

# Advisory Circular

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## GUIDANCE ON MOVEMENT IN AIRSIDE

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### GENERAL

Advisory Circulars (ACs) are issued by the Director-General of Civil Aviation (DGCA) from time to time to provide practical guidance or certainty in respect of the statutory requirements for aviation safety. ACs contain information about standards, practices and procedures acceptable to CAAS. An AC may be used, in accordance with section 11 of the Air Navigation Act 1966 (ANA), to demonstrate compliance with a statutory requirement. The revision number of the AC is indicated in parenthesis in the suffix of the AC number.

### PURPOSE

This AC provides the guidance to demonstrate compliance with, and information related to the measures that are to be established and implemented for the safe movement of persons and vehicles at the airside of the aerodrome.

### APPLICABILITY

This AC is applicable to an operator who intends to or holds an aerodrome certificate or heliport certificate.

### RELATED REGULATIONS

This AC relates specifically to Regulation 34 of the Air Navigation (139 – Aerodromes) Regulations 2023 (“ANR-139”).

### RELATED ADVISORY CIRCULARS

- AC 1-3 Safety management system,
- AC 139-1-1 Guidance on application for, renewal and variation of an aerodrome certificate or heliport certificate

### CANCELLATION

This is the first AC issued on the subject.

## **EFFECTIVE DATE**

This AC is effective from 1 March 2023.

## **OTHER REFERENCES**

- ICAO Annex 14, Vol. I, Aerodrome design and operations, attachment A, section 18
- ICAO Manual of surface movement guidance and control systems (SMGCS) (Doc 9476)
- ICAO PANS Aerodromes (Doc 9981), Part II, Chapter 9

## **1 CONTROL OF MOVEMENT AT THE AIRSIDE**

- 1.1 Regulation 34 of ANR-139 requires an operator to ensure that measures are established and implemented for the safe movement of persons and vehicles at the airside in the aerodrome.
- 1.2 As each aerodrome presents different vehicular requirements and challenges, coupled with airside drivers facing conditions that are not normally encountered on public roads, the measures to be implemented need to be appropriate and adequate to prevent vehicle or pedestrian traffic from endangering aircraft operations. The operator may organise the measures into a framework (herein referred to as “airside vehicle operations framework”).
- 1.3 The operator should establish an airside vehicle operations framework that:
  - (a) identifies the authorised areas of the aerodrome on which vehicles can operate;
  - (b) outlines vehicle requirements;
  - (c) addresses vehicle operations and airside driver requirements;
  - (d) coordinates emergency operations and other non-routine operations e.g. construction and maintenance; and
  - (e) establishes a training programme for airside drivers.
- 1.4 The measures mentioned in the framework should be incorporated into tenant leases, contracts or airside rules as appropriate for effective implementation. These measures could be incorporated into a single document that could be referred to by any airside driver.

## **2 AUTHORISED AREAS OF VEHICLE OPERATIONS**

- 2.1 Unauthorised entry by vehicles onto the manoeuvring and movement areas of an aerodrome poses a danger to both the airside driver and any aircraft attempting to land, take off or manoeuvre on the aerodrome. Hence, the operator should establish a system to control the number and type of vehicles accessing the airside.
- 2.2 An aerodrome layout plan could be useful to identify the access control points to the airside. The operator may erect a fence or provide for other physical barriers around the entire aerodrome in addition to providing control measures at each access gate, such as security personnel, magnetic card activated locks, or remotely controlled locks. Gates may either be opened/closed electronically or secured by lock and chain.

