

Appendix D

AIRSIDE VEHICLE DRIVING BEST PRACTICES

Note.— This guidance is a compilation of material drawn from many sources including ICAO, IATA, ACI and a number of aerodromes that already operate vehicle driver training programmes.

1. INTRODUCTION

1.1 It is usually the responsibility of the aerodrome operator to have in place a formal training, assessment and authorization programme for all drivers operating airside. Information already exists that indicates that vehicles and their drivers have caused runway incursions at a number of aerodromes.

1.2 As a result of local hazard analyses in Europe in 2001, the operation of vehicles on the aerodrome has been highlighted as a potentially high-risk activity which demands that a number of formal control measures be put in place to manage the risk. A vehicle driver training programme is one of these control measures and should form part of the overall safety management system of the aerodrome operator.

1.3 The aerodrome operator should take the lead in developing an agreed standard for the vehicle driver training programme. There will be a requirement for cooperation and partnership with air traffic control, ground handling agents, airlines and other airside service providers to ensure the safe operation of the aerodrome.

1.4 Depending upon the scale and complexity of the aerodrome and the individual requirements of the driver, the training programme should take into account the following main areas:

- a) a generic airside vehicle driver training programme which covers operational safety and the health and safety aspects of operating vehicles, plant and equipment in close proximity to aircraft on the movement and manoeuvring areas, aprons, stands and airside roads;
- b) specific training on the vehicle, plant and equipment, e.g. car, tug, high loader, coach;
- c) additional training on the hazards associated with runways and taxiways if the specific job function requires the driver to operate on the manoeuvring area; and
- d) training in the correct use of RTF and standard phraseology since an essential requirement for operating a vehicle on the manoeuvring area is the need to communicate with the aerodrome control tower.

1.5 The following guidance is considered to be “good practice” and is applicable to the majority of aerodromes. A generic framework is given for the four main areas described in 1.4. It is vital that both the theoretical formal training and practical experience cover all four areas. The aim of this guidance is to ensure consistency and a high degree of standardization in the manner in which a driver obtains an “airside driving permit”.

2. DEVELOPMENT OF A FRAMEWORK FOR A VEHICLE DRIVER TRAINING PROGRAMME

2.1 Airside vehicle driver

The following elements should be considered when developing programmes and knowledge requirements for an airside vehicle driver training programme:

- a) Airside driving permit (ADP)
 - 1) the issuing authority (normally the aerodrome operator), the validity of the permit in terms of time, conditions of use, and its transferability;
 - 2) ownership of the permit and control and audit of permit issue;
 - 3) local enforcement and driving offence procedures; and
 - 4) relationship to State driver licensing system.
- b) National legislation and regulation
 - 1) government/State regulations related to general vehicle driving licences;
 - 2) State/regional/local government requirements; and
 - 3) national aviation safety authority requirements/guidance for driving airside.
- c) Aerodrome regulations and requirements
 - 1) rules of the air and ATC procedures applicable to aerodromes as they relate to vehicles, particularly rights of way;
 - 2) specific aerodrome regulations, requirements and local instructions;
 - 3) local methods used to disseminate general information and instructions to drivers; and
 - 4) local methods used to disseminate information regarding works in progress.
- d) Personal responsibilities
 - 1) agreed national or airport requirements concerning fitness to drive (medical and health standards);
 - 2) issue and use of personal protective equipment such as high visibility clothing and hearing protection;
 - 3) general driving standards;
 - 4) no-smoking/no-drinking requirements airside;
 - 5) responsibilities with respect to foreign object debris and fuel/oil spillage; and
 - 6) the responsibility to ensure that a vehicle is suitable for the task and is used correctly.

e) Vehicle standards

- 1) condition and maintenance standards agreed at the aerodrome and/or national level;
- 2) the requirement to display obstruction lights and company insignia;
- 3) the requirement for, and content of, daily vehicle inspections;
- 4) agreed standards of aerodrome and company vehicle fault reporting and rectification;
and
- 5) local requirements for the issue and display of airside vehicle permits.

