



Public Authority for Civil Aviation

# GUIDANCE FOR AIRSIDE SAFETY AND OPERATIONS

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**FORWARD**

The Sultanate of Oman as a Contracting State to the Convention on International Civil Aviation has an obligation to the international community to ensure that the Aerodromes in Oman are maintained as per the standards of the Annex 14 to the Convention.

This manual provides guidance with regard to “Safe Operating Practices” that should be respected by all those engaged in airside activities of an aerodrome.

The advice and guidance specified in this document can be described as “accepted good practices” and represents an acceptable way of carrying out airside activities. It illustrates how risks are identified and provides advice about how apron safety can be maintained within the context of a systematic and structured management approach.

This Manual is intended to provide guidance for minimum acceptable practices for all those engaged in airside operations.

Users of this document must be aware of other statutory provisions that may apply to their activities, for example, the responsibility to report aircraft accidents and certain occurrences. It is the responsibility of all those involved with the operation of aerodromes, aircraft and the provision of services to be familiar with any such legal obligations.

This document is continually subject to revisions and amendments if required.

This manual is effective from 15<sup>th</sup> October 2018.

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**Director General of Civil Aviation Regulation**

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## Definitions and Abbreviations

### Definitions:

**Apron** A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

**Manoeuvring Area** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

**Movement Area** That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

**Runway** A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

**Taxiway** A defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

- a) **Aircraft stand taxilane.** A portion of an apron designated as a taxi route intended to provide access to aircraft stands only.
- b) **Apron taxiway.** A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron.
- c) **Rapid exit taxiway.** A taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimising runway occupancy times.

### Abbreviations:

<b>AGL</b>	Aeronautical Ground Lighting
<b>APU</b>	Auxiliary Power Unit
<b>AT C</b>	Air Traffic Control
<b>CCTV</b>	Closed Circuit Television
<b>dB</b>	decibels
<b>dB(A)</b>	decibels A-weighted (to reflect the response of the human ear)
<b>FEGP</b>	Fixed Electrical Ground Power
<b>FOD</b>	Foreign Object Debris or Foreign Object Damage
<b>GPU</b>	Ground Power Unit
<b>IATA</b>	International Air Transport Association
<b>ICAO</b>	International Civil Aviation Organisation
<b>ILS</b>	Instrument Landing System
<b>MEWP</b>	Mobile Elevating Working Platform
<b>MOR</b>	Mandatory Occurrence Report
<b>PACA</b>	Public Authority for Civil Aviation
<b>POB</b>	Persons on board
<b>PPE</b>	Personal Protective Equipment
<b>RT</b>	Radiotelephone /Radiotelephony
<b>SMS</b>	Safety Management System
<b>SOP</b>	Standard Operating Procedure
<b>VDGS</b>	Visual Docking Guidance System
<b>Cul-de-sac</b>	A path that has a closed end

## Chapter 1 General Principles of Airside Safety Management

### 1 Introduction

- 1.1 Without adequate safety management, legal and moral obligations cannot be met, and business losses may be incurred, including significant financial losses. Examples of such losses include:
- a) compromised aircraft safety and the potential for a catastrophic aircraft accident;
  - b) costs of replacing and compensating injured employees or others;
  - c) contractual penalties or loss of revenue if flights are delayed;
  - d) damaged assets (including aircraft and equipment);
  - e) loss of reputation;
  - f) loss of existing and future contracts.
- 1.2 The minimum key elements in a Safety Management System (SMS) acceptable to PACA are:
- a) Safety policy and objectives.
  - b) Safety risk management.
  - c) Safety assurance.
  - d) Safety promotion
- 1.3 The precautions that protect aircraft from damage on the ramp often also protect people working on the ramp from harm, and vice versa. Consequently, the management of the health and safety of people (occupational health and safety) and the management of safety of aircraft share common themes. There are key elements which should form part of any system for managing safety:
- a) A system that sets the targets and standards to be achieved, and makes clear how people understand their responsibilities and accountabilities.
  - b) A way of identifying hazards, assessing risks and introducing control measures.
  - c) A method of monitoring that controls are in place and are effective. This should include proactive monitoring, such as inspection, reactive monitoring, such as accident investigation and data trend analysis, and audit and review of standards.
  - d) Documenting the procedures outlined above and relevant key information, including policies, risk assessments and reports from monitoring activities

### 2 Aircraft Safety

- 2.1.1 Organizations may also have specific responsibilities to ensure aircraft safety. Good management of aircraft safety is vital if these responsibilities are to be discharged satisfactorily.
- 2.1.2 Key responsibility amongst these are:
- a) The responsibility of the aerodrome operator to provide and maintain an aerodrome which is safe for aircraft to use.
  - b) The responsibility of the aircraft operator (airline) to operate aircraft in a safe manner

2.1.3 Every individual at an aerodrome has a duty to do what they can to ensure that aircraft are not damaged.

2.1.4 The responsibilities for aircraft safety on the ground at aerodromes are essentially placed on the aerodrome operator. However, all aerodrome users, including aircraft operators, approved maintenance organisations and ground handlers, have a part to play in ensuring the safety of aircraft.

## 2.2 “So far as is reasonably practicable”

2.2.1 To carry out a duty “so far as reasonably practicable” means that the degree of risk in a particular activity or environment can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid or reduce the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur them to prevent it, they are not obliged to do so.

## 2.3 Risk assessment

2.3.1 It is implicit when considering what is reasonably practicable, that hazards have to be identified and risks assessed.

2.3.2 The primary function of identifying the hazards and assessing the risks airside is to determine whether enough has been done to prevent an incident or accident that may lead to fatalities, injuries and ill health and/or damage to aircraft. In this way, risk assessments assist in determining whether enough has been done to meet the requirements of aviation law and health and safety legislation and are a key component in any system for managing aircraft safety and occupational health and safety.

2.3.3 In brief, when undertaking a risk assessment, the following key questions should be asked:

- a) What are the hazards to people and aircraft from the activity, location or task?
- b) Who or what can be harmed and how?
- c) What are the risks? Are they being controlled? If not, what more needs to be done, by whom, and by when?
- d) Have the results of the assessment been recorded?
- e) Does the assessment need to be reviewed and revised? If so when and how often?

**Note:** For detailed risk assessment methodology, refer PACA Manual on Safety Risk Assessment / Aeronautical Study, Manual Number - 8002.

2.3.4 To re-iterate, a hazard is anything which can cause harm or damage, a risk is the chance, great or small, that people or aircraft will be harmed or damaged by a hazard. This is a function of the likelihood (probability) that harm will occur and the severity of that harm.

- 2.3.5 The general principles for prevention consists of a broad hierarchy of measures as shown below:
- a) Avoiding the risk.
  - b) Evaluating those risks which cannot be avoided.
  - c) Combating risks at source.
  - d) Adapting the work to the individual.
  - e) Adapting to technical progress.
  - f) Replacing the dangerous by the non-dangerous or the less dangerous.
  - g) Developing a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment.
  - h) Giving collective protective measures priority over individual protective measures.
  - i) Giving appropriate instructions to staff.

## 2.4 Aerodrome Certification

- 2.4.1 The duty of the aerodrome operator is to provide and maintain an aerodrome which is safe for aircraft and people to use.
- 2.4.2 In relation to aircraft safety, an Aerodrome Certificate is issued by the PACA when it is satisfactorily established that the prospective aerodrome operator is competent in operating the aerodrome in such a way as to ensure the safety of aircraft. This includes not only the physical layout of the aerodrome, but a variety of other elements that can affect aircraft safety. The CAR 139, Chapter 11 sets out the requirements and obligations for the grant of an Aerodrome Certificate.
- 2.4.3 Every Aerodrome Certificate holder is required to maintain an Aerodrome Manual, an integral part of the aerodrome operator's system to manage safety. The Aerodrome Manual complements the aerodrome operator's approach to quality management, including the management of the business. The Aerodrome Manual should be disseminated widely so that everyone who undertakes tasks that can affect aircraft safety is familiar with the relevant parts of the document.
- 2.4.4 The aerodrome operator must provide an aerodrome which is safe for people to use, as far as reasonably practicable.
- This includes:
- a) an aerodrome layout which is safe, for example such that pedestrians and vehicles can move about safely
  - b) equipment provided by the aerodrome operator which is safe, for example aerobridges and fixed electrical ground power, if available.
- 2.4.5 The people who need to be protected include the aerodrome operator's own employees, the staff of contractors and tenants, visitors, members of the travelling public

- 2.4.6 Many precautions will protect both people and aircraft; these include:
- a) Properly planned and adequately maintained infrastructure
  - b) Adequate standards of specification and maintenance of equipment which interfaces with the aircraft
  - c) Adequate standards of specification and maintenance for vehicles, whether directly serving aircraft or not
  - d) Adequate driver and operator training
  - e) Properly planned and executed aircraft turnarounds
  - f) Good co-operation and co-ordination between all aerodrome users.
- 2.4.7 The operators of aerodromes should also take a proactive role in monitoring standards, for example by introducing aerodrome wide safety assurance systems or audits of companies working at their aerodrome.

#### **Aircraft Operators (Airlines)**

- 2.4.8 The operator of the aircraft (usually the airline) will need to consider the health and safety of persons not in its employ who are affected by its activities or the activities of its contractors, as well as that of its own employees. It also needs to consider the risks to the safety of its aircraft.
- 2.4.9 Airlines can decide to co-operate with each other, the aerodrome operator and service providers to agree uniform standards for arrangements, performance and monitoring. This may reduce the time and effort required for individual airlines to develop such standards.

#### **Service Providers**

- 2.4.10 All staff engaged in apron operations have to work quickly to complete their respective tasks in the time allowed for aircraft turnaround. However, all those involved should take adequate account of each other's safety needs, for instance catering or baggage vehicles should not block the escape path of a refuelling vehicle, but this vehicle should not be parked in such a way as to hinder or prevent other vehicles having safe access to the aircraft. Published guide lines from recognized organizations may be used in apron service provisions
- 2.4.11 Where a handling agent has been appointed, service providers should co-ordinate with them to ensure that safety procedures are understood and implemented by the handling agent. They should be working to an agreed plan for the turnaround and the service provider should ensure that they have a copy of this plan. In addition, the service provider should have a supervisor or leading hand who can control the various stages of its contribution to the turnaround.
- 2.4.12 Where there is no handling agent it is important that there is still someone in control of the work and an agreed plan for the turnaround. Where this creates problems, these should be raised with the airline, aerodrome operator or other service providers, as appropriate.

## Chapter 2 Managing the Risks

### 1 Introduction

- 1.1 Particularly at large aerodromes the apron is a busy place of work. People and aircraft face many potential hazards, particularly from the movement and operation of aircraft and ground vehicles. Failure to eliminate or control such hazards may lead to accidents to aircraft and/or people.
- 1.2 It is recognized that much of the guidance below may appear to be geared towards large aerodromes. However, safety management of the apron will apply to any aerodrome, regardless of size, only the range and magnitude of operations will vary. Managers will need to consider the degree of applicability of the detailed material presented in this Chapter and, indeed, the use of any suitable control measures additional to those described. The hierarchy of controls outlined in Chapter 1 paragraph 2.3.5 should be kept in mind when considering the most appropriate combination of control measures.

### 2 Potential Hazards on the Apron

- 2.1 This section discusses some of the potential hazards commonly encountered on the apron. It is important that all aircraft operations, including turnaround times should take full account of the need for safe working practices. Failure to do this may result in short cuts and bad practice which can lead to accidents, and damage to assets.
- 2.2 Common hazards at aerodromes which are discussed in the following paragraphs, include:
- a) Vehicles striking aircraft and/or people
  - b) Hazards to passengers on the apron
  - c) Moving aircraft (including aircraft on pushback or being towed)
  - d) Live aircraft engines (including helicopters)
  - e) Falls and falling objects
  - f) Operation of aerobridges
  - g) Manual handling
  - h) Noise
  - i) Work equipment (including machinery)
  - j) Hazardous substances and Dangerous Goods (including radioactive substances)
  - k) Inadequate lighting, glare or confusing lights
  - l) Adverse weather conditions
  - m) Electrical hazards
  - n) Faults and defects.
  - o) Others.
- 2.3 Dealing effectively with these hazards will require good management of aircraft and occupational safety, as well as co-operation and co-ordination between the aerodrome operator, ground handlers, airlines and other aerodrome users.

### 3 Vehicles Striking aircraft and/or People

- 3.1 Airside vehicles constitute an ever present hazard to both people and aircraft and extreme vigilance is necessary for all those working airside. It may be possible to eliminate the risks to people in certain areas of the aerodrome by keeping vehicles and pedestrians apart where possible, by the use of aerobridges, for example.
- 3.2 Even with such physical measures in place, a safe system of work should be developed. This provides an opportunity for partnership in planning involving all those with a direct interest in aircraft and apron safety. Such a system shall include:
- a) Traffic rules governing such issues as speed limits, especially on approach to aircraft and in the vicinity of people
  - b) Correct vehicle maintenance, especially of safety critical components such as brakes and steering
  - c) Driver training and refresher training
  - d) Driving standards
  - e) Competence/attitude of drivers
  - f) Apron management
  - g) Provision of assistance and/or audible warning devices for reversing vehicles (although such audible warning devices might not be fully effective in the vicinity of high ambient noises, or if people are wearing hearing protection)
  - h) Procurement of suitable vehicles, e.g. vehicles offering good driver vision
  - i) Regular monitoring of standards
  - j) Safe parking of vehicles in such a way as to prevent interference with aircraft manoeuvring or other aerodrome users
  - k) Encouragement of good practice
  - l) The provision and wearing of high visibility clothing
- 3.3 Where more than one company is attending an aircraft, effective co-ordination and cooperation of contractors is essential to prevent vehicles striking people, other vehicles, equipment or aircraft. Airlines and aerodrome operators have a key role in this as part of their systems for assessing, controlling and monitoring their contractors. The turnaround plan is likely to be a key document in ensuring that vehicle movements are controlled around aircraft.
- 3.4 It is likely that a combination of measures, including segregation of people from vehicles and other hazards where reasonably practicable, will be required to control the risks. The exact combination may vary with location, activities and perhaps even the time of day. The effects of changes to the aerodrome, for example due to temporary works or the effect of new buildings will need to be considered, preferably at an early stage. Consequently, it is important that the risks from vehicles are assessed, as part of an overall system for managing aircraft safety.
- 3.5 Advice on aerodrome signage is given in paragraphs 6.9.1 to 6.9.7. Further advice on equipment, including vehicles is given in paragraphs 12.1.1 to 12.4.2 and guidance on lighting is given in paragraphs 14.1 to 14.9

#### 4 Hazards to passengers on the apron

- 4.1 At aerodromes passengers may have to walk across the apron between the terminal building and the aircraft. This may expose passengers to hazards such as vehicles moving across the apron. The risks of injury are increased as passengers are vulnerable and generally unaware of the dangers around them. The aerodrome operator, the airline operator and ground handlers all have responsibility for ensuring that the movement of passengers is strictly supervised and controlled.
- 4.2 The aerodrome operator has a responsibility to provide an aerodrome that is safe for its users. In designing the aerodrome layout and facilities, the aerodrome operator is able to make a significant contribution to the safety of passengers. For example, when the aerodrome operator provides aerobridges, passengers are not exposed to any of the hazards on the apron. Where the provision of aerobridges are not reasonably practicable, the aerodrome operator should ensure that the layout and marking of airside areas enables the safe movement of passengers to and from the terminal areas. The guidance in the preceding section is particularly relevant in this regard.
- 4.3 The steps that can be taken to ensure passenger safety on the apron will vary from aerodrome to aerodrome and from stand to stand, but will include the following measures:
- a) Passengers should not be permitted to roam free;
  - b) Where possible, the aerodrome operator should ensure that permanent traffic routes, e.g. aerodrome roads or taxiways, do not dissect the path between the terminal and the aircraft;
  - c) Where this is not possible the aerodrome operator should provide safe routes marked on the apron surface (including safe crossing points for the apron roads) and clear, unambiguous signs to indicate the route to be followed. Positive control of vehicular traffic may be required from the airline or handling agent; co-ordination and co-operation with the aerodrome operator may be necessary to achieve this;
  - d) Safe routes can also be indicated by the use of moveable barriers and chains to create a temporary safe route across the apron for passengers to follow. When not in use, it is important that such equipment is properly stowed to ensure that it does not become a source of FOD;
  - e) Routes to the aircraft should not pass below aircraft wings or beneath fuel vents, or close to propellers or rotors of the aircraft they are boarding/disembarking or those of aircraft on adjacent stands. Routes should also be clear of vehicular traffic around the aircraft, electrical cables, fuel hoses and other ramp equipment;
  - f) Restrictions should be placed on the running of aircraft engines in the vicinity of passengers and positive measures should be taken to protect them from excessive engine noise and jet blast;
  - g) Staff should be positioned on the apron to ensure that passengers follow a safe path to the terminal/aircraft. If necessary, passengers should be led from the aircraft or terminal;

- h) Passengers shall be informed of the safe route they should follow into the terminal/aircraft, e.g. by public announcement before they leave the aircraft/terminal;
  - i) For remote stands in a different location to the terminal lounge, passengers shall be transported to the aircraft by buses; and
- 4.4 Relying solely on informing passengers of safe routes and marking them out is unlikely to be adequate for commercial passenger operations. Whenever passengers are to walk across the apron there should be sufficient staff to ensure that passengers do not wander away from safe routes. If there is insufficient staff, then passengers may need to be disembarked or boarded in small groups which can be adequately controlled by the available staff.
- 4.5 Consideration should be given to unusual circumstances, such as evacuation of terminal buildings or aircraft, in which passengers and other members of the public may be required to enter airside areas. Procedures should ensure that responsible persons who are familiar with the hazards that exist in airside areas are present to supervise passengers and members of the public as soon as practicable wherever there is emergency egress.

