

## ANNEX A

## PROCEDURES AND PHRASEOLOGY FOR CA/GRS

**1. Introduction**

**1.1** Radio communication procedures and phraseology are internationally standardised with the object of ensuring uniformity in R/T communications. CA/GROs are to comply with the general radiotelephony procedures and phraseology set out in AIP GEN 3.4.

**1.2** In radio communications, a primary goal of the CA/GRS is the use of precise and concise phraseology to minimise frequency congestion.

**1.3** It is also important that CA/GROs use a straight-forward, easily understood, communication technique.

**2. Records**

**2.1 Running Sheets.** A form of 'running sheet' should be used to write down aircraft movement details, call-signs and other relevant information. As a guide, the 'running sheet' may comprise traditional flight progress strips adapted or modified to suit the location and service provided, flight progress strips reproduced on sheets of paper, or a paper form that has appropriate headings and columns.

**2.2 AAIS Message Records.** A written record, including a date/time group, of the content of each AAIS message that is broadcast should be kept as part of the daily records.

**3. Radio Procedures**

**3.1** A CA/GRO responds to the first broadcast an aircraft makes when arriving, departing or transiting the CTAF. Thereafter, the CA/GRO does not normally respond unless an aircraft specifically calls the service.

*Examples:*

'Traffic Broome, SAAB Skywest one twenty three, one five miles north, passing three thousand five hundred, inbound, estimating Broome three two, received Bravo.'

'Skywest one twenty three, Broome Radio, traffic is a Cessna 172 Delta Juliet Romeo, taxiing for departure runway two eight.'

**3.2 Visual Observations.** CA/GROs need to maintain a vigilant look out to assess the ongoing positions of aircraft, so that relevant traffic information can be provided.

**3.3** As an example, an aircraft calls taxiing for the preferred runway. An arriving aircraft has already called and advised that its ETA is 28. The CA/GRO observes the arriving aircraft on mid downwind.

*Example:*

'Traffic Ayers Rock Radio, BAe 146 Juliet Juliet Uniform, taxiing for Alice Springs, runway 13, received Delta.'

'Juliet Juliet Uniform, Ayers Rock Radio, traffic is a B737 Tango Juliet Delta mid downwind for runway 13, time one six.'

**3.4** Similarly, at airports where circuit training is being conducted, an arriving aircraft on entering the circuit and/or reporting *'DOWNWIND'*, should be provided with traffic information on relevant aircraft ahead of it in the circuit.

**Example:**

'Beech Bonanza Alpha Bravo Charlie, joining downwind, runway 24 right, full-stop.'

'Alpha Bravo Charlie, traffic is a C-152, mid downwind.'

**3.5 Aerodrome Information** is broadcast on the AAIS. However, if a CA/GRO is requested to provide the information, it should be given in the same order as it is on the AAIS, i.e.:

- preferred runway;
- runway surface conditions;
- wind direction and wind speed;
- visibility;
- present weather or CAVOK;
- cloud and cloud base;
- temperature;
- QNH; and
- aerodrome operational information.

**3.6** While the AAIS broadcast should be kept current, there will be occasions when the wind will be fluctuating to such a degree that it does not reflect the actual conditions. In these circumstances, the provision by CA/GROs of a wind check immediately prior to take-off or on final will be of assistance to pilots.

**Example:**

AAIS Broadcast: '(airport) Information Charlie, preferred runway 31, wind 260 degrees 15 to 25 knots, cross wind runway 31 up to 18 knots, QNH 1012, temperature 24, CAVOK.'

CA/GRO: 'Wind two five zero at one eight knots.'

## ANNEX B

**PRE-COMMISSIONING AND ROUTINE COMPLIANCE CHECK LIST****1. Service Facilities and Documents****1.1** Check that following facilities and documents are in place and operational:

- work station with full view of the circuit area and manoeuvring area;
- VHF transmitter/receiver operating on the CTAF frequency;
- AAIS facility on a separate VHF;
- meteorological instrumentation meeting BoM standards for aviation use that measures:
  - wind direction in degrees magnetic;
  - wind speed in knots;
  - QNH; and
  - aerodrome air temperature in degrees Celsius.
- current aeronautical documents including NOTAM, appropriate to IFR and VFR operations within the CTAF;
- a telephone;
- AC 139-24; and
- Aerodrome Emergency Plan.

