failure

172.107 EM ATS surveillance services

172.107(1)(i) procedures should be established for the provision of ATS surveillance service for:

a) information derived from ATS surveillance systems, including safety-related alerts and warnings such as conflict alert and minimum safe altitude warning, should be used to the extent possible in the provision of air traffic control service in order to improve capacity and efficiency as well as to enhance safety.

b) the number of aircraft simultaneously provided with ATS surveillance services shall not exceed that which can safely be handled under the prevailing circumstances, taking into account:

1) the structural complexity of the control area or sector concerned;

2) the functions to be performed within the control area or sector concerned;

3) assessments of controller workloads, taking into account different aircraft capabilities, and sector capacity; and

4) the degree of technical reliability and availability of the primary and backup communications, navigation and surveillance systems, both in the aircraft and on the ground.

172.109 EM Aircraft emergencies and irregular operation

172.109(c) refer appendix A - ATS procedures for air-ground communications failure. Additionally the ATSP must establish procedures for controllers to follow for the various contingencies listed in the rule.

172.109(d) An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, should be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units should attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight should continue to be transmitted and necessary action should be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

In addition, ATS units should, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by the State and exchange necessary information with the operator or its designated representative.

Larger separations than the specified minima should be applied for extra precautions. This should be done with due regard to all relevant factors so as to avoid impeding the flow of air traffic by the application of excessive separations.

172.113 EM Incidents – (read in conjunction with CAR Part 12 and AC 12-01)

172.113(1) It is essential to determine the cause of an air traffic incident, with the minimum delay so that action can be taken to prevent a recurrence. Immediately following an air traffic incident all records relating to the incident should be set aside for use during any investigation. Controllers, supervisors and officers-in-charge of the ATS unit concerned should take all necessary measures to preserve relevant documents and to record as many details as possible while they are still fresh in their minds.

The initial ATS investigation is normally carried out by the ATS unit to which the incident has been reported or which noted it. The ATS unit should obtain the following information:

a) statements by personnel involved;

b) tape transcripts of relevant radio and telephone communications;

c) copies of flight progress strips – where available - and other relevant data including recorded surveillance data, if available;

d) copies of the meteorological reports and forecasts relevant to the time of the incident;

e) statements concerning the operating status of equipment, if applicable;

f) unit findings and recommendations for corrective actions, if appropriate.

To give effect to the air traffic incident investigating process, an investigating team should be established. The team should include the officer-in-charge of the ATS unit or a senior ATS officer as team leader and ATS experts, other specialist officers from flight operations, flight calibration,

telecommunications engineering or other fields, if required. In addition, and when necessary, the controller(s) involved in the incident should be given the opportunity to nominate as a member of the team an experienced controller of equal grade to represent him during the investigation. When two units are involved, the unit in whose area the incident has taken place should initiate action to convene the incident investigation team and include an offer for officers of the other's unit to participate.

The proceedings of an air traffic investigating team, as well as papers and records used should be treated as confidential material. Specific *prima facie* facts required by the team should be prepared by the unit and should include, as appropriate:

a) names and operating positions of involved ATS personnel;

b) full details of the sequence of events in narrative form;

c) names of pilots and operating companies and details of aircraft involved;

d) reports from controllers involved as prepared before leaving the unit on the day of the occurrence;

e) reports from pilots involved, if possible as prepared at the next point of touch-down, preferably in penscript and delivered by acceptable means and, if necessary, through the operator's office;

f) the marking and impounding of relevant voice recordings, flight progress strips and other flight data including recorded surveillance data if available.

The report of the ATS investigating committee should include a summary of the incident and the cause. The report should contain all relevant information, in chronological sequence where appropriate, and concluding with a list of findings, conclusions, causes and safety recommendations for the purpose of accident/incident prevention. Recommended corrective actions should also be included in the report. The committee should not make recommendations on personnel or disciplinary action in the event of controller error because the fundamental objective of the investigation is prevention of accidents, not to apportion blame or liability.

In addition, the following information should be submitted as appendices to the report:

a) statements by personnel involved;

b) tape transcripts of relevant air-ground and telephone communications;

c) copies of meteorological reports or forecasts relevant to the incident;

d) copies of flight progress strips and/or other data relevant to the incident, including recorded surveillance data, ifavailable;

e) any technical statements concerning the operating status of equipment, if applicable.

On completion of the investigation, full details of the findings must be submitted through appropriate channels to the civil aviation safety authority.