## **5 Moving Aircraft**

- 5.1 The movement of aircraft on the ground, either under their own power or towed, creates a number of hazards that are unique to the aviation industry. In particular operating jet or propeller engines can cause fatal or serious injuries and extensive damage to equipment or other aircraft.
- 5.2 The appendices to this Chapter consist of a series of model safety instructions which are constructed to include relevant points or issues of the described operation. The models are offered for consideration as a strong basis for the drafting of suitable instructions for each individual aerodrome's own operation.

## **6 Aircraft Parking Safety Practices**

### **6.1 Operation of the stand**

- 6.1.1 The following paragraphs describe typical responsibilities and accountabilities for the operation of aircraft on and off stand. Each aerodrome must establish its own hierarchy of responsibilities and then work to establish agreed safe working practices within that framework.
- 6.1.2 The aerodrome operator is responsible for the rules and procedures that safeguard the arrival and departure movements of aircraft on stands and for the dissemination of information to airline/company operators. Information documents/instructions and requirements should be based upon the subjects described in the following paragraphs 6.2 to 6.9.

## 6.2 Visual Docking Guidance System (VDGS)

- 6.2.1 Where a VDGS is provided, the aerodrome operator should arrange for the stopping guidance element to be calibrated and indicated, for all selected user aircraft, in a clear and unambiguous fashion. The azimuth guidance should be regularly checked for accuracy. Details of the VDGS available at the aerodrome should be promulgated in Oman Aeronautical Information Publication.

## 6.3 'Ownership' of Stand/Parking Bay

- 6.3.1 In general the aerodrome operator has the responsibility to ensure that aircraft stands remain serviceable, clean and free from obstruction. However, in the busy operation of the apron, with minute to minute changes of status and vehicle/equipment movements, there will also be specific responsibilities for handling staff.
- 6.3.2 When a stand is allocated for use to an aircraft operator and the arrival of their aircraft on stand is imminent, it is usually the responsibility of the handling staff to ensure that the stand and clearways are free from obstruction by vehicles or equipment. These staff should also ensure that the aerobridge(s) is (are) fully retracted or correctly parked with the drive wheels in the parking box provided (see paragraphs 9.7 to 9.10) before the arrival of the aircraft. These actions must be completed by the handler before the VDGS is switched on. Switching on the VDGS will normally signify to the aircraft commander that these actions have been completed and it is safe for the aircraft to enter the stand. Once the VDGS is switched on, the stand must remain under supervision until the aircraft arrives on stand in order to ensure that it remains safe for use by the aircraft. If for any reason the stand becomes 'unsafe' or unattended before the aircraft has arrived on stand the VDGS shall be switched off or 'STOP' indicated using the Emergency Stop System.
- 6.3.3 A supervisor should be nominated to control and manage the various states of the operation and should be clearly identified to all staff working on the stand. The supervisor should be working to an agreed plan for the turnaround and shall have sufficient authority to control the activities around the aircraft. The supervisor should be present throughout the arrival, handling and departure procedures.
- 6.3.4 The plan for the turnaround should describe how the turnaround will be carried out. It should enable every person involved to carry out their work safely and without endangering others or the aircraft. In the event of other agencies being involved in this, they should have a copy of the said plan for them to understand their roles and responsibilities. The following points shall be included in the plan:
- a) how the supervisor for the turnaround or handling agent will carry out their work;
  - b) common arrangements, such as what to do in an emergency and minimum personal protective equipment needs;
  - c) the signal that it is safe for vehicles, equipment and people to approach the aircraft;

- d) the order in which they should approach;
- e) the positions they should take up, to make sure everyone can get to and from the aircraft safely and without damaging the aircraft;
- f) any differences between aircraft and stands which affect how the turnaround should be carried out; and
- g) ensuring clear and rapid egress for aircraft refuelling vehicles.

6.3.5 When turnaround operations have been completed and the aircraft is ready to depart airline staff should ensure that the stand is free from obstruction by vehicles and equipment before push-back commences.

6.3.6 Before leaving the stand handling staff must ensure that the VDGS is switched off (If required).

#### **6.4 Aircraft Parking Safety Considerations**

6.4.1 In general, some of the greatest threats to the safety of an arriving aircraft are carelessly driven vehicles, indiscriminately parked or stowed ground equipment and misleading markings or signals. Guidance for vehicle operations are contained in Chapter 3 of this publication. Ground equipment should be/remain parked in the equipment areas provided, service vehicles and baggage trolleys should hold clear and equipment such as ground power units, or any other gear with trailing cables or hoses should be fully retracted and stowed. The stand must be clear of all obstructions when an aircraft is in motion. Other considerations for the safe docking and parking of an aircraft are described in the following paragraphs. In areas or stands that can accommodate a number of variations of aircraft parking arrangements there are often complex signs or markings, only some of which are appropriate for specific aircraft. It is important to minimise the possibility of this information being misinterpreted by a pilot by ensuring that information that is not relevant for a particular aircraft is suppressed if possible, and that all staff who may be involved in activities in the area are fully trained in the appropriate configuration for all aircraft types that may use the stand.

##### **Control of the Operation**

6.4.2 Handling staff are responsible for many aspects of the control of the parking/docking operation once the aircraft has entered the stand, although where a marshaller is responsible for guiding the aircraft on to the stand local instructions should clearly indicate the point at which responsibility is transferred from the marshaller to the handling staff. The nominated supervisor should control the progress of the operation and the actions of the handling team.

##### **Brakes/Chocks**

6.4.3 On arrival, when the aircraft is positioned to the pilot's satisfaction and finally stopped, the appropriate aircraft wheel-brakes should be engaged by the pilot until the aircraft has been safely and properly chocked (emergency situations such as

dangerously hot or failed brakes will need to be dealt with under company procedures). Chocks should not be positioned until the pilot has indicated that the aircraft has finally stopped, and any propellers have stopped turning. In addition to hand signals, the pilot of a jet-engined aircraft will commonly indicate that it is safe to insert chocks by shutting down the engines. To avoid the possibility of the aircraft climbing its chocks, or chocks being ejected, ground stop-marks should not be used as a positive indication to insert chocks or that the aircraft has reached its final position. When not in use chocks shall be safely stowed and not left on the apron surface.

### **Flap and Control Surface Movement**

- 6.4.4 Staff should be aware of the dangers of the movement of aircraft flaps and other under wing devices when an aircraft is on stand. These areas should be avoided by staff and vehicles and equipment should not be driven or parked in such a way that damage would be caused by flap and other control surface movements.

### **Wheels**

- 6.4.5 When an aircraft is in motion staff should keep well clear of all wheels to avoid becoming trapped. When an aircraft arrives on stand, tyres and particularly brake assemblies can remain very hot for some time. Ramp staff should exercise care when required to work in the vicinity of aircraft wheels. If there is some free movement of aircraft wheels, care must be exercised to ensure that clothing and hands or feet do not become trapped.

### **Control of passengers**

- 6.4.6 See paragraphs 4.1 to 4.4

### **Marshalling of aircraft**

- 6.4.7 The marshalling service is could be provided by an aerodrome operator or a handling agent. The principal considerations for are as follows.
- a) Only trained, experienced marshallers in regular marshalling practice should be permitted to marshal aircraft unsupervised;
  - b) Except where full self-manoeuvring is permitted, a marshalling service should be provided automatically on stands not equipped with VDGS or where the VDGS or other stand facilities have known unserviceabilities. A marshalling service should also be available on request;
  - c) In certain circumstances, such as a non-standard taxiway routing or on request from a visiting pilot, unfamiliar with the aerodrome, and/or in poor visibility, a 'Follow me' vehicle should lead the pilot to a marshaller or his parking place directly.

**Auxiliary Power Units (APU)/Ground Power Units (GPU)**

- 6.4.8 To reduce noise and contamination from oil and exhaust emissions, the running of all types of engines on the apron should be kept to the minimum necessary to maintain operational needs. The running of aircraft Auxiliary Power Units (APUs) and engine driven Ground Power Units (GPUs) should be strictly controlled to the minimum operational requirement. Airlines should be encouraged to use GPUs with the quietest engines available. At large aerodromes consideration can be given to the provision, on stand, of preconditioned air units to reduce the running of APUs for cabin conditioning.

**6.5 Aircraft Arrival Safety of the Stand**

- 6.5.1 Fundamental to the safe, smooth and professional management of an aircraft movement is the timely attendance of the dispatcher/aerobridge operator to initiate those actions necessary to promote a safe arrival sequence. A full functional check of the aerobridge should be completed in good time before the aircraft arrives. To maintain aircraft and personnel safety and to ensure that the prescribed safe clearances between aircraft and bridge are maintained the following precautions should be observed:
- a) Before the aircraft enters the stand, ensure by personal visual inspection that there are no potential hazards to a safe parking operation;
  - b) Before the aircraft enters the stand, the drive wheels of an apron-drive bridge must be positioned in the marked parking box provided.
  - c) Before the aircraft enters the stand, confirm that the stand is set up for the approaching aircraft type;
  - d) A careful check should be made to ensure that no vehicles or equipment are obstructing the horizontal or vertical movement of the bridge while ensuring that the aerobridge remains in the appropriate position;
  - e) The aerobridge cab should be adjusted vertically and in azimuth to suit the incoming aircraft type;
  - f) Only when the aircraft has stopped; the wheel chocks are in place; the engines have run down and the aircraft anti-collision beacon has been extinguished, can the aerobridge be driven from its parking position and docked to the aircraft;
  - g) Aircraft passenger doors should remain closed until the aerobridge had been docked, the canopy has been lowered on to the fuselage and the auto-leveller device has been set;
  - h) The aerobridge operator should remain in attendance in the cab until passenger disembarkation is completed.

**Emergency Stop System**

- 6.5.2 In order to deal with unexpected contingencies, failures and emergency situations on nose-in stands, consideration should be given to an indicator system to warn the pilot to make an emergency stop. Where signs are provided they should be easily and immediately visible to pilots. The sign should be conspicuous and may take the form of a red flashing electronic warning sign indicating EMERGENCY STOP or STOP.

The emergency stop warning device should be readily accessible and be capable of being activated quickly both from the aerobridge cab and from apron level.

### Stop Short System

- 6.5.3 On stands equipped with VDGS, an indicator system should be provided to advise the pilot to Stop Short; this is normally because the aerobridge is unserviceable and passenger steps must be used. Other unserviceabilities or works at the head of stand may also give rise to Stop Short conditions. The Stop Short indication may be an electronic sign associated with the VDGS display, or conspicuous painted signs may be used, normally fixed to the aerobridge. In Stop Short conditions a marshalling service should be provided.

### Location of Controls

- 6.5.4 The determination of the best positions for VDGS, Stop Short and Emergency Stop switches may vary from aerodrome to aerodrome, or even from stand to stand. However, it should be an objective of the safety system to standardise the location of switches on all stands at a particular aerodrome. The following locations offer the best control positions:

Emergency Stop switches: One gated switch located in the aerobridge cab and clearly marked. A second gated switch, working in parallel with the first, located in a prominent and easily reached position at the head of stand and conspicuously marked. A responsible person should be positioned adjacent to each switch provided until the aircraft has successfully parked.

Stop Short and VDGS Switches: These switches can be grouped together. One set of switches should be located in the aerobridge cab and clearly marked. A second set of switches working in parallel with the first should be located at a prominent easily reached position at stand level and conspicuously marked. Which of these positions is the primary VDGS switching position will depend on which position gives the operator the best view of the stand area.

**NOTE:** *It is important the VDGS controls are located in a position such that the operator has an unimpeded view of the specific apron parking position whilst the controls are being used.*

## 6.6 Aircraft Departure

- 6.6.1 To avoid damage and to maintain the prescribed safe clearance from the aerobridge the following precautions must be observed before aircraft push back is initiated:
- The aircraft passenger door must be closed;
  - The aerobridge canopy and auto-leveller must be retracted;
  - The aerobridge safety barrier should be erected or the doors should be closed;
  - An apron drive bridge should be withdrawn and the drive wheels placed in the parking box provided;
  - Where applicable a rail drive bridge should be fully retracted; and

- f) A check should be made that there are no vehicles, equipment or personnel obstructing the movement of the aerobridge before it is moved. A check should also be made to confirm that the ground equipment is configured to meet any specific settings for the aircraft type.
- 6.6.2 Model operating procedures that may be used in dealing with the use of a Visual Docking Guidance System are included at Appendix B to this Chapter.

## **6.7 Self-manoeuving of aircraft on the apron Stand Configurations (When required)**

- 6.7.1 Self-manoeuving is a procedure whereby an aircraft enters an apron, parks and subsequently departs, at all times under its own power. The principal methods of stand configuration are angled nose-in, angled nose-out and parallel-parking; each method involves the adjacent apron area in being subjected to high levels of engine blast, noise and fumes at some stage of an aircraft movement. Taxi-through stands can also be used for self-manoeuving and the blast effects are relatively less, but opportunities for this layout should be maintain to a low degree.
- 6.7.2 Self-manoeuving operations offer a saving on aircraft tugs and ground crews but the layout of stands requires approximately double the apron area of conventional nose-in push-back operations. Due to the relatively high levels of engine power likely to be used for self-manoeuving, there is an increased potential safety threat to buildings, installations, vehicles, equipment and personnel and passengers which must be controlled and managed by imposing restrictions.
- 6.7.3 Before deciding to adopt self-manoeuving operations aerodromes should consider other methods of aircraft handling. Self-manoeuving on open, unmarked aprons should be subject to special procedures and a marshalling service should be available at all times on aircraft arrival. The aerodrome operator should determine which combination of aircraft stands and conditions require a marshalling service on departure.

### **Safety Considerations**

- 6.7.4 Where self-manoeuving is employed aerodrome operators should ensure that the following arrangements and requirements are met:
- a) Stand entry routes, parking positions and departure routes should be marked with standard paint markings, in accordance with the appropriate standards;
  - b) Buildings and installations adjacent to self-manoeuving stands should be constructed to withstand the engine blast or be protected by blast screening;
  - c) Vehicles and equipment should not be placed in a position where they can be affected by blast; equipment parking areas should be protected by blast screens or located remote from the stands;
  - d) Passenger areas and apron staff working areas should be protected by blast screens. Passengers should not be subjected to blast, excessive noise or fumes;
  - e) Safety instructions should be issued, specifying the maximum aircraft sizes to be permitted on individual stands so as to ensure that the prescribed safe clearances are maintained. Pilots should also be required to exercise caution and use the minimum engine power settings needed to complete a satisfactory manoeuvre;

- f) Self-manoeuving stands should be inspected regularly and kept clear of any FOD in order to minimise the risk of ingestion.

*Note: Self-manoeuving stands as mentioned above shall be exclusive if applied.*

## **6.8 Aircraft departure**

6.8.1 Aircraft departure is a critical phase of any flight, with loaded aircraft operating at heavy all-up-weights. Notwithstanding the pressures that often call for expeditious movement to meet schedules, clearances and 'slot' allocations, the safe management of departure procedures is paramount. Aircraft that use the aerodrome only infrequently may require special attention from handling agents because procedures may not exist for the specific aircraft type or variant. For example, written instructions should be requested by ground crews loading cargo or baggage onto aircraft with which they are not familiar. For the purposes of this section the departure phase is considered to be from the time the aircraft starts an engine, or push-back movement starts if earlier, to the point where taxi clearance is issued by ATC. Guidance covering the various methods of aircraft departure is given in the following paragraphs.

### **Push-back Procedures**

6.8.2 Aircraft push-back operations have the potential for accidents involving personal injury/fatalities for ground crews and damage to aircraft, vehicles and equipment. As part of their safety management system, aerodrome operators should establish and promulgate procedures for the safe conduct of push-back operations. Aerodrome operators should maintain safety management arrangements to audit compliance with push-back requirements. When considering rules for push-backs the following should be taken into account:

- a) Detailed, written operating procedures should be produced by airline operators/ handling agents for use by their staff. These procedures should ensure the safety of the aircraft and the personnel involved;
- b) Unless required to ensure the safety of the aircraft, all personnel involved should stay within the aircraft tug. Any personnel working outside the aircraft tug, such as those 'walking the nose wheel', are particularly vulnerable to injury;
- c) All tug drivers should be qualified to drive aircraft tugs in all weather conditions. They should be trained in these procedures and certificated as competent by a training officer, nominated and named by the airline management. Push-back crews should be thoroughly familiar with push-back procedures;
- d) Push-back supervisors should be nominated, trained and certificated as competent, as in c) above;
- e) The supervisor should, ideally, be in speech contact with the flight deck crew throughout the push-back. Where there is a possibility that speech communication will not be available for any reason, the supervisor should be trained to use internationally agreed hand signals;
- f) Where risk assessment has shown it to be advisable, 'tail look-out' and/or

'wing-walkers' should be used to safeguard the rearward movement of the aircraft and prevent collisions with other aircraft, vehicles or personnel. Procedures for these personnel should be written down and should ensure the safety of the aircraft and the people involved. Personnel should be trained to ensure they are familiar with the procedures;

- g) All push-back crew members should wear high visibility garments in compliance with international practices.
- h) In the case of a departing aircraft being pushed back from its stand, the pilot of the aircraft will obtain approval to push back from ATC and pass this information to the tug driver.