f) General aerodrome layout

- 1) the general geography of the local aerodrome;
- 2) aviation terminology used such as runway, taxiway, apron, roads, crossings, runway-holding points;
- 3) all aerodrome signs, markings and lighting for vehicles and aircraft;
- 4) specific reference to signs, markings and lighting used to guard runways and critical areas;
and
- 5) specific reference to any controlled/uncontrolled taxiway crossing procedures.

g) Hazards of general airside driving

- 1) speed limits, prohibited areas and no parking regulations;
- 2) the danger zones around aircraft;
- 3) engine suction/ingestion and blast, propellers and helicopters;
- 4) aircraft refuelling;
- 5) foreign object debris and spillages;
- 6) vehicle reversing;
- 7) staff and passengers walking across aprons;
- 8) air bridges and other services such as fixed electrical ground power;
- 9) the general aircraft turnaround process;
- 10) aircraft emergency stop and fuel cut-off procedures;
- 11) hazardous cargo;
- 12) local vehicle towing requirements;

- 13) requirements for driving at night; and
 - 14) requirements for driving in adverse weather conditions, particularly low visibility.
- h) Local organizations
- 1) the role of the aerodrome operator in setting and maintaining standards;
 - 2) the national aviation safety authority and its responsibilities;
 - 3) the national and/or local police and their involvement with airside driving; and
 - 4) other enforcement authorities dealing with vehicles, driving, health and safety.
- i) Emergency procedures
- 1) actions and responsibilities in a crisis situation (any accident or significant incident occurring on the airport);
 - 2) action in the event of a vehicle accident;
 - 3) specific action in the event of a vehicle striking an aircraft;
 - 4) action in the event of fire;
 - 5) action in the event of an aircraft accident/incident; and
 - 6) action in the event of personal injury.
- j) Communications
- 1) radio procedures and phraseologies to be used, if applicable;
 - 2) light signals used by ATC;
 - 3) procedures to be used by vehicle drivers if lost or unsure of position;
 - 4) local emergency telephone numbers; and
 - 5) how to contact the local aerodrome safety unit.
- k) Practical training (visual familiarization)
- 1) airside service roads, taxiway crossings and any restrictions during low visibility;
 - 2) aprons and stands;
 - 3) surface paint markings for vehicles and aircraft;
 - 4) surface paint markings that delineate the boundary between aprons and taxiways;
 - 5) signs, markings and lighting used on the taxiway that indicate the runways ahead;
 - 6) parking areas and restrictions;

- 7) speed limits and regulations; and
- 8) hazards during aircraft turnarounds and aircraft movements.

2.2 Manoeuvring area vehicle driver

2.2.1 All drivers expected to operate on the manoeuvring area of an aerodrome should obtain an ADP covering the programme in 2.1. Any driver expected to drive on the manoeuvring area should also obtain an agreed period of experience in general airside driving before training to operate on the manoeuvring area.

2.2.2 The number of drivers permitted to drive on the manoeuvring area should be kept to the minimum necessary, and the functions they perform should normally be within the following areas of responsibility:

- a) runway inspections;
- b) bird control;
- c) rescue and fire fighting;
- d) essential engineering;
- e) ATC;
- f) snow clearing and de-icing; and
- g) airline or handling agent for aircraft towing and runway crossings.