The analysis of an incident should be considered in relation to system operation and have regard to factors such as the following:

a) *Procedures* - Were the procedures and separation standards applied, correctly for the situation?

b) *Data and display* - Was the displayed data correct and complete in terms of local unit instructions? Was the displayed information properly interpreted and utilized?

c) *Co-ordination* - Were the prescribed co-ordination procedures adequate and correct and were they correctly and fully applied?

d) *Communication* - Was correct phraseology used by all personnel involved? Was there any failure to communicate clearly and concisely which may have given rise to error or misunderstanding? Was there any failure to note and correct any incorrect read back of information? Was there any failure to obtain acknowledgement of the receipt of information?

e) *Equipment* - Was the performance of relevant technical equipment adequate? (if any failure or malfunction of equipment caused or contributed to the incident, specialized technical advice or evidence should be sought.)

f) *Personnel performance* **-** Were any factors present which may have affected an individual's performance, e.g. fatigue, illness, personal problems, etc.? (While personnel errors may be established by the committee, degrees of negligence, carelessness or blame are not to be specified.)

g) *Task environment* **-** All aspects of the working environment should be considered which may have affected the performance of personnel, e.g. background noise, heating, ventilation, ambient light levels, etc.

h) *General operations* **-** Were all personnel familiar with the traffic situation and pertinent data before assuming responsibility for an operating position? Were the duties and responsibilities for the operating position(s) clearly defined? The adequacy of staffing in relation to traffic density should be considered as well as relief, and adequate rest periods. If applicable, was the level of supervision satisfactory?

Once the analysis of an ATS incident has been completed, information on the results, including conclusions and recommendations reached, should be made available to all concerned so that corrective action, etc. may be taken and all concerned are fully aware of the final results.

172.113(2) Any air navigation facility malfunction that has resulted in an airspace incident must be reported to the holder of the aeronautical telecommunication service certificate issued under Part 171. Rule 91.253 prescribes the information required in this report.

172.119 EM Security

The objectives of the ATS security programme is to protect the ATM system infrastructure that supports the execution of the air traffic service provider's missions and minimize the disruption of the ATM service from intentional and unintentional threats.

Security measures are required to protect essential ATM facilities against intentional and unintentional acts. Loss of ATM facilities could have severe implications on the safety and security of civil aviation operations. Before designing appropriate security protection and measures for ATM facilities, the ATSP should make a comprehensive risk assessment for each ATM facility.

Air traffic service should establish and implement visitor control policies for visits by individuals or large groups to each type of ATC facility. Procedures should specify visit registration requirements, ID checks required for entry, escort procedures for hosts during the visit, and restrictions on bringing digital devices, and other types of recording and photographic devices into the facility.

Furthermore, security controls implemented should ensure that –

- information is not disclosed to unauthorized entities;
- information and systems are not modified improperly or accidently; and
- the continuity, reliability, and accessibility of data, resources and services to authorized entities in a timely manner.

172.123(b) EM Runway safety program

Refer AC 139-12 chapter 6 – Air traffic control operation.

172.127 EM Organisation exposition

The purpose of the Organisation Exposition is to declare the manner in which the applicant intends to comply with the requirements prescribed in CAR Part 172. Compliance with the requirements of the rule is the prerequisite to obtain and retain the operational certificate.

The Organisation Exposition is the means by which the organisation defines its operation. It shows,

to both its employees and the Director, how the organisation will conduct its day-to-day business relating to air traffic service. It is intended to be a tool to help management in the operation of the business. It should commence with the corporate commitment by the Chief Executive.

The exposition should be arranged in a chronogical order as listed in this rule.

Paragraphs (a)1 to (a)8 provide the management part of the exposition and should normally be contained within one document. The remaining parts of the exposition may be produced as any number of separate manuals which must be cross-referenced in the management part of the Organisation Exposition.

Managers should hold copies of those parts or manuals that affect their areas of responsibility, and staff should be familiar with the parts of the exposition which affect their area of activity.

(a)(1) A prime objective of the new rules system is that each approved organisation must have the responsibility to ensure that its operation is planned, organised, carried out, developed, maintained and documented according to applicable civil aviation requirements, standards and operating specifications.

As part of its quality system of management, each organisation will also have to establish goals and objectives for its operation, including safety standards, at least equal to the level prescribed by the Director.

The statement by the Chief Executive required by 172.127(a)(1) is viewed by the Director as a corporate commitment by the organisation. Such a statement should clearly address the goals and objectives of the organisation in respect of the safety requirements prescribed by Part 172. The statement may also contain the organisation's goals and objectives in respect of its commercial activities. Ideally, the exposition should be a tool of management by which the organisation's operation is presented to its staff, its customers and the Director.

(a)10 A situation display providing surveillance information to the controller should, as a minimum, include position indications, map information required to provide ATS surveillance services and, where available, information concerning the identity of the aircraft and the aircraft level.

The ATS surveillance system should provide for a continuously updated presentation of surveillance information, including position indications.