#### **'Dead' aircraft handling**

6.8.3 In addition to the above considerations, the handling staff pushing back a 'dead' aircraft for towing will need to consider the following:

- a) A trained staff member will normally be required to occupy the flight deck to control the brakes, monitor radio contact between tug/aircraft and ATC and control the aircraft's anti-collision and, if appropriate, navigation lights
- b) As soon as a tug is assigned a task associated with the movement of an aircraft on any part of the manoeuvring area the tug driver and technician sitting with him shall maintain contact with the appropriately authorised staff member sitting in the flight deck for coordination.

Whilst an aircraft is under tow, the tug driver/technician sitting with him is responsible for the safety of the aircraft, just as the aircraft commander is when it is taxiing. It should be remembered that, irrespective of any instructions issued by ATC, the tug driver/technician is responsible at all times for ensuring that the aircraft does not collide with vehicles, aircraft, buildings or other obstructions.

When towing an aircraft, it is particularly important to be aware of the extent of the extremities, such as wingtips, of the aircraft and their proximity to obstructions. In the event that a tug driver and technician sitting with him is unsure whether there is sufficient space for an aircraft under tow to be moved safely, he should safely bring the aircraft to a stop and request assistance. If the aircraft stops on the manoeuvring area for this reason, the driver /technician sitting with him should advise the flight deck.

For safety reasons it is important that the number of authorized persons on board (POB) the aircraft is known to ATC. Companies involved with ground movements should ensure that tug driver/technician ascertain the POB. In the event of an incident or other unusual circumstances involving the towed aircraft, the tug driver/technician should be able to advise POB.

When an aircraft is being towed during the hours of darkness or low visibility, it must display those lights which would be required when flying, i.e. navigation lights. Logo lights will usually be of assistance to ATC

#### **Power-back procedures (Reversing under Power)**

6.8.4 Powering back an aircraft is inherently less directionally accurate than push-back or powering forward: there may also be an increase in noise and blast effect.

Accordingly, the use of this technique is not encouraged for Civil Aircraft in Oman. The use of a universal tow-bar for push back procedure is recommended to accommodate.

## **6.9 Other safety considerations Signs, Markings and Guidance**

- 6.9.1 A proliferation of signs and surface paint markings on aprons and airside roads can lead to confusion and, possibly, disregard of the important information and guidance being given. The multitude of signs often found in airside areas can lead to the condition of 'sign blindness' where important sign messages are missed, particularly if they do not conform to internationally acceptable standards.
- 6.9.2 Aerodrome operators should establish an appropriate department or a group of qualified persons to implement approved standards and to co-ordinate and control airside signs and ground markings. Regular inspections should be undertaken to remove redundant markings and signs and to ensure compliance with the promulgated standards in CAR 139.
- 6.9.3 Signs should be clear in format, clear in the message they convey, in clean condition and positioned to give the clearest indication of the intended information. Experience shows that airside users become familiar with the standard signs and markings and tend to react correctly to their information.
- 6.9.4 A standard for airside signs should be established and promulgated for aerodrome-wide information. The design of sign will, of course, depend on the need for that sign. It should comply with the following standards and it is likely it would be selected in the following order of precedence:
- a) Where applicable signs should conform to the standards described in the promulgated regulations.
  - b) Where the regulations do not offer a suitable sign, the standard signs published in association with the Motor Traffic Acts should be consulted to identify an appropriate design;
  - c) The use of purpose designed special signs should only be considered with the approval of PACA, when the standard possibilities have proved unsuitable.
- 6.9.5 Signs should be clearly readable at night, particularly warning signs such as vehicle height restrictions and those marking the approaches to the Aircraft Manoeuvring Area. In remote locations where area lighting is not provided, point lighting or retro-reflective signs should be used although care must be taken to avoid creating any lighting effects that may cause confusion to pilots or drivers.
- 6.9.6 Ground markings on the movement area should conform to standards contained in CAR 139 and, in general, should adhere to the following principles:
- a) Yellow markings for the guidance of aircraft;
  - b) White markings for the guidance of vehicles, equipment and staff;
  - c) Where possible, airside road markings should conform with, or be based upon, the standard markings published in association with the Motor Traffic Acts/Regulations;
  - d) Fixed obstructions that represent an obstruction to aircraft or vehicles, such as corners of buildings, aerobridges and airside furniture, including lighting

pylons, should be painted in a colour(s) that make them prominent both day and night and in reduced visibility.

- 6.9.7 In addition, signs and markings prescribed in the IATA/ACI Apron Markings and Signs Handbook may be used.

#### **High-visibility clothing**

- 6.9.8 Irrespective of other measures that are taken to provide a safe environment for personnel working in airside areas, all personnel who will be working outside (i.e. on foot) on the movement area should wear high-visibility jackets.

## **7 Engine Hazards**

- 7.1 There is a clear operational need for the running of aircraft engines on apron areas. The associated safety hazards caused by exhaust blast, vibration, fumes, turning propellers and rotors and the intake suction of jet engines are well recognised. As part of the safety management system, aerodrome operators should ensure that rules and procedures for safe engine running on the aerodrome are promulgated and understood by flight crews and handling staff. However, engine idle run is accepted with necessary safety precautions and operator is responsible to ensure the areas are clear of any hazardous objects within the idle run-up envelope as defined in the aircraft maintenance manual.

#### **Blast, Vibration, Noise and Fumes**

- 7.2 Even at idle power the blast effects, vibration and fumes from all sizes of aircraft engines can be significant. As engine size and power settings are increased, the potential for personal injury and damage increases. The amount of fumes produced is directly related to the engine running time and the power settings used. Engine running on the apron and adjacent taxiway areas should be limited to the minimum necessary to meet aircraft operating needs. In formulating safety rules, the issues detailed in the following paragraphs should be considered.

#### **General**

- 7.3 Drivers and pedestrians should be vigilant at all times on the apron. A common indication to handling staff that aircraft engines are running, or are about to be started, is the illumination of the aircraft's anti-collision beacon(s). However, the absence of such illumination should not be regarded as proof that the engine is safe to approach and the presence of blast and engine noise may not be immediately obvious to a driver in a vehicle or a person wearing ear defenders.
- 7.4 Blast screens should be provided to protect buildings, installations and vehicle and staff areas that are vulnerable to blast.
- 7.5 When contractors' sites using temporary buildings are placed on the apron, due regard should be given to building design and protection to minimise the effects of blast, vibration, noise and fumes for the occupants.

**Engine Management on Aircraft Arrival**

- 7.6 When turning on to a stand, it is desirable that flight crews use the minimum power needed to carry out a normal arrival manoeuvre. Where possible the aircraft should be kept moving to avoid the need to apply 'break away' power to continue the approach to the stand.
- 7.7 Flight crews should be reminded of the need to avoid the use of high power settings on live engines when others are shut down.
- 7.8 Thrust levers should not be exercised for any purposes when the arriving aircraft is on stand, unless specifically approved by the aerodrome operator.
- 7.9 The aircraft anti-collision beacon(s) must remain on until engines have run down or propellers/rotors have stopped rotating.

**Engine Management on Aircraft Departure**

- 7.11 A trained member of airline or handling staff should ensure that the area behind the aircraft and the zone immediately in front of the engine intakes are clear of personnel, vehicles and equipment before engine start.
- 7.12 The aircraft anti-collision beacon(s) must be switched on before an engine is started.
- 7.13 The number of engines started before push-back commences should be the minimum to meet technical and passenger-service needs.
- 7.14 During start up and push-back, engine power settings should not normally exceed ground idle.
- 7.15 Wide body aircraft should not normally be permitted to start more than one engine until the aircraft is aligned with the centreline of the taxiway/taxi lane and ground personnel are clear of the aircraft.
- 7.16 Aircraft leaving the inner stands of a cul-de-sac should be towed forward to a safe distance from the blast screen before the tug and tow-bar are disconnected. This position should be marked on the taxiway centreline for guidance of tug-crew.
- 7.17 Three-engined aircraft should not start the top engine until the aircraft has been aligned with the taxiway and is at a safe distance from buildings/blast screens. This position should be marked on the taxiway centreline for the guidance of the tug crew.

**Engine Test Running**

- 7.18 Engine runs and check starts should be controlled and only carried out with the prior approval of the aerodrome operator who should specify the conditions to be applied. For example:

- a) Where possible, engine runs should be carried out on agreed, selected and prepared remote areas, preferably equipped with engine baffles/detuners;
- b) Engine runs at above idle power should not be permitted in cul-de-sacs or, for example, in areas where the jet blast would impinge on stands, equipment areas or works areas;
- c) Engine runs approved on stands in regular use in apron areas are limited to check starts and idle power only with necessary clearances from ATC;
- d) Where engine running is permitted on the apron, a remote area should be chosen where the jet-blast will not affect other apron areas and busy taxiways;
- e) The area behind and adjacent to the cone of the blast should be clear of equipment and the ground must be firm and without loose tarmac, stones or other material.

### **Fumes and Noise**

- 7.19 In approving engine running or self-manoeuving on the apron the following should be taken into account:

The concentration of fumes present in an aerodrome area is in direct relation to the time engines are run, the type of engine and power settings used and the strength and direction of the surface wind;

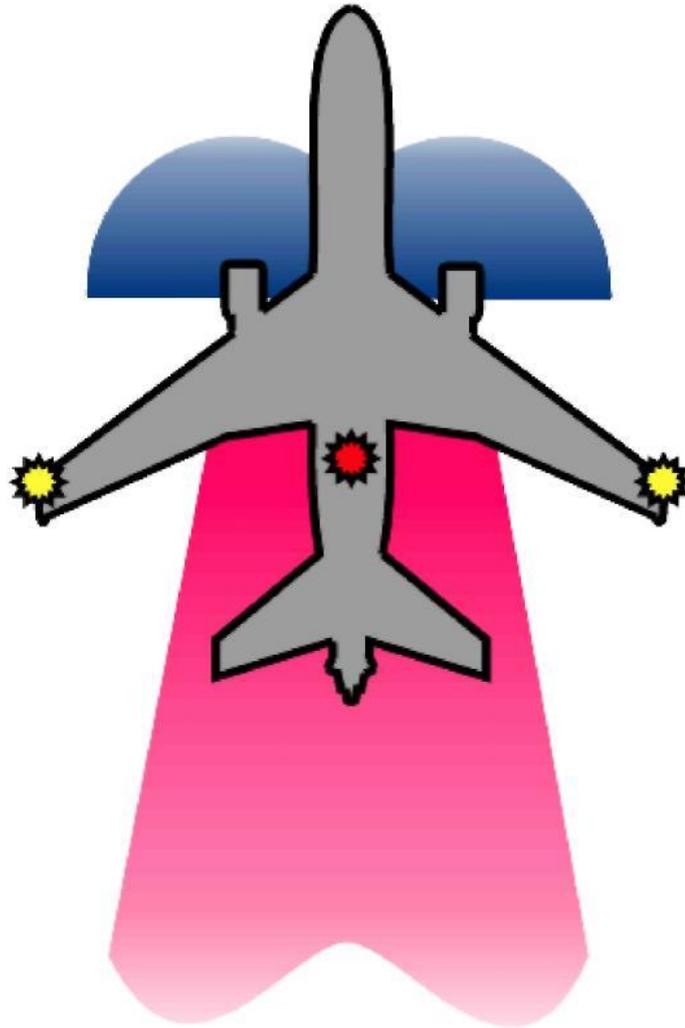
To prevent an unacceptable noise nuisance and build-up of fumes, the running of engines in the direct vicinity of buildings, workplaces and congregations of staff or passengers should not be approved;

- 7.20 Aerodrome operators should develop policies and procedures to minimise the effects of engine noise, vibration and fumes on their local population.

### **Suction – Ingestion**

- 7.21 The intake suction of jet engines is a hazard, even at idle power, and the flow characteristics of air into an engine are such that items can be picked up from in front of, from below, and from the sides of the intake. Even small items ingested can damage the engine, but the larger engines are quite capable of ingesting large objects from several metres away with catastrophic effect.
- 7.22 The extent of the danger zone depends on the size, height and the power setting of the engine. Managers of aircraft handling staff should calculate and promulgate to their staff the safe distances for operating around the types of aircraft they operate. See figure 1.

# ENGINE DANGER ZONES



NEVER APPROACH OR WALK OR DRIVE  
BEHIND AN AIRCRAFT UNTIL THE  
ENGINES HAVE STOPPED AND THE  
ANTI-COLLISION LIGHTS ARE OFF

Figure 1 Engine Danger Zones

- 7.23 Personnel entering the danger zone in front of a running jet engine expose themselves to the risk of being sucked in, almost invariably resulting in serious or fatal injury.

### **Foreign Object Damage**

- 7.24 'Foreign object damage' or 'foreign object debris', both abbreviated to FOD, are a potential source of catastrophic damage to aircraft - particularly engines. FOD can also be a tripping or slipping hazard resulting in injury to personnel and passengers.
- 7.25 As part of the safety management system, aerodrome operators should include instructions, services, facilities and initiatives to combat the risks arising from FOD. The aerodrome operator should establish a programme to educate all apron users on the hazards and requirements associated with FOD and to stress the responsibilities of all personnel employed on the apron to minimise risks from FOD.
- 7.26 Aerodrome operators must ensure that there are programmes of regular apron sweeping, cleaning and inspection, including rapid reaction to fuel and other liquid and chemical spillages. They should also provide facilities for the disposal of solid and liquid aircraft waste and FOD protection. They should pay particular attention to such prime FOD generators as contractors' areas and baggage facilities.
- 7.27 All vehicles and equipment used on the aprons should be maintained in a clean and serviceable condition, not only for reasons of safe vehicle operation but also to minimise the leakage of fluids and depositing of FOD from these vehicles. (See Chapter 3 for additional guidance on the safe management of airside vehicle operations).
- 7.28 Arrangements should be in place for the removal of hazards from the apron such as abandoned vehicles and equipment.

### **Propellers**

- 7.29 Aerodrome operators should issue instructions to safeguard apron operations around propeller driven aircraft. Apron staff must be alert to the dangers of running propellers and should be stimulated by suitable awareness programme. Aerodrome operators should also ensure that the safeguarding of 'propeller areas' is included in airline operating procedures.
- 7.30 Aerodrome operators should provide suitable apron layouts and facilities that provide proper clearances for the operation of propeller aircraft types, with particular emphasis on ground clearance for propeller tips and the proximity of aerobridges and other ramp equipment when the aircraft is at, or approaching, its parking position. Stands at which this cannot be achieved should not be used for propeller aircraft.

## Rotors

- 7.31 Helicopter operations, particularly those of large helicopters, should be segregated from fixed-wing apron operations where possible. In addition to the provision of standard clearances for rotors in the apron layout, due regard should be given to the other characteristics of rotary operations, including:
- a) The heavy down draught produced by helicopter movements;
  - b) The vulnerability of helicopters and aircraft to jet blast, strong winds and rotor downwash from other helicopters;
  - c) The risk of reduced ground clearance caused by the drooping of the rotor (blade sailing) as it runs down following engine shut down or drive disconnection;
  - d) The ease of approach to the chosen helicopter stands in hover and hover-taxi mode and the least interference from/for taxiing fixed wing aircraft;
  - e) The risks associated with tail rotors.