**2. Operator Certification Status and Practical Skills at the Location**

**2.1** Check that each operator holds a CA/GRO certificate, and holds authorisations from CASA under regulation 83A and regulation 120 of the CARs.

**2.2** Carry out a sample of the following checks in respect of each operator's capabilities at the location. The sample checks must include testing the capability of the operator in the provision of traffic and weather advice.

**3. Traffic Assessment****3.1** Operator to demonstrate the correct use of a Running Sheet in recording:

- time, aircraft call-signs and types;
- arrival, departure and transiting broadcasts;
- traffic information and weather information passed to aircraft; and
- completion of action.

3.2 Operator to identify and describe the position of aircraft:

- on the aerodrome;
- in the circuit;
- arriving, departing; and
- transiting.

3.3 Operator to identify potential traffic conflicts and pass advice to aircraft.

#### 4. Weather Assessment

4.1 Using an aerodrome weather information sheet, operator to demonstrate how to record:

- AAIS code letter;
- preferred runway;
- runway surface conditions;
- wind direction and wind speed;
- visibility;
- present weather or CAVOK;
- cloud amount and base; cumulonimbus if applicable;
- air temperature;
- QNH; and
- Any available information on significant meteorological phenomena in the approach, takeoff and climb-out.

4.2 Using wind instrumentation, operator to demonstrate:

- how to obtain the wind direction and speed; and
- the use of wind direction and speed in determining the preferred runway.

4.3 With reference to an aerodrome visibility chart, operator to identify common landmarks and determine their visual range in bearings and distances from the station.

4.4 Operator to demonstrate how to obtain aerodrome QNH.

4.5 Operator to interpret automatic weather station data.

4.6 Operator to demonstrate correct recording of weather and other aerodrome information onto the AAIS.

## **5. Radio Telephony Procedures**

### **5.1** Operator to demonstrate an understanding of the correct phraseology and phonetics:

- aircraft call-signs;
- levels, bearings and distances;
- standard procedural words and phrases;
- time;
- establishing communications;
- responding to emergency transmissions; and
- radio test procedures and readability scales.

### **5.2** Operator to demonstrate the correct phraseology to be used when passing traffic and other information to aircraft:

- arriving;
- departing; and
- transiting.

### **5.3** Microphone and communication technique:

- clear, concise transmissions;
- correct use of phonetics and numbers;
- establishing and maintaining communications; and
- not creating frequency congestion.

## **6. Emergency services alerting**

### **6.1** Recognition of abnormal aircraft operations.

### **6.2** Emergency notification procedures:

- correct assessment of emergencies; and
- authorities and/or emergency services alerted in order of priority.

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## ANNEX C

**SYLLABUS OF TRAINING – CA/GRO TRAINING COURSE****1. The CA/GRO Competency Standard**

**1.1** Competency is defined as the combination of knowledge, skills and attitude required to perform a task to the standard required by CASA and industry. The competency standards specify all those skills which must be demonstrated by radio operators to perform the functions of a CA/GRO safely and efficiently.

**1.2** The CA/GRO Competency Standard is in Section 14.2 of the Part 139 MOS. The Competency Standard specifies the minimum level of skills and capabilities that a person must possess to safely and satisfactorily carry out the functions of a CA/GRO. It also defines how each competency is to be assessed.

**2. The CA/GRO Syllabus of Training**

**2.1** The Syllabus of Training in this Annex is designed to impart to trainees the necessary aeronautical knowledge and the practical communication and operating skills (practical competencies) which lead to the award of the CA/GRO certificate.

**3. CA/GRO Training Course.**

**3.1** Training for the CA/GRO certificate is to be in accordance with the recommended Syllabus of Training in this Annex, unless otherwise agreed by CASA.

**3.2** It is required that prospective CA/GROs undertake a structured course of study which is provided by an approved training provider and covers all the items specified in the Syllabus of Training.