2.2.3 All drivers should be trained initially and be provided with refresher training at agreed intervals with particular additional emphasis on the following areas:

- a) Aerodrome regulations and requirements
 - 1) air traffic control rules, right of way of aircraft;
 - 2) the definition of movement areas, manoeuvring areas, aprons, stands; and
 - 3) methods used to disseminate information regarding works in progress.
- b) Air traffic control
 - 1) the aerodrome control function and area of responsibility;
 - 2) the ground movement control function and area of responsibility;
 - 3) normal and emergency procedures used by ATC relating to aircraft;
 - 4) ATC frequencies used and normal handover/transfer points for vehicles;
 - 5) ATC call signs, vehicle call signs, phonetic alphabet, and standard phraseology; and
 - 6) demarcation of responsibilities between ATC and apron control if applicable.

c) Personal responsibilities

- 1) fitness to drive with particular emphasis on eyesight and colour perception;
- 2) correct use of personal protective equipment;
- 3) responsibilities with respect to foreign object debris; and
- 4) responsibilities with respect to escorting other vehicles on the manoeuvring area.

d) Vehicle standards

- 1) responsibility for ensuring the vehicle used is fit for the purpose and task;
- 2) requirements for daily inspection prior to operating on the manoeuvring area;
- 3) particular attention to the display of obstruction and general lights; and
- 4) serviceability of all essential communications systems with ATC and base operations.

e) Aerodrome layout

- 1) particular emphasis on signs, markings and lighting used on the manoeuvring area;
- 2) special emphasis on signs, markings and lighting used to protect the runway;
- 3) description of equipment essential to air navigation such as instrument landing systems (ILS);
- 4) description of protected zones related to ILS antenna;
- 5) description of ILS protected areas and their relation to runway-holding points;
- 6) description of runway instrument/visual strip, cleared and graded area; and
- 7) description of lighting used on the manoeuvring area with particular emphasis on those related to low visibility operations.

f) Hazards of manoeuvring area driving

- 1) engine suction/ingestion and blast, vortex, propellers, and helicopter operations;
- 2) requirements for driving at night;
- 3) requirements for operations in low visibility and other adverse weather conditions;
- 4) procedures in the event of a vehicle or radio becoming unserviceable while on the manoeuvring area; and
- 5) right of way of aircraft, towed aircraft and rescue and fire fighting vehicles in an emergency.

- g) Emergency procedures
 - 1) actions to be taken in the event of a vehicle accident/incident;
 - 2) actions to be taken in the event of an aircraft accident/incident;
 - 3) actions to be taken if foreign object debris or other debris is found on runways and taxiways;
 - 4) procedures to be used by vehicle drivers if lost or unsure of their position; and
 - 5) local emergency telephone numbers.
- h) Aircraft familiarization
 - 1) knowledge of aircraft types and ability to identify all types normally operating at the aerodrome;
 - 2) knowledge of airline call signs; and
 - 3) knowledge of aircraft terminology relating to engines, fuselage, control surfaces, undercarriage, lights, vents, etc.
- i) Practical training (visual familiarization)
 - 1) all runways (including access and exit routes), holding areas, taxiways and aprons;
 - 2) all signs, surface markings and lighting associated with runways, holding positions, CAT I, II and III operations;
 - 3) all signs, surface markings and lighting associated with taxiways;
 - 4) specific markings that demarcate the boundary between aprons and manoeuvring areas;
 - 5) navigation aids such as ILS, protected area, antenna, RVR equipment and other meteorological equipment;
 - 6) hazards of operating around aircraft landing, taking off or taxiing; and
 - 7) any locally used naming convention for particular areas or routes.

2.3 Radiotelephony (RTF)

2.3.1 The movement of vehicles on the manoeuvring area is subject to authorization by ATC. Depending upon the complexity of the aerodrome, ATC may operate a number of frequencies. Typically the aerodrome (tower) controller will be responsible for all vehicles operating on the runway, and the ground controller will be responsible for all vehicles operating on the taxiways. It is essential to fit all vehicles that operate on the runway with the appropriate radio communication frequencies.