## 8 Falls and falling objects

### 8.1 General

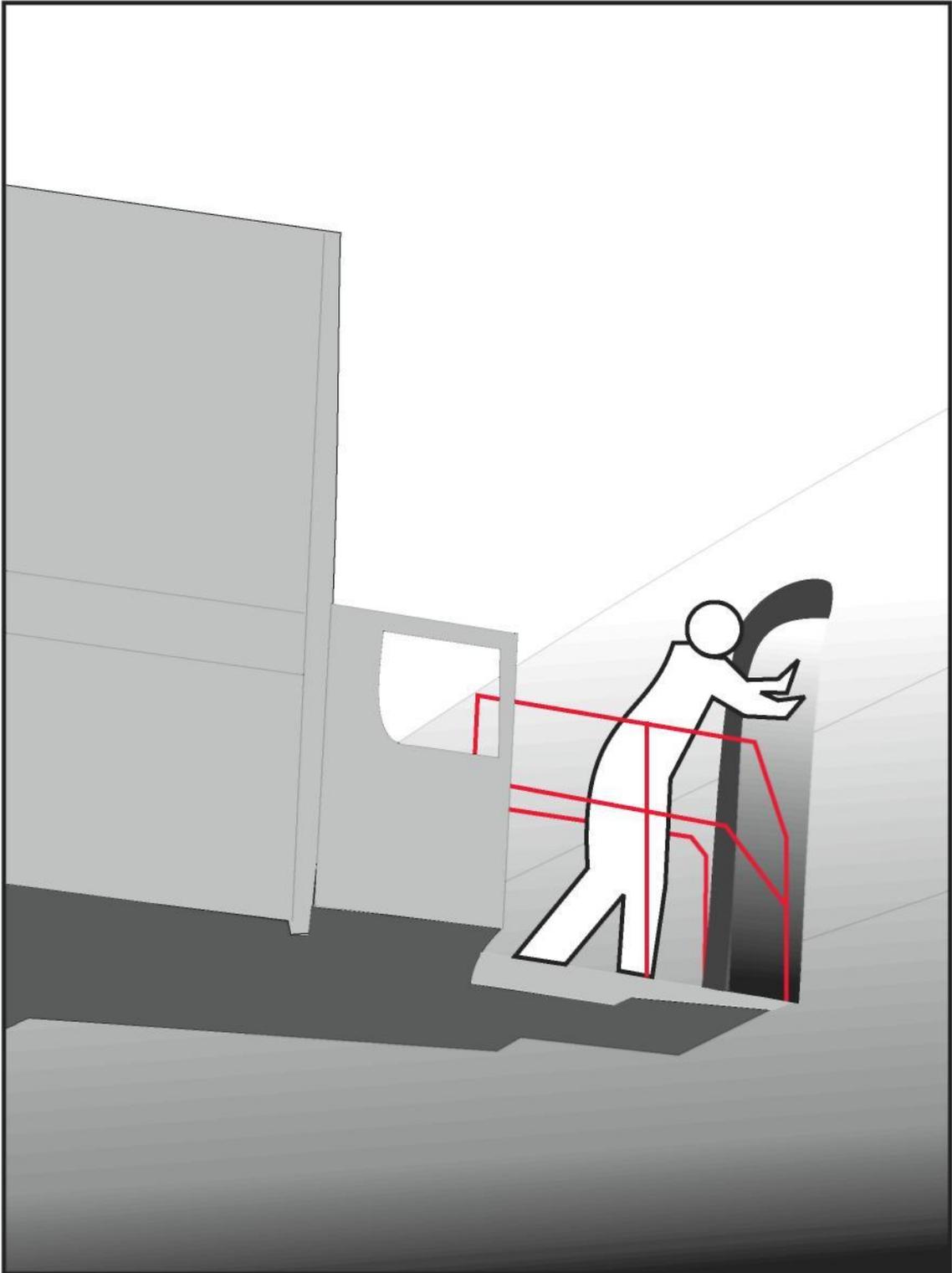
- 8.1.1 Access to external elevated levels on and around aircraft will be required when aircraft are on the stand. Such work includes catering, cargo and baggages handling at the aircraft hold doors, some cleaning activities and maintenance. It is not sufficient merely to indicate the presence of an edge from which a person may fall. There must be suitable and effective measures to prevent any person falling a distance likely to cause personal injury. Measures must also be taken to prevent people or aircraft being struck by falling objects. However, preference should be given to providing a safe place of work rather than relying on personal protective equipment, information, instruction, training or supervision to prevent these events. Nevertheless, even where all other reasonably practicable measures have been taken to prevent falls, personal protective equipment (PPE), for example a safety harness and lanyard, may still be necessary if a significant risk of falling remains.
- 8.1.2 Provision of head protection is not considered normally necessary for activities around aircraft on the apron; ground support equipment can and should be designed and used in such a way as to render such PPE unnecessary. However, head protection may be necessary for other activities on the apron, such as construction work or maintenance of plant.
- 8.1.3 By its very nature all access equipment has to be used in close proximity to the aircraft. Drivers may need to seek assistance, e.g. from a person appointed to guide the vehicle, to ensure the correct positioning of the access equipment so that there are no gaps large enough for a person to fall through, as well as preventing the access platform or its chassis striking the aircraft. Drivers should also make allowance for the change in height of an aircraft during loading/unloading as this might cause the aircraft to touch the access equipment resulting in damage to the aircraft.

- 8.1.4 If any damage to the aircraft is suspected, this shall be reported immediately to a responsible person, for example the aircraft commander or other assigned supervisory responsible person for the aircraft.
- 8.1.5 Suitable access equipment should always be used to gain access to heights. They should be used in accordance with a safe system of work and procedures which minimise the risk of injury and damage to the aircraft.
- 8.1.6 Work at heights above two metres should only be undertaken from equipment fitted with guardrails to all sides, so far as reasonably practicable. Edge protection may not be necessary to sides which are fitted with access steps or sides where the proximity of the body of the aircraft prevents falls.
- 8.1.7 Protective devices (e.g. a personal belt to which tools can be attached) may be necessary if there is a risk of objects falling and damaging the aircraft or injuring people working below. It should be remembered that even if falling objects do not directly cause injury or aircraft damage, they can become a source of Foreign Object Debris, or may cause people to trip and be injured.
- 8.1.8 As with all equipment, means of access and means for preventing falls (including those integral to the aircraft) should be maintained in an effective state, in efficient working order and in good repair if continued protection against injury and aircraft damage is to be ensured. A regime of inspection may also be required to ensure that any deterioration in the equipment which may affect personnel and/or aircraft safety is detected and rectified in good time. This inspection should be carried out by people with sufficient knowledge, experience and training to identify and prioritise defects. The results of inspections should be recorded and kept at least one year from the date of inspection and longer if the inspection results are used for monitoring serviceability trends.

## **8.2 Access to Aircraft Doorways**

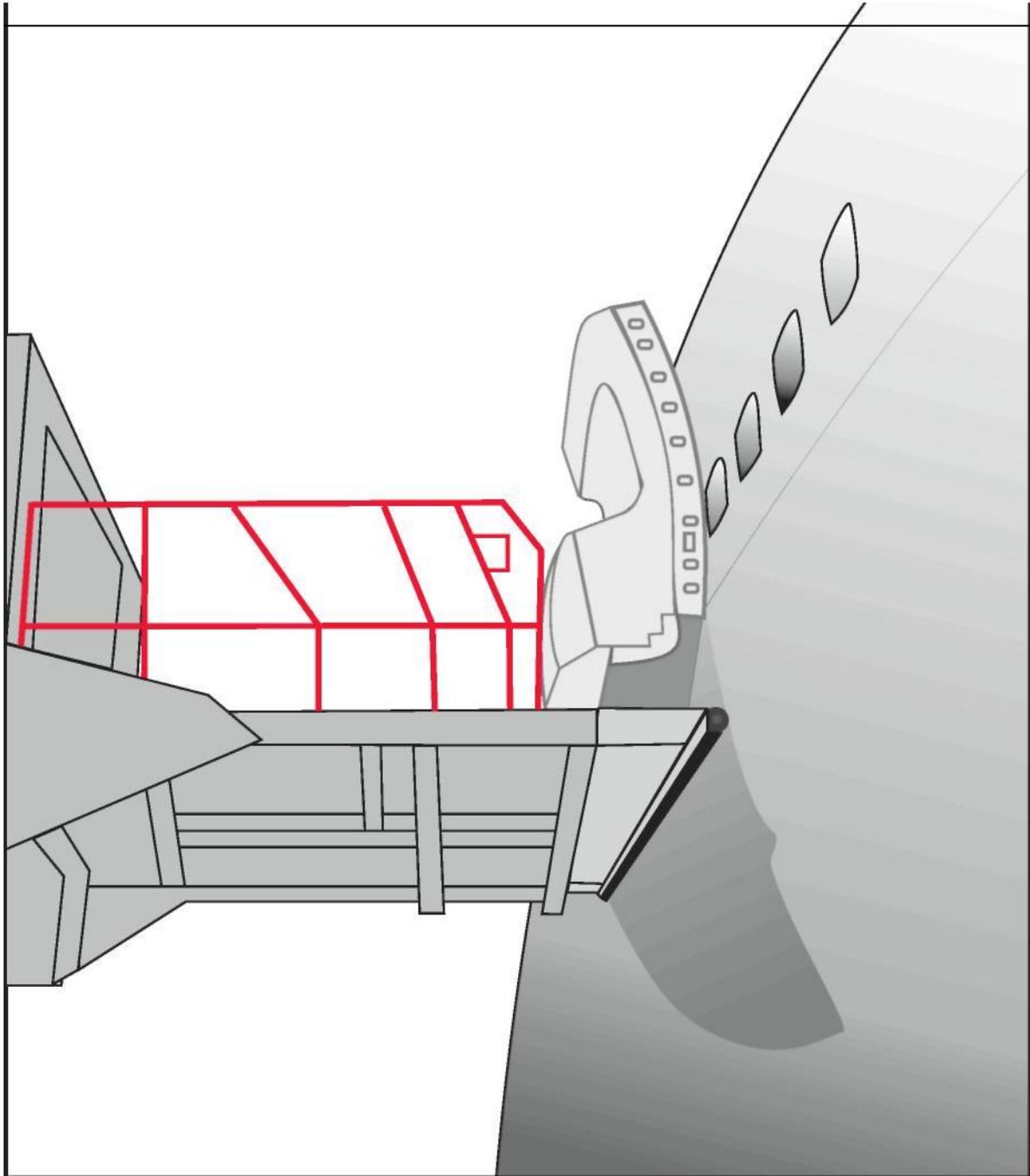
- 8.2.1 Safe access to aircraft entry/service doorways is particularly important as the height of fall from the doorway of an aircraft may, in extreme cases, result in a fatal injury. Aircraft doors and doorways are also particularly vulnerable to damage. Such damage may go undetected for some time. For example, damage to escape slides may not be immediately apparent and may not be discovered until the next periodic inspection of the slide assembly or until it is used in an emergency.
- 8.2.2 Proper planning, safe systems of work and instruction and training are required to ensure that aircraft doors are opened in such a way that no one is exposed to the risk of a fall and the risk of damage to the aircraft is minimised.
- 8.2.3 Airlines should ensure that they do not require aircraft doors to be opened in a manner which exposes people to unnecessary risk. The types of vehicles commonly used to service aircraft rarely have means to prevent falls from the edge that is adjacent to the aircraft when in use. In some circumstances the access equipment can be brought close to the aircraft before a person has to approach the leading edge.

Examples are when the aircraft doors open inwards (see figure 2), upwards, are powered open and closed, or otherwise avoid the need for people to approach the edge of the access equipment or the aircraft doorway.



**Figure 2** Inward Opening Aircraft Door

- 8.2.4 Where the aircraft has outwards opening doors, which may foul the access equipment during opening and closing, employers should establish whether the safest option, for both the worker and the aircraft, is to open the door from inside. This may require co-operation and co-ordination with the airline operating the aircraft.
- 8.2.5 If opening the door from the inside is not the safest option, employers should ensure that people work at the unprotected edge of the access equipment for the shortest time that is practicable. The floor on which the employee is standing should not have any defects that are likely to cause them to slip, trip or fall. Secure handholds should also be provided.
- 8.2.6 Where an extra wide platform can be positioned against the aircraft, the increased width can provide additional protection against falling (see figure 3) and reduce the risk of damage to the aircraft door. There should be a safe system of work in place for opening the door, and employees should be given information, instruction and training on the task.



**Figure 3 - Wide Access Platforms**

Whatever platform is used, the moveable side guardrails should be adjusted to be close enough to the aircraft to protect the workers without causing damage to the aircraft; it must be kept in mind that a gap of more than 300 mm will not ensure the safety of the workers and that the aircraft may move during loading and unloading. Guardrails should be moved into position as soon as is practicable and certainly before the doorway is used. The last task before the access equipment is withdrawn from the aircraft should be to retract the guardrails. It is equally important that any controls that move the platform should be located so that the operator has a clear view of the platform in order to prevent the platform striking the aircraft.

## 9 Aerobridge Operations

- 9.1 There could be incidents or accidents involving aerobridges which could have potential for major aircraft damage and/or serious injury to personnel. Such as:
- collapse and other extensive structural failure
  - un-commanded or unexpected movements
  - obstructions, such as vehicles and equipment, being struck by the aerobridge.
  - rusted floors and leaking roofs creating slip and trip hazards.

### Installation

- 9.2 The efficient and safe in-service operation of these aerobridge walkways depend on their correct installation. Therefore, they should be inspected after installation, for compliance with manufactures specifications before being put into service for the first time.
- 9.3 Before commissioning of an aerobridge operation a detailed inspections based on findings of a risk assessment on the system should be carried out. Such an assessment shall cove the item outlined in paragraph 9.11.
- 9.4 The process of installation must be carried out as per manufactures specifications or any regulations promulgated.

### Aerobridge Equipment

- 9.5 The following auxiliary equipment should be fitted to apron drive aerobridges:
- a) Audible and visual warnings that operate automatically when the bridge is in motion;
  - b) In order to overcome downward and rearward blind spots for the operator, CCTV or sight mirrors to cover blind areas in which the aerobridge is able to manoeuvre;
  - c) Pressure sensitive safety hoops which, when they touch an object, cut out the motive force thus stopping movement of the bridge;
  - d) Means to prevent falls from the leading edge of the aerobridge, such as doors or guardrails, for use when the aerobridge is not in place against an aircraft. (The comments in paragraphs 8.1 are also relevant in relation to aerobridges).

### Ground Markings

- 9.6 Apron-drive aerobridges are vulnerable to obstructions. Significant damage has occurred when items of equipment have been parked in the operating area of aerobridges. For stands equipped with an apron-drive aerobridge, ground marking in the form of a hatched area should be provided to delineate the area within which the parking of vehicles and equipment must be prohibited. The aerodrome operator should enforce this parking restriction and aerobridge operators should bring improperly parked vehicles to the aerodrome operators' attention.

- 9.7 For stands equipped with an apron-drive aerobridge, a ground marking in the form of a parking box should be provided to show the position of the aerobridge wheels when it is fully retracted so that the prescribed safe clearance as defined by the manufacture or in any other approved document, can be maintained between any aircraft and the bridge structure.
- 9.8 To assist marshallers and tow-on crews, painted stop marks should be provided across the stand centreline and designed for each aircraft type permitted to use the stand. These stop marks should be harmonised with the Visual Docking Guidance System (VDGS) stopping positions for the particular aircraft.

#### **Aerobridge maintenance and unserviceabilities**

- 9.9 Aerodrome operators should establish a schedule of preventative maintenance, including inspection by competent people.
- 9.10 Such inspection and maintenance should include as a minimum the following points:
- a) the structural integrity of the aerobridge, including components vulnerable to catastrophic failure and the potential for water ingress to cause corrosion to the walkway or its control and drive systems
  - b) the electrical safety of the aerobridge and the potential for electrical failure to cause uncommanded or unexpected movement the mechanical integrity of the drive and control systems of the aerobridge, including the condition of the hydraulic fluid and the components on which it impinges the conditions of wheels and tyres the devices for detecting obstructions (if any), such as closed circuit television (CCTV) or sensor rings.
- 9.11 Aerodrome operators should establish and promulgate a formal reporting system for aerobridge faults. The procedure should include immediate response activities by engineering and airfield operations staff, where necessary withdrawing the aerobridge from service until remedial action is taken, to maintain safe aircraft and passenger handling.

#### **Operating Procedures**

- 9.12 Aerodrome operators shall ensure that they develop and promulgate Standard Operating Procedures (SOPs) for aerobridges. These should include emergency back-off and wind-off procedures. Instructions for emergency back-off action should be displayed in the aerobridge cab and in the case of manual wind-off, at the point of operation.
- 9.13 Procedures that are specific to the stand or aerobridge shall normally be placarded at the aerobridge control position. This is particularly important if the procedures relate to different configurations for particular aircraft types.
- 9.14 In the event of an emergency whilst the aircraft is on stand, the aerobridge should remain attached or be re-attached to the aircraft until all passengers and crew have evacuated the aircraft.

### Operator Training and Licensing

- 9.15 A system should be established for the training, testing and licensing of aerobridge operators. An Aerobridge Operator's Licence (or permit), endorsed for the appropriate type of aerobridge, should be issued by the aerodrome operator when a satisfactory level of competence has been demonstrated. The demonstration of competence should include a practical test. Procedures should be established to ensure that aerobridge operators attempt to operate only those types of aerobridge on which they have been assessed as competent. Aerobridges with different operating characteristics or control/warning systems should be considered to be different types of aerobridge.
- 9.16 Licence shall only be issued to those staff who regularly operate aerobridges as part of their job function, as it is these staff who remain fully familiar, in good operational practice and up to date with operational changes and aerobridge modification states. Licence holders shall be subject to regular revalidation to confirm that they remain competent to operate the equipment. The aerodrome operator shall also establish an audit system to ensure aerobridge operator competency and adherence to standards, records of aerobridge incidents and major faults shall also be examined. Following an accident or incident, aerobridge operators should be subject to revalidation and it should be possible to suspend an operator's licence pending re-training if requirement is identified.
- 9.17 If a new type of aerobridge is introduced, all Aerobridge Operator's Licence Holders who will be required to operate (or trainers who will be required to give instruction on) the equipment, should undertake training and testing to demonstrate their competency and familiarity with the new equipment before being permitted to use it operationally.
- 9.18 A model Safety Instruction that may be suitable for issue by the service provider dealing with Passenger Aerobridges is included at Appendix I to this Chapter.