**3.3** As a guide only, a minimum of approximately 80 hours of instruction could be expected to address all the items of the Syllabus of Training. This estimate is based on face-to-face classroom and practical tuition, a general rather than in-depth treatment of the syllabus items, and assumes that trainees will have had previous exposure to civil aviation procedures and standards.

**4. Document References****4.1 Legislation and Standards**

- CASR Part 139, Division F.
- MOS Part 139 Chapter 14.
- AC 139-24(0).
- AIP Book GEN 3-4, 3-5.
- AIP ERSa INTRO and FAC.

**4.2 Information Documents**

- UK CAP 452, Aeronautical Radio Station Operator's Guide.
- FAA Advisory Circular 90-42F, Traffic Advisory Practices at Airports without Operating Control Towers.

## **5. Theoretical Knowledge Syllabus**

### **5.1 CA/GRO Role and Responsibility**

#### **5.1.1** Understand the requirements for and privileges of a CA/GRO certificate.

- requirements to obtain a CA/GRO certificate;
- the roles of a CA/GRO, as per Part 139 MOS Chapter 14 and AC 139-24; and
- limitations on the information provided by a CA/GRO (information service only, no control instructions).

### **5.2 Module 1 – Operation of VHF Radio Communication Systems**

#### **5.2.1** Function and use of the following components of a VHF radiotelephone system:

- power source/battery, fuses and circuit breakers;
- transmitter, receiver, antenna, headphones/microphone, speaker;
- all control switches;
- use of radio transmit/receive/PTT switches;
- turning radio on;
- selecting correct frequency;
- use of squelch control;
- correct use of microphone;
- check of R/T system serviceability before commencement of duty;
- R/T main/standby changeover; and
- de-activate/activate the AFRU.

#### **5.2.2** Characteristics of VHF radio wave propagation, transmission and reception:

- propagation of VHF radio waves; and
- factors affecting the propagation of VHF radio waves
  - terrain
  - interference by other electrical equipment
  - thunderstorms
  - attenuation by spreading.

#### **5.2.3** Requirement for ACMA licence:

- assigned aeronautical frequency licence issued by ACMA.

### **5.3 Module 2: Maintain Watch of the Airspace and Movement Area**

**5.3.1** Explain airspace architecture and organisation and operational standards in relation to CA/GRS relevance:

- Control Areas (CTA) and Class G airspace above CTAFs;
- Class G airspace;
- uncontrolled terminal areas at aerodromes; CTAF(R), CTAF, Multicom - no discrete CTAF; and
- CTAFs – CAR 166 and CAR 166A standards.

**5.3.2** Emergency radio procedures by pilots:

- pilot declaration of an emergency;
- distress message ('Mayday' broadcast);
- urgency message ('PAN' broadcast);
- priority of broadcasts;
- imposition of radio silence;
- loss of radio (receiver, transmitter, receiver and transmitter); and
- procedure in event of failure to establish or maintain communications.

**5.3.3** Aerodromes:

- runway numbering;
- runway threshold;
- runway centreline;
- movement area;
- holding points;
- taxiways;
- apron area;
- cone and gable markers;
- obstacles;
- lighting; T-VASIS; PAPI; Runway lighting; Taxiway lighting;
- use of Nav aids; NDB, VOR, DME,
- RNAV (GNSS) and RNAV (RNP) approaches;
- Aerodrome Reference Code; and
- declared runway distances, TORA, TODA, LDA.

**5.3.4** Operational Procedures in CTAF(R):

- difference between IFR and VFR;
- straight-in approaches;
- standard traffic circuit for arrivals and departures;
- take-off procedures by aircraft (distinguish between G/A and Airline aircraft); and
- approach procedures by aircraft (distinguish between G/A and Airline aircraft).

**5.3.5** Standard radio procedures in CTAF(R):

- mandatory carriage and use of radio in all aircraft using CTAF(R);
- pilot broadcast on entry to CTAF(R);
- broadcasts for straight-in approaches;
- broadcast for joining the circuit;
- broadcast for taxiing for departure;
- broadcast for overflying;
- awareness of possible no-radio aircraft entry; and
- awareness of inoperative radio in aircraft (U/S transmitter only, U/S receiver only).