- 2.3 A vehicle must be operated on the manoeuvring area only as authorised by the aerodrome control tower services. The operator should ensure the following in the manoeuvring areas:
- (a) Vehicles on the manoeuvring area is limited to those necessary for the inspection and maintenance of the manoeuvring area and emergency vehicles responding to an aircraft emergency on the manoeuvring area. Vehicles should use service roads or public roads in lieu of crossing the manoeuvring area whenever possible.
  - (b) When necessary, runway crossings only take place at the departure runway end rather than the midpoint. In the event of a runway incursion, an aircraft would have more time and runway length to react if the vehicle incursion is at the end of the runway.
  - (c) To coordinate vehicle movements in the manoeuvring area, standard operating procedures are developed with the aerodrome control tower services. Air traffic controllers and airside drivers must use two-way radios to control vehicles when on the manoeuvring area. Airside drivers must establish satisfactory two-way communication with the aerodrome control tower service before entering the manoeuvring area. The airside driver must maintain a continuous listening watch on the assigned frequency when on the movement and ensure that the radio sets are switched on and serviceable at all times when on the manoeuvring area.
- 2.4 The operator must ensure that a vehicle is operated on an apron only as authorised by the operator.

### **3 VEHICLE REQUIREMENTS**

- 3.1 Requirements for vehicles will vary depending on the aerodrome, the type of vehicle, and where the vehicle will be operated on the aerodrome. The marking and lighting of the vehicles must be in accordance with the relevant requirements in the Aviation Specifications. The operator should also consider the following when establishing vehicle requirements:
- (a) The minimum equipment that is required in an airside vehicle for the safety of aerodrome operations;
  - (b) Provision in all vehicles of a chart depicting the aerodrome's manoeuvring area. The diagram should display prominent landmarks and/or perimeter roads. Vehicles intended to operate within the manoeuvring area should also carry a chart showing the meaning of control tower light gun signals, airfield sign and marking information; and
  - (c) Vehicles are maintained and inspected to ensure the vehicles are in safe operating condition. Some aerodromes have benefited from establishing their own vehicle inspection programme.
- 3.2 There should be separate requirements to mark and identify vehicles that are operated solely on the apron as compared to those vehicles that operate on the manoeuvring area.

## 4 VEHICLE OPERATIONS AND AIRSIDE DRIVER REQUIREMENTS

4.1 The operator should develop requirements and procedures for the safe and orderly operation of vehicles at the airside, including:

- (a) A system of vehicle permits and driver licences that enables easy identification of the authorised areas for the vehicle and the privileges of the driver;
- (b) Strict control of the vehicles that are permitted to operate in the airside (e.g. prohibition against transfer of registration permits/licence to a vehicle other than the one for which they were originally issued, surrender of vehicle permits when a vehicle is no longer authorised to enter the airside, and expeditious removal of unauthorized vehicles from the airside);
- (c) Periodic checks to ensure that only authorised drivers and vehicles operate at the airside
- (d) A system to control the movement of commercial trucks and other goods conveyances into and out of the airside
- (e) Requirements that vehicles operating on the manoeuvring area be radio equipped or escorted by a radio-equipped vehicle;
- (f) Specific procedural requirements for vehicle operations on aerodromes without an operating control tower service, if applicable;
- (g) Advance notice/approval for operating any vehicle that does not hold the relevant vehicle permit for operating on the manoeuvring area;
- (h) Speed limits;
- (i) Prohibitions on:
  - (i) Passing other vehicles and taxing aircraft;
  - (ii) Leaving a vehicle unattended and running;
  - (iii) Driving under an aircraft except when servicing the aircraft; and
  - (iv) Driving under passenger bridges;
- (j) Requirements stipulating when vehicle lights must be operated;
- (k) Requirements for the use of dedicated vehicle lanes and perimeter roads whenever possible;
- (l) Locations where vehicles may park and where vehicles must not park;
- (m) Rules of right-of-way (e.g. for aircraft, emergency vehicles, other vehicles);
- (n) Procedures for inoperative radios while on a manoeuvring area;
- (o) Requirements to report all accidents involving ground vehicles on the airside;
- (p) Requirements making the vehicle operator responsible for passengers in the vehicle;
- (q) Minimum equipment requirements;
- (r) Inclusion in all vehicles of a chart depicting the aerodrome's manoeuvring area. The diagram should display prominent landmarks and/or perimeter roads. Vehicles intended to operate within the manoeuvring area should also include a chart showing the meaning of control tower light gun signals, airfield sign and marking information; and
- (s) Vehicle condition requirements and inspection requirements.