## 10 Manual Handling

- 10.1 Manual handling is a term that applies to activities such as lifting, lowering, pushing, pulling or supporting a load by hand or bodily force. It accounts for almost 50% of accidents. Manual handling activities in the industry include, for example, ground crew operations such as the loading or unloading of an aircraft and lifting tow bars onto and from aircraft or towing vehicles. The provision of assistance for incapacitated or disabled passengers will require particular thought.
- 10.2 The best means of avoiding risk is to eliminate the hazard altogether, for example, by mechanised handling techniques. These include the use of ambulifts to assist the movement of incapacitated or disabled passengers onto the aircraft and handling aids for baggage. Where it is not reasonably practicable to eliminate the hazard, and ground staff are required to undertake manual handling, which will include;

- a) A suitable and sufficient risk assessment is made of each task which is considered to present a risk of injury.
- b) Action is taken on the results of the assessment; appropriate steps are taken to reduce the risk of injuries from manual handling
- c) Information is provided on the weight and centre of gravity of the loads that are to be lifted where it is reasonably practicable to do so.

10.3 Baggage handling gives rise to more manual handling problems than any other activity at aerodromes. The following will help to reduce injury from baggage handling.

- a) Proper planning of new and refurbished facilities can provide significant reductions in the risk of injury, as well as increasing efficiency
- b) Examine the entire handling operation (where possible, from the first moment a bag is handled by a worker to the last) and consider whether a change of process or equipment could eliminate any stages of manual handling
- c) Handling systems should be integrated with each other where possible. Different pieces of equipment should be compatible with each other and positioned to prevent unnecessary handling between, for example, security scanners, conveyors, dollies and aircraft loading equipment
- d) Use conveyors (or similar) that are of a suitable height to minimise the risk of injury from lifting or lowering items to or from such equipment.
- e) Consider the environment in which manual handling is undertaken. Floors should be dry and adequately maintained. There should be sufficient space to allow people to turn whilst handling, if such turning is unavoidable. There should be no gaps between equipment that result in people having to throw baggage. Lighting should be sufficient to allow tasks to be carried out safely.
- f) Ensure that automated systems are properly maintained to minimise consequential poor manual handling techniques
- g) Ensure that training is relevant to the tasks that people are undertaking. It may be necessary to target training to specific activities such as moving bags in the confines of the aircraft baggage hold
- h) Provide general indication of the weight of each bag. This could be achieved by the attachment of a 'heavy bag' label at check in with instruction and training given to employees on how to deal with such baggage.

10.4 The primary objective shall be to reduce the requirements for manual handling. It is good practice to review each stage of the baggage handling process with the aim of eliminating any unnecessary stages. For example, it might be possible to eliminate some stages by using a baggage transfer vehicle that can adjust to the correct height of the aircraft hold door. This eliminates manual handling from the transfer vehicle to a belt loader.

## 11 Noise

11.1 There are many sources of noise on an aerodrome. Excessive noise exposure can result in both short-term and permanent hearing losses. It can also compromise effective communication during safety-critical tasks. Aerodrome operators shall ensure that they take steps to reduce noise level to a level which is medically acceptable.

- 11.2 The primary source of noise on aerodrome are aircraft engines, APUs and support equipment such as mobile ground power units. Many of these sources are highly mobile and exhibit variability in their noise emissions. Therefore, the level of ambient/background noise and, potentially, levels of personal noise exposure, can fluctuate very significantly and can greatly exceed the action levels.
- 11.3 Some recommendations for noise reductions are:
- a) When fixed electrical ground power units (with power generation sited away from employees on the apron) and fixed air conditioning units are provided on the stands, aircraft operators should make full use of these facilities to minimise the need for APUs or mobile units which generate high levels of noise;
  - b) Where existing noisy ground support plant is used, it should be engineered to minimise noise output. In some instances, this may require retrospective remedial action, e.g. partial enclosure, to reduce noise emission;
  - c) Before the procurement of new plant, noise emission data provided by the supplier, should be taken into account in deciding whether to purchase, and whether further protective measures may be needed taking into consider any minimum standard recommended by the PACA.
  - d) Work associated with cargo holds or other service points near the APU should be planned in such a manner that the work will be performed when it is not running;
  - e) For vehicle operators an acoustic cab could be fitted, provided that the vehicle can be operated with the doors and windows kept closed. If this is not reasonably practicable, it may be feasible for drivers to use hearing protection.
- 11.4 The areas in which hearing protection is required should be marked and warning notices displayed, so far as is reasonably practicable.
- 11.5 Where communication between personnel is essential or audible alarms are used to assure safety, a thorough assessment of the environment must be carried out to ensure that any risks that result from the use of hearing protection are properly managed.

## **12 Work equipment (including machinery)**

### **12.1 General**

- 12.1.1 Work equipment includes every item on the apron, including vehicles, specialist equipment such as cargo loaders, fixed equipment such as aerobridges and hand tools.
- 12.1.2 The hazards to health and safety and aircraft safety from work equipment can arise when it is moved, installed, used, maintained or dismantled. They include hazards from:
- a) Machinery
  - b) Hot or cold surfaces
  - c) Instability (collapsing or overturning)
  - d) Objects or people falling or being ejected from the equipment

- e) Disintegration, deterioration or malfunctions in the equipment or its controls
- f) Improper use of the equipment (for example using it for a purpose for which it is not suitable)
- g) Fire or overheating.

12.1.3 Dependent on the process involved, the hazards may always be present with the equipment, (such as its weight which may affect how easily it can be moved or lifted), or transitory (such as the risk of striking the aircraft when equipment is raised or lowered).

12.1.4 In order to protect people and aircraft, all operators at aerodromes should ensure that:

- a) Equipment is suitable (i.e. with regard to its initial integrity, the place where it will be used and the purpose for which it will be used);
- b) Equipment is maintained in a safe condition;
- c) Equipment is inspected in certain circumstances to ensure that it is, and continues to be, safe for use. Any inspection should be carried out by a competent person and a record kept until the next inspection and longer if the inspection results are used for monitoring serviceability trends.

12.1.5 Operators should also ensure that the risks created by the use of the equipment are: eliminated, where possible; or controlled by: taking appropriate 'hardware' measures, e.g. providing suitable guards, protection devices (such as buffers to surfaces which interface with the aircraft), markings and warning devices (such as Emergency Stop buttons), and taking appropriate 'software' measures, such as following safe systems of work (e.g. ensuring maintenance is only performed when equipment is shut down) and providing adequate information, instruction and training.

12.1.7 The measures should be selected on the basis of a risk assessment.

## **12.2 Mobile work equipment (including vehicles)**

12.2.1 Mobile work equipment poses additional hazards to people and aircraft. Such equipment or vehicles may strike people, aircraft or other work equipment. Furthermore, unless it is operated correctly and loose articles are suitably secured, objects may fall and strike people or aircraft nearby and may also create a FOD hazard.

## **12.3 Lifting equipment**

12.3.1 Lifting equipment also poses risks to people and aircraft. People may fall from elevated working positions, or may be struck by loads falling or released from the equipment. Lifting equipment may overturn or collapse, resulting in injury and damage. Aircraft may be struck and damaged by lifting equipment as it moves up or down.

12.3.2 In order to ensure that the risks to people and aircraft are controlled, lifting

equipment shall be:

- a) strong and stable enough for the particular use and marked to indicate safe working loads positioned and installed to minimise any risks used safely, i.e. the work is planned and organised, and is performed by competent / authorised people, and subject to ongoing thorough examination and, where appropriate, inspection by competent /authorised people.

12.3.4 The following shall always be considered to be lifting equipment:

- a) catering vehicles, ambulifts and other hi-loaders
- b) cargo loaders mobile elevating work platforms (MEWPs,) lifting platforms on toilet and potable water servicing vehicles and refuelling vehicles, Forklift trucks, Escalators.

## 12.4 New machinery

12.4.1 When purchasing any machine, users shall consider as a minimum the following:

- a) Where and how it will be used;
- b) What it will be used for;
- c) Who will use it (skilled employees, un-skilled);
- d) The level of risks taken into consideration;
- e) Comparison of how well these risks are controlled by different equipment manufacturers.

## 13 Hazardous Substances and dangerous goods

### 13.1 Substances hazardous to health

13.1.1 Some substances are defined as hazardous to health (refer also ICAO Annex 18). These substances can be toxic, corrosive, irritant or otherwise harmful to health (e.g. biological agents). Some of these substances may also damage aircraft, for example, by corroding control surfaces, mercury spillage etc.

13.1.2 Substances can be:

- a) used in a work activity (such as hydraulic oil or cleaning products); or
- b) those that arise or are encountered during a work activity (such as engine exhaust fumes, microbes in aircraft toilet waste, leaks from containers of dangerous goods).

13.1.3 Companies shall assess the risks arising from the work with hazardous substances. This assessment should consider the risk created by the use, handling, or release of the substance. First and foremost, the assessment should show whether exposure to the hazardous substance can be eliminated or minimised.

13.1.4 If exposure cannot be prevented, then it should be adequately controlled. This could be achieved, for example, by ensuring chemicals cannot splash onto people or aircraft, or that fumes cannot accumulate near to people or aircraft. The use of personal protective equipment should only be used as a last resort. However, personal protective equipment may be a useful back-up for employees undertaking such tasks as emptying and cleaning toilets, who might use protective gloves, and overalls. Eye/face protection might also be useful in some circumstances.

- 13.1.5 Operators shall note that commercially supplied hazardous substances should have certain health and safety information on the container and that suppliers of substances have to make available other relevant information on a safety data sheet. This information may be used as a basis for the assessment. For other hazardous substances such as engine fumes and toilet waste, employers may need to seek specialist advice and, if necessary, arrange for atmospheric sampling or other testing to be carried out.
- 13.1.6 Any substances used on aircraft, where appropriate, should be approved by the aircraft manufacturer.
- 13.1.7 Naturally, any control measures selected must be effective and in some instances it may be necessary to monitor the exposure of people to hazardous substances to ensure that they are not exposed to harmful levels.

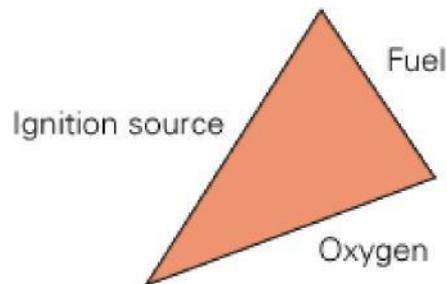
### **13.2 Radioactive substances**

- 13.2.1 Exposure to substances which emit radiation can cause damage to health. Radiation may cause immediate harm, e.g. radiation burns, or may cause changes in cell DNA, which can eventually lead to cancers.
- 13.2.2 The control of risks to health from radiation should be regulated by Atomic Energy Authority of Oman accordingly.
- 13.2.3 Operators need to assess the risks from exposure to radiation and to ensure that exposure is restricted. They should also have in place contingency plans. Staff working with radioactive substances, including those handling radioactive cargoes should be competent in order to ensure their safety, the safety of those working with them and the safety of the aircraft.

### **13.3 Flammable substances**

- 13.3.1 As with substances hazardous to health, flammable substances may be used as part of a process (such as aircraft repairs), handled as cargo, or encountered accidentally, for example as the result of a spillage. They may be solid, liquid or gaseous. Fire and explosion are the main hazards associated with these substances. Such events may cause considerable injury to people and damage to aircraft. However, these substances may also be hazardous to health or may damage aircraft in other ways, for example because they are corrosive.
- 13.3.2 The risks from work involving flammable substances, including storage and transport, shall be assessed. Where possible, the flammable substance shall be eliminated, or substituted for a substance which is non-flammable.

- 13.3.3 Where the substance cannot be eliminated, or substituted, then appropriate precautions need to be in place. Control of the risks of flammable substances can be considered in terms of removing at least one side of the 'Fire Triangle'. See Figure 4.



**Figure 4 - The Fire Triangle**

- 13.3.4 This shall include a combination of:
- safe storage, away from sources of ignition, incompatible substances (such as oxidisers) and mechanical damage
  - adequate ventilation to remove flammable vapours or gases
  - dispensing and decanting in a way which reduces spills and releases
  - use of equipment specifically designed for use with flammable substances
  - good housekeeping to remove flammable residues
  - adequate procedures for dealing with emergencies and spillages, including training, information and instruction for staff.
- 13.3.5 The flammable substance which is likely to be found in the greatest quantity at aerodromes is aircraft fuel.
- 13.3.6 Flammable cargoes may also be subject to the requirements relating to the transport of Dangerous Goods (see paragraphs 13.4.1 to 13.4.4).

#### **13.4 Transport of Dangerous Goods**

- 13.4.1 The transport of Dangerous Goods by air is covered under CAR - 92 issued by the Public Authority for Civil Aviation.
- 13.4.2 Transport of dangerous goods by air is also subject to the IATA Dangerous Goods Regulations and the ICAO Technical Instructions.

#### **14. Inadequate Lighting, Glare and Confusing Lights**

- 14.1 During darkness and periods of low visibility apron areas must be provided with a good standard of lighting of sufficient coverage and brilliance to enable pilots and ramp staff to operate safely and effectively. The levels of luminance on aircraft stands must comply with the standards described in aerodrome regulations CAR 139.
- 14.2 Care must be exercised to ensure that no lighting installation can give distracting or confusing signals to pilots or cause dazzle or glare for any people on the airfield, including ATC staff in the Aerodrome control tower.

- 14.3 Aerodrome operators shall introduce arrangements to control and co-ordinate the provision/installation of airside lighting systems.
- 14.4 The introductions of many new lighting installations which fall outside the regulations governing Aeronautical Ground Lighting (AGL) are subject to prior approval by the PACA. Large systems should always be subject to an operational trial, including where judged necessary a flight trial, to confirm the best adjustments for the luminaries. Apron lighting should be regularly checked for damage and disturbance of the settings of the luminaries.
- 14.5 Area lighting is normally mounted on pylons or gantries and should be subject to the following:
- a) The mounting height, brilliance and mounting angles of the luminaries should achieve the luminance and fall of light required without causing dazzle to pilots and other persons;
  - b) The layout of mounting pylons should be such that overlapping cover is provided which does not give rise to areas of deep shadow, such as on the 'lee side' of a large aircraft;
  - c) Floodlighting, including mobile equipment, in contractors' work areas should be strictly controlled and subject to regular checks to ensure that glare/dazzle are eliminated.
- 14.6 To avoid dazzle, vehicles on the aprons must use dipped headlights whenever vehicle lights are required.
- 14.7 Any lighting use on the apron shall not conflict with aircraft guidance systems and if coloured lights are used they must not be capable of confusion with colour coded aviation lights.
- 14.8 Illuminated stand designator signs should, where possible, be prominently placed at a standard position at the head of stand to give unambiguous indication to pilots of stand location/identification.
- 14.9 Where the location of lighting for aerodrome landside sites, is visible from the airfield, the levels of brilliance and direction of any light display should be such that there is no glare or dazzle to confuse or distract pilots or ATC.

## **15 Adverse weather conditions**

### **15.1 Adverse Weather Conditions**

- 15.1.1 With respect to weather conditions that affect the safety of aircraft operations on aprons, principally strong surface winds and low visibility conditions, the aerodrome operator should issue information about the precautions to be taken in anticipation of these conditions.

## 15.2 Strong Winds

- 15.2.1 When meteorological warnings of strong winds are received, they shall be promptly relayed to airlines and operators.
- 15.2.2 When strong wind conditions are experienced, the first problems encountered are of light FOD being carried across the airfield, causing engine ingestion threats to aircraft on stands, taxiways and runways. Plastic bags and sheeting are particular problems.
- 15.2.3 As wind speeds rise, baggage containers, unsecured equipment, large debris (mostly from the aprons), can be blown across the Movement Area causing a damage hazard to aircraft in all areas. There is also a risk of personal injury and damage to vehicles and equipment by 'flying' debris. The principal requirements and precautions are included in the model procedures at Appendix H to this Chapter.
- 15.2.4 As wind speeds rise, there is a requirement for those responsible for the aircraft on the apron or the owners concern to ensure that wind milling propellers and rotors are feathered and/or secured.