**5.3.6** Visual scan technique:

- procedure to maintain visual scan of aerodrome and circuit area; and
- procedure to visually detect arriving aircraft.

**5.4** **Module 3: Assess Relevant Air Traffic****5.4.1** Performance characteristics of different types of aircraft:

- on initial approach;
- on final approach to landing;
- on take-off;
- on climbout; and
- on visual manoeuvring (circling).

**5.4.2** Define 'relevant traffic':

- knowledge of the factors conducive to mid-air collisions; and
- when is an aircraft 'relevant traffic'.

**5.5** Ability to maintain a mental awareness of all aircraft positions and their intentions:

- maintain vigilant visual lookout and radio awareness to assess the ongoing positions of aircraft so that relevant traffic information can be provided at any time.

**5.5.1** Flight Progress Strips or log of movements:

- record of time of arrival/landing/taxiing takeoff, aircraft callsign, type, arrival or departure, runway, track.

**5.6 Module 4: Communicate with Aircraft****5.6.1** Understanding and use of phonetics and standard phraseology:

- phonetic alphabet and numbers;
- standard procedural words and phrases;
- correct use of aircraft call-signs;
- transmission of numbers;
- transmission of time;
- radio test procedure/readability scale;
- avoiding over-transmissions;
- establishing communication;
- clipped transmissions and consequences; and
- CA/GRO broadcast procedures in response to pilot broadcasts;
  - entry to CTAF;
  - taxiing for departure;
  - overflying CTAF;
  - radio silence otherwise maintained when appropriate.

**5.7 Module 5: Make Meteorological Observations and Reports****5.7.1** Quick Revision of Basic Aviation Meteorology (syllabus similar to PPL), only if necessary for recency:

- The causes of weather;
- The movement of air;
- Humidity, RH, Dew-point temperature;
- International Standard Atmosphere;
- Environment lapse rate, DALR, SALR;
- Cloud production and classification, cloud forming mechanisms;
- High level cloud; middle level cloud; low level cloud;
- Types of precipitation;
- Airframe and engine icing causes and effects;
- Cold fronts, squall lines; warm fronts;
- Hazardous weather; mountain waves; thunderstorms; micro-bursts;
- Local weather; sea breeze, land breeze, anabatic winds; katabatic winds, thermal and mechanical turbulence, temperature inversions, fog formation;
- Synoptic meteorology;

- Winds in the friction layer; veering and backing; and
- Tropical cyclones; four stages, warning symptoms.

#### 5.7.2 Meteorological observation and reporting:

- Define the term ‘visibility’;
- Describe the effects that precipitation, mist and fog, dust storms, haze and smoke, has on visibility;
- Describe hazardous aerodrome weather conditions; wind shear; microburst; tropical storms;
- Identify low level cloud types;
- Observation of cloud amount; cloud type; cloud height;
- Altimetry: Describe the basis of altimetry;
- Recall the datum height from which an altimeter indicates height when the following are set on the altimeter sub-scale;
- Area QNH;
- Local QNH;
- Standard Pressure Setting;
- Define the WMO/ICAO SARP for observations and reporting of surface wind for automated and non-automated measurement systems (ICAO Annex 3 paragraph 4.5);
- Location of sensor;
- Averaging period of 2 minutes;
- Reporting of variations in direction and speed (gusts);
- Define the WMO/ICAO SARP for the observing and reporting of visibility (ICAO Annex 3 paragraph 4.6);
- Define the WMO/ICAO SARP for the observing and reporting of present weather at an aerodrome (ICAO Annex 3 paragraph 4.8);
- Define the WMO/ICAO SARP for the observing and reporting of cloud (ICAO Annex 3 paragraph 4.9);
- Define the WMO/ICAO SARP for the observing and reporting of air temperature (ICAO Annex 3 paragraph 4.10);
- Define the WMO/ICAO SARP for the observing and reporting of pressure values (ICAO Annex 3 paragraph 4.11); and
- Define the WMO/ICAO SARP for the observing and reporting of supplementary information (ICAO Annex 3 paragraph 4.12).