Subpart C - Operating Requirements

172.151 EM Continued Compliance

AFTER OBTAINING AN AIR TRAFFIC SERVICE CERTIFICATE, IT IS THE RESPONSIBILITY OF THE CERTIFICATE HOLDER TO ENSURE THAT THE ORGANISATION CONTINUES TO MEET THE REQUIREMENTS FOR CERTIFICATION. THE MEANS OF MEETING THESE REQUIREMENTS ARE CONTAINED IN THE ORGANISATION'S EXPOSITION. THEREFORE, A COPY OF THE EXPOSITION, OR AT LEAST EACH APPLICABLE PART OF IT, MUST BE AVAILABLE TO ALL PERSONNEL WHO NEED ACCESS TO THE INFORMATION TO CARRY OUT THEIR WORK. A COMPLETE COPY OF THE EXPOSITION NEEDS TO BE HELD AT EACH ATS UNIT COVERED BY THE EXPOSITION.

172.163 EM Changes to Certificate Holders organisation

This Rule allows the organisation to make changes to its exposition to reflect changes to its operating practices and procedures, standards, and operational facilities.

Rule 172.163 (a), (b), and (c) place on the organisation the responsibility for ensuring that the exposition is always an accurate statement of its service, practices, and procedures and that the Director is kept informed of any changes by an amendment procedure.

Rule 172.163 (d) describes the changes to the exposition which require the prior notification and acceptance by the Director. Before any of these changes can be incorporated into the exposition, a formal notification letter must be submitted to the Director and an acknowledgement of acceptance is received.

It allows the Director to prescribe conditions which may apply because of any change in these specific items.

These may be transitional conditions to allow the organisation to continue to operate while negotiations take place with the Director with respect to permanent changes.

Subpart E – Separation Criteria

172.269 AMC Formation flights

Aircraft shall not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight and, for formation flight in controlled airspace, in accordance with the conditions prescribed by the ATS authority. These conditions shall include the following:

a) the formation operates as a single aircraft with regard to navigation and position reporting;

b) separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and breakaway; and

c) a distance not exceeding 1 km (0.5 NM) laterally and longitudinally and 30 m (100 ft) vertically from the flight leader shall be maintained by each aircraft.

Appendix A – ATS procedures for air-ground communications failure

1. Check own radio with other aircraft

2. Continue attempts to contact the 'COM FAILURE' aircraft, use:

a) Alternate transmitter;
b) Standby radio;
c) Secondary frequencies;
d) Flight information frequencies;
e) SELCAL and HF frequencies for international flights;
f) Cellphone;
g) Company frequencies;
h) Emergency frequencies; and/or
i) Data Link

3. Pass pertinent information as appropriate to:

a) The destination/alternate aerodromes and adjacent units;
b) Aircraft in the vicinity; and
c) Request appropriate units/aircraft to attempt to contact and/or locate the aircraft.

4. Provide separation on the assumption that the aircraft will follow the 'COM FAILURE' procedures in the AIP, unless you can determine that:

a) The aircraft is not following the "COM FAILURE" procedures prescribed in the AIP; or
b) The aircraft has landed.

5. Increase separation to make allowance for unexpected manoeuvres.

Restrict/suspend IFR operations on the cleared/acknowledged route below the level(s) of the "COM FAILURE" aircraft.

6. Notify the Surveillance controller serving the area of the last reported position of the aircraft, and request the controller to:

a) Watch for an aircraft [at or near the extrapolated position] squawking 7600;
b) Attempt to contact the aircraft; and
c) Plot the aircraft's track, and keep you informed of the progress.

7. Declare appropriate SAR phase

a) Notify

i) ATC duty manager/ACC supervisor or his delegate;
ii) Advise appropriate emergency phase to RCC including all known information; and
iii) Send appropriate ALR message.

b) Establish a central point of contact with the operator and RCC;
c) Update RCC/aircraft operator/ ATC duty manager/ACC supervisor with new information
d) Respond to RCC requests.

8. If being provided with a Surveillance service

a) Maintain surveillance;
b) Separate other aircraft from the "'COM FAILURE' aircraft based on:
i) its course of action observed on Surveillance; and
ii) the assumption that it will maintain levels in accordance with the `COM FAILURE' procedures in the AIP.
c) Allow for the possibility that the aircraft under Surveillance vectors may not be able to use the specified approach aid;
d) Watch for the use of squawk code 7600;
e) Record last known position if surveillance contact is lost;
f) Alert next sector.

9. Transmitter OK

a) Expect the pilot to follow `COM FAILURE' procedures in the AIP unless the pilot declares otherwise.
b) Provide any assistance requested.