## 16 Electrical Hazards

- 16.1 Electrical equipment should always be used safely. Plugs should be used with the sockets for which they were designed. Circuits should not be overloaded, and should be suitable for the environment in which they are used. Cables should not be left in positions where they could be damaged.
- 16.2 All electrical systems should be properly maintained. This will require a programme of inspection and test to identify defects before they become a source of danger. It also requires everyone promptly to report to their employer, and/or the operator or owner of the equipment, any defects they discover during the course of their work. All maintenance of electrical systems should be carried out by competent people to an adequate standard and documented.
- 16.3 Maintenance on all electrical systems (including those onboard aircraft) shall always be carried out safely. Preferably, systems should be isolated from all sources of electrical power and 'proved dead' by testing and tagged accordingly. All sources of supply should be locked open whilst work is in progress. Where systems contain capacitors which could retain a significant amount of stored energy, this energy should be safely discharged before work commences and capacitors should be left shorted out whilst work is in progress.
- 16.4 Work on or adjacent to, exposed live electrical systems should only take place as a last resort when isolation would give rise to other significant hazards to health and safety, or when there is no other way of determining the source of the fault. In these circumstances, those involved should be specifically authorised and be using a safe system of work, with appropriate tools and equipment, supervision, training,

information and instruction in place.

## **17 Faults and defects**

- 17.1 Aerodrome operators should promulgate and maintain comprehensive fault reporting procedures for all apron equipment and installations provided by the aerodrome. Clear instructions should be issued and repeated by notice at main installation sites.
- 17.2 Details of all reported faults and their rectification should be recorded for management audit purposes.
- 17.3 All employers should ensure that there are systems in place to enable staff to report defects and faults in company equipment. Action should be taken on these reports, within a timescale which reflects the seriousness of the defect or fault and the risk to people and/or aircraft.

## **18 Movement Area Inspections**

- 18.1 The requirement for inspections and maintenance of airfield facilities is implicit in the aerodrome certification process. The Aerodrome Manual must contain the requirements and accountabilities for the inspection and auditing of all the safety systems airside on a systematic basis. The results should be recorded/ reported and fed back into the safety management system.
- 18.2 Aerodrome operators should maintain inspection schedules for all apron equipment and facilities it provides. The results of these inspections should be recorded. Serviceability/availability records should be maintained on the principal systems for audit and management purposes.

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## Appendix A: Ramp Operation Procedures - Aircraft Chocking

### 1 Introduction

- 1.1 Aircraft chocks are used to prevent the movement of an aircraft whilst on the ground.
- 1.2 The method used for chocking will vary depending upon the aircraft type and the requirements of individual airline operators. These procedures are minimum requirements.
- 1.3 In adverse weather conditions, particularly periods of high winds, the chocking procedures will change and high wind procedures must be followed as laid down in approved Airline Operational Procedures Manual.
- 1.4 Any aircraft type or operator specific instructions are appended to this procedure and must be followed where appropriate.
- 1.5 In a condition when an aircraft stand slope does not meet the specifications given in CAR 139, a risk assessment should be carried out to determine safety actions required to prevent an aircraft from accidentally rolling (Uncontrolled) in the direction of the slope.

### 2 The Procedure

#### 2.1 Aircraft arrival

- Prior to aircraft arrival ground handler must ensure that the correct numbers of chocks are available and the ground handler is positioned behind the aircraft stop line.
- All engines must be spooled down and anti-collision lights off before the chocking process begin.
- Multi-engine propeller driven aircraft are normally to be chocked at the nose wheel by placing one chock forward and one aft of the nose wheel. Single engine propeller driven aircraft should be chocked fore and aft of the main wheels
- All jet aircraft are to be chocked fore and aft of the outer main wheels.
- Always approach aircraft from the head of the stand and where possible avoid approaching from the side.
- When placing the chock in position leave at least 1" gap between chock and tyre for ease of removal.
- Never place your hand between the chocks and the tyre.
- Once the chocks are in place, stand in clear view of the flight deck and use the appropriate recognised hand signal to confirm 'chocks in' by placing both hands above the head, fists clenched with thumbs extended inwards.
- Repeat the 'chocks in' signal to the flight dispatcher if an aerobridge is to be docked onto the aircraft.

## 2.2 Aircraft departure

### Pushback

- Chocks should only be removed at the request of the aircraft commander.
- Ensure that all chocks are removed before pushback commences.
- If a chock is found to be stuck it may be removed by tapping with a spare chock or by easing the aircraft off of the chock after the aircraft brakes have been released using the tug and tow bar.
- If a chock still cannot be removed request the advice of the ground supervisor.
- After removal, chocks must be returned to their designated storage area.

### Powerback

- When requested by the aircraft commander, the wingman will remove the chock positioned aft of the nose wheel.
- The chock forward of the nose wheel must remain in position until the aircraft has powered away.
- After removal, chocks must be returned to their designated storage area.

### Free Standing Aircraft

- Chocks should only be removed at the request of the ground supervisor.
- One chock should normally remain forward of the nose wheel until the engine start sequence has been completed and the 'chocks away' signal is received from the flight deck. Single engine propeller driven aircraft should remain chocked forward of the main wheels until the 'chocks away' signal is received from the flight deck.
- The ground supervisor will return the 'chocks away' signal by placing both hands above the head; fists clenched with thumbs extended outwards as part of his sign off procedure.
- After removal chocks must be returned to their designated storage area.

## 3 Key Safety Points

- Only trained and authorised personnel are allowed to chock or un-chock aircraft.
- Operating procedures and safe working practices must be followed at all times.
- Correct manual handling techniques must be used when lifting and carrying chocks.
- Never approach an aircraft until the engines have spooled down and the anti-collision lights have been turned off.
- Never remove chocks from an aircraft without the permission of the flight deck or the Commander.

## Appendix B: Operation of Visual Docking Guidance System

### 1 Introduction

Aircraft parking stands at some parking bays are equipped with Visual Docking Guidance System (VDGS). When a stand is not equipped, or the VDGS is unserviceable or not calibrated for a particular type of aircraft, a marshalling service must be provided.

### 2 System

The Visual Docking Equipment (VDE) provides both directional and stopping guidance. The azimuth display is aligned for interpretation from the left hand flight deck seat. Details of the VDE system and instructions for its use by pilots are contained in the particular aerodrome certification manual and/or any other specific VDGS operator's manual.

### 3 Responsibility for Operation of VDGS

- 3.1 The system is switched on by the specific handling staff designated to control the VDGS system. A second set of VDGS controls should be mounted on a conspicuously marked panel located at the stand to be used during any situation, which requires manual input, by designated ground staff.
- 3.2 Airline or handling staff must ensure that the stand is unobstructed by vehicles or equipment and that the aerobridge is retracted and correctly parked before the arrival of the aircraft and before switching on the VDGS. Switching on the VDGS signifies to the aircraft commander that these actions have been completed and it is safe for the aircraft to enter the stand. Once the VDGS has been switched on, the person responsible for stand safety and VDGS operation must not leave the stand until the aircraft has parked, unless the VDGS is switched off again.

### 4. Marshalling Service

- 4.1 A marshalling service is provided on those stands not equipped with VDGS or with known un-serviceability.
- 4.2 During aircraft emergencies and at other times when the resources of the Airfield Safety Unit are fully committed, marshalling staff may not be able to attend before the aircraft arrives. Accordingly handling staff should give the flight deck crew assistance to stop short safely on the stand centreline and await the arrival of the marshallers.
- 4.3 When directing an aircraft, with attention firmly fixed on that aircraft, a marshaller is at risk from vehicles. Drivers must be alert to the presence of one or more marshallers and always give way. Personnel must not walk or drive between an inbound aircraft and a marshaller directing that aircraft under any circumstances.

## 5 Aerobridge Un-serviceability

When an aerobridge is out of service or cannot be fully retracted and/or parked in its safe position, the stand will be withdrawn from use or, if practicable, allocated to aircraft types that can safely be marshalled on to a 'Stop Short' position clear of the aerobridge.

## 6 Stop Short Procedure

6.1 The need to 'Stop Short' will be indicated to the flight crew by one of three methods:

- a) An electronic sign, mounted above the VDE display which flashes in red – STOP SHORT. The switches for these signs are co-located with the VDGS switches both in aerobridge cabs and also at head of stand locations, the switch function is prominently marked;
- b) By marshalling signals.

6.2 Whenever a 'STOP SHORT' sign is displayed, and in the absence of marshalling signals, pilots should enter the stand using the centreline for guidance and stop the aircraft before reaching the aerobridge or any other obstacle. The stopping position should be as far forward as possible consistent with safety and the ability to serve the aircraft door(s) with steps. If the aircraft tail is not clear of the taxiway/ taxi-lane ATC shall be advised.

## 7 Emergency Stop Procedure

7.1 The Emergency Stop facility is provided to enable an instant warning to be given to pilots that there is an immediate safety threat to their aircraft, or to personnel on the apron, and that the aircraft should be stopped immediately to avert the danger.

7.2 The need to make an Emergency Stop is indicated to the pilots by the illumination of a flashing red electronic EMERGENCY STOP sign which is positioned beside the VDE display.

7.3 Two switch locations are provided for the Emergency Stop system. One gated switch is fitted in the aerobridge cab co-located with the bridge controls; a second gated switch is located at a prominent and conspicuously marked position at the head of stand at apron level.

7.4 Whilst an aircraft is moving on the stand, a responsible member of the operator's staff must be located at the head of the stand switch. Any person (irrespective of employer or function) who perceives a safety threat should activate the system, or request the staff member at the switch to activate the system, to tell the pilot to stop.

7.5 The pilot will normally advise Air Traffic Control that an Emergency Stop on stand has been made. If appropriate, Air Traffic Control will initiate a 'Local Standby' emergency response.

**8 VDGS Safety Summary**

Airline and handling staff receiving an arriving aircraft should:

- a) Arrive at the allocated stand in good time before the aircraft;
- b) Check that the aerobridge is safely parked/retracted and that there is no other obstruction or FOD on the stand;
- c) Display 'STOP SHORT' if necessary. Report this event to the Ramp Management (Duty Manager in charge of apron safety) and ATC.
- d) Switch on the VDGS when the stand is safe for use by an aircraft and, for non-timer systems, switch it off again when the aircraft has come to a halt;
- e) Summon marshalling assistance if there is any doubt whether the stand can be used safely.

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## Appendix C: Ramp Operation Procedures - Aircraft Push-back (Conventional Tugs)

### 1 Introduction

#### 1.1 Pushback

This procedure describes the pushback operation in which an aircraft is pushed backwards from its parking gate by a tug or tractor, to a position on the taxiway where it can safely move off under its own power.

#### 1.2 Tractor/tug

1.2.1 A vehicle designed specifically to move aircraft on the ground, the usual design will be a four wheeled vehicle that connects to the aircraft using a tow bar.

#### 1.3 Safety

1.3.1 Safety is an essential part of all ramp procedures and you must always consider how safe every activity you undertake is. Most ramp procedures will be working with dead aircraft i.e. the aircraft is stationary and all engines are switched off. During any pushback procedure you will be working with live aircraft, this means that the aircraft will be moving with the aid of the tug, also the engines will be starting at some time prior to, during, or after the pushback.

1.3.2 As well as your own safety it will be your responsibility as part of the pushback team to ensure the safety of those around you, whether directly involved in the pushback or on surrounding stands.

1.3.3 Communications during the pushback will come in the form of hand signals or headset communications, in whichever form you give or receive instructions you must ensure that they are clearly understood, should there be any doubt then the instructions must be clarified before any part of the pushback procedure is undertaken.

1.3.4 Irrespective of any ATC clearance or information given to you by the crew of the aircraft, while you are pushing or towing an aircraft, you are responsible for avoiding collisions with other aircraft, vehicles, buildings and obstructions.

### 2 Procedures – Conventional Tug and Tow-bar

#### 2.1 Selection of Tug and Tow-bar and Bypass pin

- First select the correct bypass pin.
- Bypass pins are machined to fit exactly in the systems of specific aircraft and only the correct pin can be used.
- Failure to use the correct bypass pin or any pin at all may result in damage to the aircraft and/or towbar and could endanger the pushback crew.
- Also remember to only use a pin that is marked as serviceable.
- Select the correct towbar. All towbars are designed to fit a range of particular

aircraft types and are labelled accordingly, and if you are unsure of the suitability of a particular towbar you should consult your supervisor.

- Failure to use the correct towbar may result in damage to the aircraft.
- Select the correct tug.
- The model of tug to be used for each aircraft shall be decided by crew on the recommendations of the appropriate manufacture.
- Carry out a full pre-trip inspection of both tug and towbar before use.
- Towbars should always be pulled behind the tug when driving to and from the aircraft, never pushed.

## **2.2 Arrival at the aircraft.**

- On approaching the aircraft, the tug driver shall carry out a brake check (at least 10m away from the aircraft), before lining up with the aircraft nose gear and stopping at a suitable distance from the aircraft to allow for tow bar connection.
- The towbar should now be uncoupled from the rear of the tug and aligned with the connection point of the aircraft nose leg.
- The steering bypass pin (if required) should now be fitted and permission sought from the flight deck crew for tow bar connection.
- The towbar can then be safely connected to the aircraft.
- If the towbar has an adjustable wheel carriage, this should be used to minimise the need to physically lift the bar.
- To connect some towbars may require the assistance of one or more other members of staff.
- Always use correct lifting techniques, and be prepared to seek assistance when connecting or disconnecting towbars to prevent personal injury.
- When the towbar (and bypass pin if required) is correctly connected to the aircraft the tug can be driven very slowly forward to connect to the eye of the towbar.
- A guide person (usually the headset operative) is required for this operation, using recognised hand signals.
- This operation must be carried out under complete control, as any excess force used during the coupling of tug and bar could result in damage to the aircraft or towbar.
- If the tug is to be left unattended after it has been connected to the aircraft, the engine should be switched off and a wheel chocked for safety.

## **2.3 The commencement of the pushback.**

- Prior to the commencement of the pushback, the driver will have to carry out the pre-departure walkround. And liaised with the headset operative to ascertain the type of pushback to be carried out.
- Now remove the wheel chock securing the tug (if applicable), and
- When seated in the tug check that Neutral or Park has been selected and the parking brake is applied before starting the engine.
- Wait for the 'brakes released' signal from the headset operative (as detailed in the section on hand signals).
- When the 'brakes released' signal is received, select the required direction of travel and the correct gear (for most pushbacks first gear will suffice), and

while holding the tug on the foot brake, release the parking brake and then after a final visual check to confirm that it is safe to move off, slowly release the foot brake using the power of the engine tickover to gently take up any slack between tug/ bar and aircraft.

- Using the throttle, slowly increase the power to set the speed of the pushback to a pace where the headset operative can comfortably hold position with the tug and aircraft without having to either run or dawdle.
- Where possible, the headset operative should always walk on the inside of a turn and he must remain in full view of both the flight deck and the tug driver throughout the pushback.
- The driver must remain fully aware of the position of other members of the pushback team at all times and be prepared to stop if any member of the team is not visible.

#### **2.4 Continuation of the pushback**

- The pushback should continue at a safe walking pace, and any changes of direction (turns) should be kept to the minimum necessary to achieve the final positioning of the aircraft at the release point. The driver should not attempt to change gear during the pushback manoeuvre.
- When turning the aircraft, the driver must be careful not to exceed the limits marked on the nose leg or fuselage as to do so will result in severe damage to the aircraft's steering mechanism.
- The red line on the wheel bay doors shows the limit of turn allowable during a normal pushback operation, to exceed these lines without 'breaking' the steering scissors will result in damage to the aircraft steering mechanism even with a bypass pin in place.

#### **2.5 Completion of the pushback**

- As the tug come to the final few metres of the push back, the driver shall endeavour to align the tug and towbar with the aircraft fuselage, this will make the disconnection process easier and far safer.
- The driver should slowly reduce the throttle power to tickover, and then gently apply the foot brake to finally stop the aircraft. Only when the complete stop has been reached and the neutral gear has been selected should the headset operative give the 'brakes set' signal.
- The headset operative will signal confirmation when the aircraft brakes are 'set' and move in to lower the towbar wheel carriage. When the wheels are supporting the towbar the headset operative will remove the tow pin (this may require a slight forward or rearward movement of the tug to facilitate) to allow the tug to move clear of the aircraft.
- The tug should pull away from the tow bar eye (to a distance of at least 5m) to allow the bar to be safely removed from the aircraft.
- The headset operative can now disconnect the bar from the aircraft nose leg. If the disconnection process requires two men, the tug driver should place the tug at ninety degrees to the aircraft after pulling back from the towbar eye and select Neutral/Park gear, apply the park brake and then assist with the towbar.

- Re-couple the towbar to the tug and then drive to the apron edge adjacent to the aircraft and await its departure.
- When the headset operative has released the aircraft, after showing the flight deck that he has removed the steering bypass pin (if fitted) and returned to the apron you should connect the bar to the rear of the tug in readiness to return to the park when the aircraft taxis away.
- The disconnection of tug and bar from the aircraft is a 'safety critical' time requiring a high level of concentration by all concerned.
- Under no circumstances should any bypass pin be removed before the towbar is disconnected and clear of the aircraft.

### **3 Key Safety Points**

- Only trained and authorised personnel shall perform the pushback operation.
- Always select the correct tug, appropriately serviced towbar and bypass pin for the aircraft type and series to be pushed back.
- Follow operating procedures and safe working practices at all times.
- Remain aware of other persons at all times and be prepared to stop the pushback if safety is compromised.
- Take account of the prevailing weather conditions when assessing the safety of the operation.