4.2 Procedures for escorting of vehicles in the airside. Escort drivers should be properly briefed on their roles and responsibilities. Those being escorted should also be briefed on the Dos and Don'ts and be reminded to stay with their escorts at all times.

4.3 The operator should establish the consequences of non-compliance with the vehicle and vehicle operations requirements upfront with the airside drivers (e.g. penalties for speeding). Such consequences should be stipulated in tenant leases, condition-of-use agreements or rules applicable to the operating environment.

- 4.4 The operator must ensure that airside drivers on the movement area comply with all mandatory instructions conveyed by markings and signs unless otherwise authorised by:
- (a) the aerodrome control tower services when on the manoeuvring area; or
  - (b) the operator when on the apron.
- 4.5 The operator must ensure that airside drivers on the movement area comply with all mandatory instructions conveyed by lights.
- 4.6 The operator must ensure that airside drivers on the movement area comply with the instructions issued by:
- (a) the aerodrome control tower, when on the manoeuvring area; and
  - (b) the operator, when on the apron.

## **5 EMERGENCY OPERATIONS AND OTHER NON-ROUTINE OPERATIONS**

- 5.1 The airside vehicle operations framework should take into consideration emergency operations and non-routine operations. Non-routine activities could include airfield construction, maintenance activities, airshows, aircraft static displays, VIP arrivals/departures, commercial photo shoots, or a host of other activities. In addition to security requirements, operators should recognise and prepare for the unique challenges that arise during non-routine operations as they relate to vehicle operations.
- 5.2 Operators should review emergency operations as well as non-routine operations in consultation with the relevant stakeholders and develop appropriate vehicle operation procedures. The operator should consult the stakeholders involved in emergency operations and non-routine operations to (e.g. airside driving rules and regulations, communications and procedures, and air traffic control procedures as well as other important operational issues). The operator should pay particular attention to the following situations and develop appropriate procedures:
- (a) **Airside Construction**  
  
Procedures should be developed to assess equipment and ensure that training on vehicle operations for aircraft safety has been completed before construction activities begin.
  - (b) **Low Visibility Operations**  
  
Additional consideration should be given to vehicle operations during low visibility. Poor weather conditions (fog, rain, haze etc.) may obscure visual cues, roadway markings and aerodrome signs.

## **6 TRAINING OF AIRSIDE DRIVERS**

- 6.1 The operator must ensure that airside drivers on the movement area must be appropriately trained for the tasks to be performed.

- 6.2 Operators could use a variety of methods for training airside drivers with the objective to achieve the appropriate level of knowledge of aerodrome rules and regulations to operate the vehicles in the airside safely. In some cases, where the operator outsources training, the operator is still responsible for the training of the airside drivers and should validate the training programme to ensure that agreed standards are being maintained. Operator may refer to AC 139-6-1 Guidance on the training and competency requirements of operational and maintenance personnel for guidance on how to establish a training programme to train, assess and maintain the competency of airside drivers. The operator should refer to **Appendix A** on airside driver training curriculum to develop the training programme for airside drivers.

## APPENDIX A: AERODROME VEHICLE OPERATIONS TRAINING CURRICULUM

*NOTE: The purpose of the Aerodrome Vehicle Operations Training Curriculum is to provide aerodrome operators with a recommended list of training topics for educating vehicle operators who may have access to the airside of an aerodrome. Each individual aerodrome has unique situations that might require site-specific training. Aerodrome operators may use this training curriculum as a guide for developing and implementing a detailed training programme tailored to the aerodrome's individual situation.*

- 1 The purpose of a training programme is to train airside drivers or their positions so that they are capable of operating safely on the airside of an aerodrome and should consider the areas in the following table, which varies for each aerodrome:

<b>S/N</b>	<b>Areas to consider for training programme</b>
1	Various aircraft navigation aids on the airfield
2	Identification of a given point on a grid map or other standard map used at the aerodrome
3	Applicable aerodrome rules, regulations or procedures pertaining to vehicle operations
4	Aerodrome layout, including designation of runways and taxiways
5	Known hot stops
6	Boundaries of manoeuvring area
7	Color coding and interpretation of airfield signs, pavement markings, and lighting
8	Location and understanding of critical areas associated with instrument landing system (ILS) and very high frequency omnidirectional radio ranges (VORs)
9	Radio telephony phraseology and procedures for radio communications with the aerodrome control tower
10	Aerodrome control tower light signals
11	Established routes for emergency response vehicles
12	Dangers associated with jet blast and prop wash
13	Traffic patterns associated with each runway (left or right) and location of each leg; i.e., downwind, base, final, and crosswind
14	Situational awareness

- 2 The aerodrome operator may choose to develop customised training programmes for vehicle operators who may be restricted to operating aerodrome vehicles only on the apron (e.g. airline employees).

## *AREAS OF TRAINING*

3 All aerodrome vehicle operators should have training in the following areas:

(a) Discussion of runway incursions, airfield safety and security

Training Outcome(s) – Trainee should be able to define a runway incursion, describe how to avoid causing a runway incursion, what they can do if involved in a runway incursion and explain the benefits of airfield safety/security.

(b) Aviation Definitions and Terms

Training Outcome(s) – Trainee should be knowledgeable of the terms used on an aerodrome.

(c) Aerodrome Vehicle operating requirements

- (i) Authorised vehicles and vehicle identification
- (ii) Vehicle lighting
- (iii) Vehicle insurance
- (iv) Vehicle inspection
- (v) Vehicle parking
- (vi) Accident reporting
- (vii) Use of perimeter roadways
- (viii) Aircraft lighting

Training Outcome(s) – Trainee should be knowledgeable of the aerodrome vehicle requirements an aerodrome.

(d) Rules and Regulations

- (i) Review
- (ii) Noncompliance/Penalties

Training Outcome(s) – Trainee should be knowledgeable of aerodrome vehicle operating rules and regulations.

4 To be authorised to drive on the manoeuvring area, the vehicle operators should also be trained in the following areas:

(a) Aerodrome Familiarisation

- (i) Runway Configuration/Safety Area
- (ii) Taxiway Configuration/Safety Area
- (iii) Manoeuvring Area and Movement and other Areas
- (iv) Confusing Areas and known hot spots
- (v) Aerodrome Lighting
  - (1) Runway
    - Runway edge lights
    - Touchdown zone lights
    - Rapid Exit Taxiway indicator lights
    - Threshold lights
    - Approach lighting system
    - Stop bar lights



- (2) Taxiway
  - Taxiway edge lights
  - Taxiway centre line lights
  - Runway guard lights
- (vi) Aerodrome Signs
  - Runway holding-position sign
  - Location sign
  - ILS Category I, II or III holding-position signs
  - Direction sign
- (vii) Aerodrome Marking
  - (1) Runways
    - Centre line marking
    - Side strip Markings
    - Runway designation marking
    - Threshold markings
    - Runway holding-position marking
  - (2) Taxiways
    - Runway holding-position marking
    - Centre line marking
    - Edge markings
  - (3) ILS Critical Areas
  - (4) Movement and other Area Boundary Marker
  - (5) Aerodrome NAVAIDS and Visual Approach Aids
    - Location
    - Non-interference

Training Outcome(s) – Trainee should be able to label all critical parts on the aerodrome and explain the purpose of all marking, lighting, and signs on the aerodrome.

(b) Communications

- (i) Aerodrome Vehicle Communications
- (ii) Radio Frequencies
- (iii) Procedural Words and Phrases
  - (1) Radiotelephony Spelling Alphabet
  - (2) Aviation Terminology
  - (3) Procedures for contacting the aerodrome control tower
  - (4) Airfield communications at aerodromes without operating control tower (if applicable)
  - (5) Light Signals
    - Description of Light Gun and How to Signal Tower
  - (6) Procedures for vehicle operators when they are lost or disoriented in the manoeuvring areas

Training Outcome(s) - Trainee should be able to adequately send and receive radio messages as well as interpret light gun signals and respond accordingly

5 The operator should test the trainee on the abovementioned training areas through a written test and a practical test. The operator should set a minimum passing score for the written and practical examination.