#### 5.8 Module 6: Operate the Automatic Aerodrome Information Service

- Describe the format and content of the AAIS voice report.
- Describe the criteria for change to the AAIS recording (changes of 10 degrees/ 5 knots wind, 1hPA rounded QNH, 1 degree air temperature, 1 okta change in cloud amount, visibility changes by 1 km, wind shear occurrence).

**5.9 Module 7: Communicate with Surface Vehicles on the Movement Area**

- Standard communication phraseology between CA/GRO and surface vehicles.
- Clearance distance requirements between and aircraft operating on the movement area/apron and surface vehicles.

**5.10 Module 8: Manage Abnormal and Emergency Situations**

- Reference: AIP ERS A EMERG.
- Recognition of aircraft abnormal operation and emergencies.
- Aircraft urgency and distress messages.
- Aerodrome AEP.
- Action by CA/GRO in response to abnormal operations and emergency operations.

**6. Practical Syllabus****6.1 Demonstrate for VHF communication equipment:**

- The method of operating the communication transmitter and receiver; and
- The correct procedure for a routine check of the VHF R/T equipment at the commencement each day.

**6.2 Demonstrate during a simulated CA/GRS communication exercise:**

- Correct use of the R/T system;
- Correct transmission and reception technique;
- Correct and timely use of phraseology relevant to the CA/GRS;
- Reporting of relevant traffic and other alerting transmissions; and
- Correct R/T response to a simulated emergency.

**6.3 Traffic Assessment****6.3.1 Operator to demonstrate the use of a running sheet/flight strips in recording:**

- time, aircraft call-signs, and aircraft types, and movement;
- arrival, departure and transiting broadcasts;
- traffic information passed to aircraft; and
- completion of action.

**6.3.2 Operator to identify and describe the position of aircraft:**

- on the aerodrome;
- in the circuit;
- arriving, departing; and
- transiting.

**6.3.3 Operator to identify potential traffic conflicts.**

## **6.4 Weather Assessment**

**6.4.1** Using an aerodrome weather information sheet, operator to demonstrate how to record:

- AAIS code letter;
- preferred runway;
- wind direction and wind speed;
- visibility;
- present weather;
- cloud amount and base;
- air temperature;
- QNH; and
- Any available information on significant meteorological phenomena in the approach, takeoff and climb-out.

**6.4.2** Using wind instrumentation, operator to demonstrate:

- how to obtain the wind direction and speed; and
- the use of wind direction and speed in determining the preferred runway.

**6.4.3** With reference to an aerodrome visibility chart, operator to identify common landmarks and determine their visual range in bearings and distances from the station.

**6.4.4** Operator to demonstrate how to obtain aerodrome QNH.

**6.4.5** Operator to interpret automatic weather station data.

**6.4.6** Operator to demonstrate correct recording of weather and other aerodrome information onto the AAIS.

## **6.5 Radio Telephony Procedures**

**6.5.1** Operator to demonstrate an understanding of the correct phraseology and phonetics:

- aircraft call-signs;
- levels, bearings and distances;
- standard procedural words and phrases;
- time;
- establishing communications;
- responding to emergency transmissions; and
- radio test procedures and readability scales.

**6.5.2** Operator to demonstrate the correct phraseology to be used when passing traffic and other information to aircraft:

- arriving;
- departing;
- transiting; and
- microphone and communication technique;
  - clear, concise transmissions;
  - correct use of phonetics and numbers;
  - establishing and maintaining communications; and
  - not creating frequency congestion.

## **6.6 Emergency services alerting**

**6.6.1** Recognition of abnormal aircraft operations.

**6.6.2** Emergency notification procedures:

- correct assessment of emergencies;
- AEP initiation; and
- authorities and/or emergency services alerted in order of priority.

## **7. Written Examination and Practical Test**

**7.1** A written theory examination and a practical test must be completed and each passed.

**7.2** The pass mark for the written examination and the practical test is 70% each.