## Appendix D: Aircraft Power-back Procedures (Prior approval to be obtained from PACA if prior approval has not been granted)

### 1 Introduction

- 1.1 Power – Back procedures shall be carried out only at aerodromes certified for such manoeuvres. Prior agreement, in writing, shall be obtained to perform power-backs procedures by an airline concerned.

### 2 Power-Back Requirements

- 2.1 Before approval of power-back manoeuvres the following conditions shall be satisfied:
- a) Authorization and procedures for power-back shall be included in the aircraft manufacturer's manual.
  - b) The power-back procedure must be incorporated in the airline's Operations Manual.
  - c) Any pilot intending to use power-back must be trained and experienced in the procedure.
  - d) The aircraft anti-collision beacon(s) must be switched on before the engines are started.
  - e) The power-back manoeuvre must be guided by a trained power-back marshaller, provided by the airline, using standard ICAO power-back marshalling signals.
  - f) At the start of the manoeuvre a minimum of forward movement is permitted, sufficient only to ease any 'flat' out of the aircraft's tyres.
  - g) The minimum engine power settings should be used, sufficient to get/keep the aircraft moving.
  - h) Wing walkers must be employed to safeguard the rearward movement of the aircraft, ensure safe wingtip clearances and to avoid collisions with other aircraft, vehicles or personnel.
  - i) The power-back manoeuvre should end with the aircraft aligned with the centreline of the taxiway.
  - j) At no time during the power-back manoeuvre should the aircraft's wings sweep adjacent parking stands, whether or not they are occupied.

### 3 Power-Back Demonstration

Before agreement for power-back can be given, the PACA's representative or any other authorised person shall require to observe a trial/demonstration of the full power-back manoeuvre using the aircraft type, aircraft weight, engine power settings and procedure intended for operational use. An assessment will be made on the effects of engine noise, vibration, blast overpressures and fumes, observed during the trial, to determine the suitability of the procedure.

### 4 Applications

Airlines who wish to introduce regular power-back departures for their aircraft should, in the first instance, apply in writing to the PACA, giving details of the aircraft type(s) concerned and procedures.

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## Appendix E: Aircraft Blast and Fumes

### ARRIVAL, ENGINE START AND PUSH-BACK

#### 1 Introduction

- 1.1 This instruction covers the engine handling requirements and procedures to be used during apron operations and is issued to remind all flight and ground crews of the hazards that may result from engine blast and fumes. These procedures are intended to promote safe aircraft movement without the risk of damage to buildings, aircraft or equipment and injury to staff/passengers in the apron areas.
- 1.2 There is a hazard from the blast created by all engines, particularly jet engines. The risk is greatest in areas which cannot be protected by blast screening and from aircraft with high tail-mounted engines. Staff working behind blast screens, or in open buildings close to a stand, and passengers on the opposite side of an apron cul-de-sac can also experience unpleasant engine fumes.

#### 2. Arrival Procedures

- 2.1 There is a particular risk of blast damage or injury when an arriving aircraft is turning on to the stand centreline. The risk is further increased if for any reason the aircraft stops, then applies the additional thrust required to 'break away' and continue the manoeuvre.
- 2.2 Commanders of aircraft are to keep all engines running (notwithstanding any fuel economy measures) in order to limit the need for high thrust levels. Ideally the aircraft should be kept moving to ensure that break away power is not required.
- 2.3 Thrust levers must not be exercised for test reasons when the aircraft is on stand and engines should be shut down as soon as operationally practicable once the aircraft is parked.
- 2.4 Aircraft anti-collision beacon(s) must remain on until the engines have run down.

#### 3 Departure Procedure – Engine Start

- 3.1 Flight deck crew and ground crew should be in verbal contact (if verbal contact is not possible, standard hand signals must be used).
- 3.2 Before engines are started the aircraft anti-collision beacon(s) must be switched on.
- 3.3 Ground crews must ensure that the area immediately behind an aircraft, plus the zone immediately in front of the engine intakes, is clear of staff, passengers, vehicles and equipment before giving clearance for engine start. Additionally, before giving start clearance to the pilots of any wide body aircraft, ground crews must ensure that:
- No other aircraft is on or approaching the taxiway centreline, or about to pushback on to the centreline, in the area behind the aircraft awaiting start.
  - Passengers are not boarding or disembarking via steps from an aircraft in any area behind the aircraft that may be affected by jet blast.

- 3.4 Ground crews must notify pilots of any potential hazard that could be created by the starting of engines.
- 3.5 On wide-body aircraft, a single engine start-up only is permitted on stands in cul-de-sacs. The remaining engines must not be started until the aircraft is pushed back and aligned with the taxiway/taxi-lane centreline.
- 3.6 The tail mounted engine of MD11, DC10 and L1011 aircraft is not to be started in a cul-de-sac until the aircraft is aligned with the taxiway/taxi-lane centreline and pulled forward until the rear of the aircraft is a minimum of 100 metres from the blast screen (a painted stop bar should be provided in all cul-de-sacs to indicate the nose wheel position).

#### **4 Push-Back Procedure – Blast Precautions**

- 4.1 Ground crews must ensure that the area into which an aircraft is to be pushed is clear of staff, passengers, vehicles and equipment, before the push-back operation is started.
- 4.2 During all push-back manoeuvres aircraft engine settings should not exceed idle power.
- 4.3 Aircraft on the inner stands of a cul-de-sac must, after push-back, be pulled forward until the rear of the aircraft is a minimum of 100 metres from the blast screen before the aircraft tug and tow-bar are disconnected (a painted stop bar is provided in cul-de-sacs to indicate the nose wheel position).
- 4.4 All push-back manoeuvres are to end with the aircraft aligned with the taxiway/ taxi-lane centreline.
- 4.5 If a cross bleed start is necessary, ensure that the aircraft is pulled or taxied forward to the head of the cul-de-sac (or at least 200 metres from the blast screen) before the cross bleed engine start is commenced.

**NOTE:** *This will require the pilot to obtain ATC clearance to move from the normal push back position.*

#### **5 Taxying**

Pilots must use the minimum power necessary to get/keep the aircraft moving, particularly when in the cul-de-sac aprons.

#### **6 Safety in the Vicinity of Works Areas**

Development and maintenance work in the Movement Area occasionally involves sections of the Area being totally withdrawn from use. At other times aircraft access has to be restricted due to the work in progress; notification is always given by the issue of a Safety Instruction. These sections are always coned, barrier or fenced off and are marked at night with red obstruction lights along their perimeters. Pilots are to use minimum power when in the vicinity of these working areas and should never direct jet-blast towards the areas.

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**7 Aircraft Self Manoeuvre**

7.1 The aircraft stands at aerodromes which are designed for the nose-in parking of aircraft and for subsequent push-back by aircraft tug. The following exceptions may apply:

7.1.1 Permanent permission for propeller driven commuter type aircraft, to reverse off stands under their own power, can be given for operators/airlines whose procedures are approved. Specific clearance must be obtained for each movement and pilots must comply with the clearance instructions.

**8 General**

8.1 It is essential that the contents of this Instruction are given the two pilots, engineering and other ground staffs concerned with the movement of aircraft.

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## Appendix F: Aircraft Engine Ground Runs and the use of Auxiliary Power Units

### 1 Introduction

This instruction sets out the rules and procedures for aircraft engine ground runs and the use of aircraft auxiliary power units (APUs) and ground power units (GPUs).

### 2 Definition

- 2.1 For the purpose of this Instruction, an engine ground run is defined as any engine start-up not associated with the planned aircraft departure.

### 3 Approval

- 3.1 Permission for an engine ground run must be obtained in advance from the relevant Air Traffic Controller.

- 3.2 The following details must be provided when seeking permission to carry out an engine run:

- Airline
- Aircraft type and registration
- Requested location for engine run
- Planned start time
- Expected duration
- Number of engines to be run simultaneously
- Level of engine power to be used
- Type of maintenance/check
- Requirement for the engine run

- 3.3 Any variation or extension to the details given above must be the subject of a further permission.

### 4 Safety

- 4.1 All personnel concerned with engine ground running must be fully conversant with these rules and with the following requirements, which must be complied with at all times

#### 4.2 Aircraft Parked on Stands

- 4.2.1 On stands in cul-de-sacs and other selected stands, engine ground runs will be limited to check-starts and idle power. For checks requiring the use of greater power settings it will be necessary to move the aircraft to a more suitable location as directed by ATC.

- 4.2.2 The aircraft must be positioned correctly on the stand in such a way that engine running will not harm persons or cause damage to aircraft, buildings, installations, vehicles or equipment in the vicinity.

- 4.2.3 All apron equipment must be placed at a safe distance from the aircraft.
- 4.2.4 Where applicable, the rear of stand road must be closed, to safeguard vehicular traffic, before any approved engine run is permitted.
- 4.2.5 The aircraft anti-collision beacon(s) must be switched on before engines are started and must remain on for the duration of the ground run.
- 4.2.6 The engineer in charge of the ground run must ensure that the aircraft wheels are safely chocked and that the aircraft cannot move forward under any circumstances.
- 4.2.7 Ground running must not take place when passengers are being embarked/dismounted on any adjacent or opposite stands, except when such passengers are using an aerobridge.
- 4.2.8 A trained member of airline or handling staff is to be positioned on the stand in verbal contact with the flight deck. He will communicate by R/T or interphone with the flight deck to ensure that the engine(s) are shut down if persons or vehicles move into the danger area in front of, behind or in the vicinity of a live engine. For this purpose and if the R/T or interphone link is unserviceable, hand signals by day and light signals by night may be used.

#### 4.3 Aircraft in Other Areas

- 4.3.1 If engine ground running is approved to be carried out in any other location, it is the responsibility of the engineer in charge to ensure that the area behind the aircraft, which could be subjected to blast, is clear of persons, vehicles and equipment and that the ground is firm and free from loose tarmac, stones and other materials. The area immediately in front of the engine intake(s) must also be clear.
- 4.3.2 During all ground running of engines, other than in the Maintenance Area, a listening watch must be maintained on the appropriate ATC Ground Movement Control frequency to ensure the prompt initiation of emergency procedures if required.

### 5. Auxiliary Power Units

- 5.1 Aircraft APUs generates high levels of noise and significant fumes which can cause disturbance to those on nearby aprons, in buildings and in residential areas. The noise of an APU may mask the noise of an approaching vehicle, thus endangering staff.
- 5.2 Airlines and handlers are to ensure that APUs are used for the absolute minimum time necessary to meet operational needs.
- 5.3 APUs are not to be used as a substitute for either FEGP or GPUs.

**6. Ground Power Units**

- 6.1 Constantly running GPUs can cause high noise levels on the apron, are an additional obstruction to free movement around a parked aircraft and, if poorly maintained, may deposit oil spillage on the stand.
- 6.2 In apron areas where FEGP is provided and serviceable, GPUs are not to be used. Where there is no alternative to the use of GPUs they should be promptly shut down when power is no longer required.
- 6.3 When purchasing new GPUs, airlines and handling agents are urged to make low working noise levels a prime requirement (as low as reasonably acceptable) in the selection process.

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## Appendix G: Foreign Object Debris/Damage

### 1 Introduction

- 1.1 A fundamental element of the safety effort is to maintain the aprons in a clean condition and free from obstructions, to ensure the safety of aircraft, vehicles and persons using the apron.
- 1.2 Foreign objects are regularly deposited on the Movement Area and it is essential that all airport personnel understand the danger to flight safety that such objects represent. Foreign objects may be ingested into aircraft engines causing damage leading to engine failure, which is especially critical if it occurs in flight, particularly if it occurs during the take-off phase. At best, such damage leads directly to premature engine removal and replacement. In addition, damage caused by foreign objects can occur to tyres and undercarriages, control systems and other parts of the airframe. All such damage could lead to in-flight failures and inevitably requires expensive repairs to be made. All foreign objects are a threat to aircraft safety.
- 1.3 Foreign Object Debris (FOD) is a general term which applies to all loose objects which are a danger to the safety and integrity of an aircraft and which, therefore, must not be left in any area so as to constitute a hazard. The list of FOD items most frequently found on the apron is long and principally includes: -Plastic and paper bags/sheets, rags, empty oil and hydraulic fluid cans, empty soft drink cans, nuts and bolts, tools and equipment, luggage wheels and tags, metal cutlery, burst ballast bags, broken wooden items and miscellaneous rubbish.  
The presence of FOD is due mainly to the carelessness of staff and their lack of understanding of the consequences.

### 2 General Rules

#### 2.1 Responsibilities

No FOD is to be deposited or left on any part of the Movement Area. It is the direct responsibility of airlines, handling agents, fuelling companies, cleaning companies, catering companies, engineering operatives /contractors and all other users of the aerodrome to ensure that it is maintained in as safe and clean a condition as possible and that all FOD is removed as soon as it is found. Great care must be exercised by all those working on the apron, particularly those working on aircraft, to ensure that no FOD is left behind from their operation.

#### 2.2 Apron Areas

After completing the ground handling, refuelling and servicing of an aircraft the stand areas must be left clean and tidy. FOD must be removed or placed in the containers provided. All apron equipment which could be blown away must be secured to some fixed object, or stored in a safe place not exposed to wind or aircraft engine blast effect.

## **2.1 Vehicles on the Movement Area**

Before proceeding from one area of the airport to another via a route that involves crossing the Movement Area, all vehicles must be carefully inspected to ensure that anything that is carried in or on the vehicle is secured, that all doors and tail or side boards are closed and securely locked shut and that no parts of the vehicle or trailer are loose and likely to become detached.

## **2.2 Spillages**

Airports maintain cleaning equipment and crews for the immediate clean-up of spillages. All spillages of materials must be reported immediately to the Airport management for cleaning action. This is especially important when the spillage is fuel or any other inflammable material. Special care should be taken when handling damaged consignment containing hazardous materials.

## **2.3 Removal of Apron Hazards**

2.5.1 The parking or abandonment of unserviceable ground equipment or vehicles, contractor's materials and miscellaneous objects on the aprons constitutes a safety hazard and contributes to apron congestion.

2.5.2 If an offending Object is considered to be an immediate hazard it will be removed immediately and without prior notice.

## Appendix H: Passenger Aerobridges

### 1 Introduction

The general type of aerobridges used are the apron-drive aerobridges.

### 2 Passenger Aerobridge Service

- 2.1 Use of the aerobridge by an aircraft operator, owner or handling agent, shall constitute prior acceptance of the conditions set out hereunder.
- 2.2 The service provider shall carry out its schedule of engineering preventative maintenance during the quiet hours.
- 2.3 The service provider shall carry out an operational inspection of all aerobridges during the quiet hours as per an inspection schedule.
- 2.4 The service provider shall maintain and clean the aerobridges and is responsible for the maintenance of aerobridge operating standards.
- 2.5 Except as otherwise expressly provided these instructions shall apply to the use and operation of aerobridges.

### 3 Aerobridge Operator Requirements

Aerobridge operator should be thorough with all specifications provided in the manufacture's operating manual. The operator's knowledge should be checked periodically.

### 4 Aerobridge Operator's Responsibilities

- 4.1 It is essential that a careful check is made to ensure that no vehicles or equipment are parked beneath, or in the manoeuvring area of, the aerobridge. Additionally, the bridge must be free of debris and correctly parked before an aircraft enters the stand. This is particularly necessary on stands equipped with apron-drive bridges, as safe clearance from aircraft engines and wings may not otherwise be maintained. If bridges are not fully retracted for any reason, aircraft must be Stopped Short (see paragraph 8 below).
  - 4.1.1 Apron-drive bridges shall be fitted with an audible warning and flashing lights which operate whenever the speed control is operated and the bridge is moving.
  - 4.1.2 In the interests of safety, whenever an apron-drive bridge is moved, a 'look out' should be positioned on the apron to assist the bridge operator. This precaution is particularly necessary on bridges which are not fitted with CCTV, or where the CCTV is unserviceable.
  - 4.1.3 All bridges should be fitted with an interlocked safety barrier and will not move unless the barrier is correctly positioned across the mouth of the bridge.

- 4.1.4 All aerobridges are fitted with a safety canopy and an auto-leveller device. The canopy provides fire and weather protection for bridge users and the auto-leveller compensates for trim changes experienced during aircraft refuelling and the loading and unloading of passengers.
- 4.1.5 The aerobridge operator must ensure that the auto-leveller is engaged before loading or unloading the aircraft. Whenever the aerobridge is docked to the aircraft the auto-leveller must remain engaged.
- 4.2 In the event of the loading or unloading of very heavy cargo, the aerobridge must be withdrawn from the aircraft as the rapid trim changes may be beyond the capability of the auto-leveller system.
- 4.3 Aerobridges should not be left unattended when passengers are being embarked or disembarked. Should the bridge go out of limits while loading or unloading is taking place, the bridge is to be removed and repositioned.
- 4.4 When bridges are not being used for passenger loading or unloading they should be retracted into their parking box and closed down. Airlines and handlers are advised that whenever a bridge is docked to an aircraft a qualified aerobridge operator should be in attendance.
- 4.5 Aircraft operators are reminded that they are responsible for the security of their aircraft and docked aerobridges make aircraft vulnerable. To prevent unauthorised access via aerobridges, airlines should either deploy personnel to control access to their aircraft or remove the aerobridge from it.
- 4.6 Whenever an apron-drive bridge has been removed from an aircraft it must be parked in its parking box and closed down.
- 4.7 The aircraft passenger door is to remain closed until the aerobridge has been correctly docked and must be closed before the bridges is retracted.
- 4.8 Aerobridges must not be moved when passengers are on the aerobridge.