2.3.2 All drivers of vehicles operating on the manoeuvring area should be expected to display a high degree of competence with respect to the use of RTF phraseology and ICAO language requirements for air-ground radiotelephony communications. Emphasis should be placed on the following areas:

a) Hierarchy of message priority

message priorities, an understanding of distress, alerting, control and information messages.

b) Phonetic alphabet

correct pronunciation of letters, words and numbers.

c) Standard phraseology

- 1) emphasis on the need for drivers to use standard phraseology; and
- 2) the need for caution with certain phrases such as “cleared” and “go ahead”.

d) Call signs for aircraft, ATC and vehicles

- 1) an understanding of terminology and acronyms used by ATC and pilots;
- 2) knowledge of the airline call signs used at the aerodrome; and
- 3) knowledge of vehicle call signs and that they should be appropriate to their function (e.g. “Operations”, “Fire”, “Engineer”) and numbered when more than one vehicle is used (e.g. “Fire 2”).

e) Readback procedures

the need for vehicle drivers to use standard readback, in the same manner as pilots, for instructions such as “enter/cross the runway”, and if conditional clearances are used.

f) Readability scale

understanding and use of the readability scale from 1 to 5.

g) Lost or uncertain of position

understanding of local procedures for vehicle drivers lost or uncertain of their position on the manoeuvring area.

h) Vehicle breakdown

- 1) local procedure for vehicle breakdown on runways and taxiways; and
- 2) procedure for notifying ATC of vehicle failure.

i) Radio failure

- 1) understanding of the local procedure if radio failure occurs while on the runway or taxiway; and
- 2) understanding of the light signals that can be used by ATC to pass instructions to vehicles.

j) Transmitting techniques and use of RTF

- 1) understanding the reasons for listening out prior to transmitting;

- 2) use of standard phraseology and ICAO air-ground radiotelephony communications procedures (there are no language requirements for vehicle drivers); application of Annex 14, Volume I, 9.7 (Aerodrome vehicle operations);
 - 3) words and sounds to be avoided;
 - 4) correct positioning of microphones to avoid voice distortion;
 - 5) avoidance of “clipped” transmissions;
 - 6) awareness of regional accents and variations of speech; and
 - 7) speed of delivery of RTF phraseology.
- k) Portable radios
- 1) correct use of radios;
 - 2) effective range and battery life;
 - 3) screening/shielding effects on the aerodrome; and
 - 4) use of correct call signs, either related to a vehicle or a person.
- l) Safety while using radios
- 1) local instructions regarding the use of portable radios and hand-held microphones while driving a vehicle; and
 - 2) local instructions on the use of mobile telephones while operating airside.

3. GENERAL CONSIDERATIONS

3.1 All three training programmes should consist of two main parts, the first being the classroom/theoretical part which should include the use of prepared presentations, maps, diagrams, videos, booklets and checklists as appropriate. The second part should involve practical training and visual familiarization on the aerodrome with a suitably trained person. This practical tuition will take time depending upon the complexity of the aerodrome. Following initial training, a programme of refresher training should be organized after an agreed period of time.

3.2 Where the responsibility for vehicle driver training (apron and manoeuvring area) and RTF training is delegated to a third-party provider, the aerodrome management should institute a programme of audits, as part of its safety management system, to ensure that agreed standards are being maintained.

3.3 The framework for a vehicle driver training programme outlined in paragraph 2 is intended only as a guide and is based on current “good practice”. It is incumbent on aerodrome operators to regularly review their vehicle driver training programmes against programmes and documentation available across the industry.

4. REFERENCES

Airports Council International (ACI)

- (World) Apron Safety Handbook
- (World) Apron Signs and Markings Handbook

International Air Transport Association (IATA)

- Airport Handling Manual (AHM), current edition

International Civil Aviation Organization (ICAO)

- Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations*, Chapter 9, 9.7, Aerodrome vehicle operations, and Attachment A, paragraph 18, Operators of vehicles
- *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), Chapter 7, Procedures for Aerodrome Control Service
- *Safety Management Manual (SMM)* (Doc 9859)

United Kingdom

- Airport Operators Association — Airside Driver Training Scheme
 - Civil Aviation Authority CAP 642 — Airside Safety Management
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