10. Determine if receiver is OK

a) Instruct the aircraft to:
i) squawk ident or 7600; or
ii) key the transmitter 3 times; or
iii) make a 30 degree turn for 30 seconds and regain track.
b) If the aircraft responds to any of the above, use this method to continue communications with the aircraft; or
c) Ask the pilot to communicate through any mobile telephone on board.

11. If the receiver is OK, and no mobile telephone is carried

a) Continue to pass instructions, giving the flight priority to landing;
b) Provide weather information on anticipated ADES and alternates;
c) Frame questions for YES/NO answers;
d) Endeavour to find out:
i) if there is any other emergency;
ii) the pilot's intentions.

e) Use the following code for aircraft with unmodulated transmitter:

YES, or ROGER	activate transmitter once
NO	activate transmitter twice
SAY AGAIN	activate transmitter three times
AT NOMINATED POSITION	activate transmitter four times

12. Transmitter and Receiver failure

a) Transmit blind:
i) action taken by ATC; and
ii) weather at suitable aerodromes.

b) Expect the pilot to follow `COM FAILURE' procedures in the AIP;

c) Arrange ground station calls, aircraft calls and a listening watch on:

i) company frequency;
ii) distress frequency [121.5];

d) Check with company if there is a mobile phone or pager on board.

13. **If communications failure occurs at night**, request ATS units or airport management to switch on runway, approach and other lights from at least 30 minutes prior to ETA until the aircraft has been located or until 30 minutes after the aircraft's fuel supply is estimated to be exhausted.

14. **Inform appropriate units and aircraft when:**

a) Communications have been re-established; or
b) The aircraft has landed.

15. **ATC Duty manager/ACC Supervisor Responsibilities**

a) Advise operators of situation if RCF aircraft has not reported/landed or remains overdue or unreported, and:
b) Restrict or suspend IFR traffic, unless Surveillance separation is being applied, for a period of 30 minutes following the applicable times:
i) the pilot/ATC estimated time [whichever is the later] or the actual time of arrival over the navaid or fix serving the destination aerodrome.
ii) the approach clearance acknowledged by the pilot, and the time at which it is estimated that the aircraft would have commenced approach.
iii) the expected approach time acknowledged by the pilot.
iv) the pilot/ATC estimated time [whichever is the later] or the actual time of arrival at the enroute navaid or fix.
v) the release time, and if issued, the clearance expiry time.

c) Following the expiry of the 30-minute period, inform the aircraft operators and pilots of aircraft concerned, and resume normal operations at their discretion.

d) Notify RCC when the emergency situation no longer exists.

Appendix B – ATS facilities schedule

	ADC and Approach Control	Area Control Centre	Flight Information Centre
01	Headset	Headsets	Writing area/counter space
02	Microphone	Microphones	Plotting table
03	Transceiver	Transceivers	Navigation plotting equipment
04	Speakers	Speakers	Large-scale area map
05	Radio selector panel	Radio communications selector panels	Headsets
06	Telephone selector panel/handsets	Telephone selector panels and handsets	Microphones
07	Intercom	Intercom	Speakers
08	Auto-switch headset/speaker	Clocks	Radio communications, selector panels
09	Recorder (radio and telephone)	Recorders (radio and telephone)	Telephones and selector panels
10	Power	Daylight radar displays and consoles including radar controls	Teletype

11	Back-up power	Secondary surveillance radar controls	Access to direction-finding equipment*
12	Signal lamp and reel	Radar simulator	Flight progress console and equipment*
13	Wind speed and direction display	Automation equipment including input/output devices	Clocks
14	Barometric altimeter	Flight progress boards	Typewriter and table
15	Altimeter setting indicator	Teletype for weather and for aircraft movement messages	Lighting
16	Clock	Weather displays including appropriate altimeter settings	Chairs
17	Aerodrome lighting panel	Clipboards and wall projection devices	Storage for reference documents
18	Navaid(s) monitor panel	Bulletin boards for posting pertinent information	Lavatory
19	Lighting, including emergency lights	Desk	Running water
20	Daylight radar/display consoles	Chair	Fire extinguisher
21	Radar displays, controls, consoles	Lighting - including emergency lighting	Emergency lighting
22	Secondary radar controls	Fire alarm and extinguishers	Drinking fountain
23	Radar simulator	Water fountain	Heating-air conditioning
24	Flight data panel	Lunch facility	
25	Automation equipment	Heating - air conditioning/cooling	
26	Clipboards/displays (NOTAM etc.)	Power	
27	ATIS recorder	Back-up power	
28	Fire alarm and extinguishers	Headsets	
29	Desks/consoles/shelves		
30	Chairs		
31	Shades		
32	Air conditioning, heating/cooling		
33	Convenience group (hot-plate/water, etc.)		
34	Lunch facility		
35	Water fountain		
36	Bookcases		
37	Binoculars		
38	Sound-absorbing coverings (floor/wall)		