## **5 Operation of Aerobridges**

Apron-drive aerobridges must be operated in accordance with the instructions contained in the Standard Operating Procedures (SOPs) developed by the operator on manufacture's specifications or as prescribed in the appropriate aerodrome specification manual.

## **6 Aerobridge Parking Boxes**

- 6.1 Parking boxes are painted on the apron to indicate to all concerned with aircraft arrivals and departures the correct parking positions for the apron-drive aerobridges.

- 6.2 Both wheels of the bridge must be within the box whenever the bridge is in the parked position.

## **7 Visual Docking Guidance System (VDGS)**

All stands equipped with aerobridges are provided with VDGS. Details of these installations and the method of use are described in the operator SOP or appropriate certification Manual.

## **8 Stop Short Procedures**

- 8.1 If an aerobridge is unserviceable or cannot be fully retracted the stand must be withdrawn from use or, if practicable, allocated to aircraft types that can safely be stopped short of the aerobridge for passenger steps to be used. The need to Stop Short shall be indicated to flight crews by one of the following methods:
- a) An illuminated sign which flashes in red 'STOP SHORT'.
  - b) A STOP SHORT sign displayed on a rail-drive aerobridge.
  - c) By marshalling signals.

## **9 Fault Reporting**

- 9.1 In the event of any malfunction/failure occurring to an aerobridge, or of a bridge obstructing a stand, shall be notified to the service provider in charge of aerobridge maintenance.
- 9.2 The aerobridge may be wound away from the aircraft using the emergency procedure detailed in the Aerobridge Operator Handbook, to permit a normal pushback.

The STOP SHORT warnings shall be displayed to prevent the next arriving aircraft colliding with the extended aerobridge.

## **10 Emergency Stop and Emergency Back-off Action**

The procedure should be in accordance with the specifications provided in the Aerobridge Operator Handbook.

## **11 Accident Reporting Procedure**

It is the responsibility of the aerobridge operator/aerodrome operator to report the PACA all accidents involving serious injury to personnel, damage to aircraft or the aerobridge, in accordance with the procedures stipulated in the aerodrome manual.

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## Appendix I: Strong Winds (Other than Gust Wind)

### 1 Introduction

- 1.1 Strong wind conditions can give rise to hazards from wind-blown items and in very strong winds there is a possibility of structural damage to aircraft. The principal threats are of engine ingestion or airframe damage to aircraft on stands, taxiways and runways; the severity of the threat of obstruction of a runway to an aircraft taking off or landing cannot be stated too strongly. There is also a danger of personal injury for apron staff and damage to vehicles and equipment.

### 2 Strong Wind Warnings

When meteorological warnings of strong winds are received by ATC, the details of the warning shall be passed to the Duty Manager in charge of apron.

### 3 Responsibilities in Strong Winds

- 3.1 When a strong wind warning has been issued, or when strong wind conditions are experienced, the following actions shall be taken by airlines, handling agents, operators and apron management staff.
- a) Extra vigilance must be exercised to prevent accumulations of FOD and to ensure that all loose items are removed or safely stowed (plastic bags and sheeting are a particular threat to engine ingestion in all areas of the airfield.). Action must be taken to ensure that covers are securely fastened on all waste containers.
  - b) All ground equipment and vehicles on the aprons, not in immediate use, must be parked in the areas provided with parking brakes applied.
  - c) Equipment in use on stands must be secured with parking brakes set. Equipment without parking brakes must be removed.
  - d) Large items of equipment that are vulnerable to winds, such as empty freight containers, must be secured to a fixed object or removed to a protected area.
  - e) All loose items in contractor's works areas must be secured or removed.
  - f) Staff observing any obstruction or equipment moving in the wind, irrespective of ownership, must take action to secure it.
  - g) Handling staff should take special precautions when towing aircraft and should refer to the company's operations manual for specific guidance in additions to SOPs.
  - h) Aircraft rubbish and equipment that is temporarily placed on the stand, such as bagged waste, blankets or headsets, must be removed or securely stored immediately it is removed from the aircraft.

### 4 Aerobridges

When wind speeds exceed thirty (30) kts, aerobridge cabs should be fully lowered with the shutters closed and where possible positioned to face out of wind, to avoid structural damage.

**5 Positioning and Picketing of Aircraft**

Airlines who wish to position their aircraft facing into wind should advise the ATC / Apron Control Unit and request allocation to a suitable stand or other airfield area.

**6 Towing of Aircraft**

Airline operators are responsible for issuing instructions on the limiting wind speed for the towing of their aircraft.

## Chapter 3 Airside Vehicle Operation and Driving

### 1 Introduction

- 1.1 This Section gives guidance and recommends standards to be set by service providers, aerodrome operators and airside contractors and operators, drivers and vehicles operating airside. It includes material on driver qualification and testing and on vehicle standards.
- 1.2 Driving on the airside of an airport in close proximity to aircraft and within the areas of intense activity which they generate, usually in a restricted space, requires knowledge of the rules and standards of conduct in areas primarily laid out for aircraft, not vehicle, operation.
- 1.3 The objective of these guidance notes is to minimise the risk of accidents and injury to persons, and damage to aircraft and property, arising from the use of vehicles in airside areas. They are intended to assist service providers in establishing a system where staff who are required to operate vehicles and equipment on the airside are properly trained to do so in a safe manner with the full knowledge of the relevant rules and instructions and an awareness of the consequences of contravening them. Guidance is also provided for employers regarding the provision and safe use of vehicles and equipment.
- 1.4 It is recognised that every aerodrome operator and vehicle operator on the aerodrome will need to consider carefully the degree of applicability of the material in this Chapter to its own operations. It is also recognised that the service providers may need to apply control measures in addition to those described.

### 2 Key Elements in a System

There are four key elements in the system referred to in the above paragraph 1.3. These are as follows:

#### 2.1 Rules and Procedures

Overall responsibility for the safety of airside operations lies with the aerodrome operator, who is required to comply with regulatory requirements. The aerodrome operator will need to publish comprehensive procedures governing the access and operation of vehicles and mobile equipment in the airside areas.

#### 2.2 Training and Testing

The aerodrome operator will need to establish a system that ensures all staff who are permitted to drive and operate vehicles and equipment in airside areas are competent both in the operation of the vehicles and in their operation in those areas where they are permitted to drive. Such a system will specify minimum standards of knowledge and practical skills for drivers and will include initial and refresher training and testing. Similar minimum standards will need to be set for vehicles that are

permitted to operate in airside areas and for the testing and approval of these vehicles. The aerodrome operator will need to conduct suitable audits in order to assess the effectiveness of the training and testing, and other arrangements to ensure competence of drivers and serviceability of vehicles.

### **2.3 Communication and Monitoring of Standards**

There will need to be a system for monitoring the standards of airside driving activities. The safety of airside vehicle operation will depend substantially on the proper flow of information between the aerodrome operator and the operators and drivers of vehicles. The rules set out by the aerodrome operator must be unambiguous and the channels of communication adequate. Company operators must provide all the information needed by the aerodrome operator to ensure the maintenance of proper standards among personnel and in equipment.

### **2.4 Airside Performance Management**

There shall be a system for monitoring airside performance management, taking remedial action where necessary.

## **3 Airside Driving – Rules and Procedures**

Aerodrome operators shall be responsible for establishing procedures governing airside vehicle operations.

### **3.1 Drivers – Basic Qualifications and Medical Requirements**

3.1.1 All holders of an Airside Driving Permit shall have defined minimum qualifications. They shall hold a vehicle driving licence issued by the Registrar of Motor Vehicle. Certificate of Competence (usually issued by the vehicle operator) that indicates the holder has demonstrated competence to operate the particular vehicle. The standards against which the Certificate of Competence is issued should be clearly defined (and may be based on standards used in other industries) and accepted by the aerodrome operator, who in turn shall issue a Certificate of Competence.

### **3.2 Airside Driving and Vehicle Permits**

3.2.1 The aerodrome operator shall establish a system for the issue of Airside Driving Permits (ADPs) for drivers and Airside Vehicle Permits (AVPs) for vehicles. The system shall ensure that a permit is not issued unless the individual or vehicle meets the minimum standards laid down by the aerodrome operator. Confidence must also exist that the minimum standards will continue to be achieved through refresher training, competence checking and audit arrangements. The scheme shall also take account of the needs for identification and security. The issue of permits shall be strictly controlled and recorded. Only the minimum number of vehicles necessary for the safe and efficient use of the aerodrome should be permitted airside. The issue of an Airside Permit should be an acknowledgement by the aerodrome

operator that a particular vehicle or driver needs to operate on the airside of the aerodrome. Acceptance of a permit shall include a condition that requires the holder to adhere to procedures and requirements laid down by the aerodrome operator.

- 3.2.2 Airside permits for drivers and vehicles should be issued with particular periods of validity. The validity should not exceed a period of three years. Permits should contain clear information about the particular area(s), for which they are valid.
- 3.2.3 All applications for AVP and ADP should be submitted by the particular company or organisation which the employee or vehicle belongs to.
- 3.2.4 Permits should be issued subject to a declaration by the applicant that all details provided are accurate and in order.
- 3.2.5 Permits should be issued only for specified drivers and vehicles. They should never be transferable between company operators, vehicles or drivers.
- 3.2.6 The aerodrome operator shall set out the circumstances in which a permit will cease to be valid and must be surrendered for cancellation. Such circumstances may include:
- a) Cessation of the purpose for which the permit was issued;
  - b) Change of vehicle ownership;
  - c) Disposal of a vehicle;
  - d) Change of the holder's employer;
  - e) Loss of Driving Licence for offences under the motor Traffic Acts;
  - f) Any defacing, alteration, or misuse of a permit;
  - g) Proof of disregard of Airport Traffic Rules;
  - h) Any use of a permit in relation to a customs or immigration offence.

### **3.3 Airside Driving – Training and Testing Requirements**

- 3.3.1 Every aerodrome operator shall establish a training and competence-checking programme for all applicants for ADPs. The length and complexity of the programme will depend on a number of factors such as the size or complexity of the airport, the level of traffic and the areas in which the driver will be permitted to operate.
- 3.3.2 The service provider should also establish a programme of periodic refresher training and competence checking to ensure that the specified standards (and any changes to them) continue to be achieved.
- 3.3.3 The aerodrome operator may delegate these functions to vehicle operating agents or other parties, but in such circumstances the arrangements must be clearly defined and subject to periodic audit by the aerodrome operator.

### 3.4 Airside Vehicles – Standards

- 3.4.1 Every vehicle operating in airside areas shall have a valid individual Airside Vehicle Permit. This shall be displayed on the vehicle at all times when it is operating airside.
- 3.4.2 The aerodrome operator shall establish minimum standards for vehicles operating in airside areas. These standards shall ensure that the vehicle is fit for its intended use and that its condition is such that it will not endanger vehicle users, other vehicles, pedestrians, aircraft or property. Airside vehicle permits shall not be issued to any vehicle which cannot meet the specified standards.
- 3.4.3 Before a Permit is issued a vehicle shall be inspected by The aerodrome operator. Periodic inspections shall be conducted thereafter to ensure that it continues to meet the minimum standards. An inspection shall also be conducted if information or reports indicate that a particular vehicle may not be meeting the specified standards.
- 3.4.4 Model inspection format that may be suitable for use by an Aerodrome Operator dealing with Airside Vehicle Inspection Requirements is included at Appendix C to this Chapter.
- 3.4.5 The AVP displayed on a vehicle must include a clear identification and details of any limitations imposed. Additionally, vehicles should be readily identifiable by their livery or by the prominent display of the vehicle operator's name.
- 3.4.6 The aerodrome operator must ensure operators are aware of requirements for the maximum height, width and breadth of vehicles for airside operations or for operation within specific areas. Height is particularly significant where airside bridges exist, and should be displayed in the driver's cab. It may be necessary for the aerodrome operator to specify minimum manoeuvrability standards. It is important that companies operating vehicles airside ensure that their drivers are fully aware of any limitations imposed by the manoeuvrability or size of particular vehicles.
- 3.4.7 Because of the serious nature of damage to aircraft and their power plant caused by foreign objects it is essential that all practical steps are taken to minimise the risk of such damage from vehicle operation. The aerodrome operator must ensure that all vehicle operators are aware of the need for strict control of the security of loads and vehicle equipment. This is particularly important in respect of items such as fuel tank caps and hub caps, the loss of which is not particularly significant during normal road operations and the standards set by the aerodrome operator may include a requirement that such items are secured in such a way as to ensure that they cannot become unintentionally detached from the vehicle.

**NOTE:** *Additional lighting requirements apply to vehicle trailers.*

### 3.5 Airside Vehicle and Driver Identification

- 3.5.1 In the interests of security, it is essential that all drivers and vehicles can be identified quickly and positively. Airport Driving Permits should carry a photograph of the holder. The aerodrome operator should issue instructions specifying the circumstances under which the permit must be produced on demand, and to whom.
- 3.5.2 When issuing an Airside Vehicle Permit, the aerodrome operator must set out the external markings or livery to be shown and the circumstances in which vehicles are to display permits when operating in airside areas.

### 3.6 Vehicle Operating Rules

- 3.6.1 The following colours should be used to distinguish between ground surface markings used by aircraft and those applicable to the movement and control of vehicles and equipment:
- YELLOW: Markings for the guidance of aircraft
  - WHITE: Markings for the guidance of vehicles and equipment.
- 3.6.2 The boundary between the apron and the manoeuvring area should be indicated by a continuous double white line. Entry into and movement between these areas should be strictly controlled. Apart from pushback vehicles and crews, no vehicle should normally enter the manoeuvring area other than at designated vehicle crossing points unless the vehicle driver is in radio contact with air traffic control and has been cleared to enter the manoeuvring area.
- 3.6.2 No markings or signage of any sort should be permitted in the airside area without the express permission and approval of the aerodrome operator.

### 3.7 Traffic Rules

#### 3.7.1 General

- a) In accordance with worldwide practices the aerodrome operator shall determine speed limits applicable to the airside area and different limits may be applied to sections of roadway as specified in the aerodrome manual. This information should be displayed in the areas as required.
- b) On the airside road system vehicles should always keep to the right when passing an approaching vehicle, particularly to avoid confusion where there are no road markings;
- c) No vehicle should be left unattended anywhere on the airside area with its engine running. This is to prevent risks such as overheating and consequent fire in the vicinity of aircraft and uncontrolled or unauthorised vehicle movement;
- d) Vehicles should remain in the airside area only long enough to conduct their legitimate business;
- e) To ensure that no object is dropped on the apron or manoeuvring area, all doors and shutters (vehicles with AC only) on vehicles must be closed while the vehicle is moving in the airside area, all loads and equipment, and all parts

of the vehicle must be properly secured before a vehicle enters the apron or manoeuvring area. Objects dropped in the movement area can cause serious hazards to aircraft and personnel;

- f) Obstruction lights meeting the requirements of CAR 139 shall be displayed at all times by vehicles operating on the manoeuvring area. Unless there are specific instructions to the contrary, dipped headlights should always be used in conditions of darkness and reduced visibility;
- g) All parking restrictions must be strictly observed;
- h) Vehicle drivers should follow designated routes, giving way, where appropriate, to routes provided for pedestrians and aircraft.

#### 3.7.2 In relation to aircraft and stands,

- a) Vehicles must not be driven across aircraft stands, unless they are directly involved in the operation of the aircraft using or about to use the stand;
- b) Vehicles must give way to aircraft at all times;
- c) When aircraft engines are running, vehicle drivers must ensure that they stay well clear of areas behind the aircraft where slipstream and jet efflux may cause damage or danger to the vehicle or its occupants. The minimum safe distance should be determined (usually by the aerodrome operator deduced from aircraft maintenance manual) and promulgated to all vehicle drivers;
- d) Vehicles must not be driven in reverse on the manoeuvring area or apron unless directly engaged in aircraft manoeuvring or servicing. When reverse movement is essential, guidance should be provided to the driver by a person outside the vehicle or other means. The fitting of reversing alarms and CCTV cameras should be considered as part of risk management of reversing operations;
- e) Vehicles must remain at least one metre away from any part of an aircraft unless they are engaged in a task that specifically requires them to operate closer to the aircraft.

### 3.8 Control

3.8.1 Control of vehicles on the manoeuvring area is normally the responsibility of Air Traffic Control. On apron areas, control of taxiing aircraft and aircraft under-tow is the responsibility of Air Traffic Control but the control of vehicles is subject to rules and instructions issued by the aerodrome operator.

3.8.2 Irrespective of any clearance or instruction issued by Air Traffic Control, drivers of vehicles and of vehicles towing aircraft are responsible for ensuring that their vehicle (and any part under tow) do not collide with any other vehicle, aircraft, building or obstruction.

3.8.3 In all cases, signs displayed at airside area entry points, and at crossing points within the area, must give adequate information to drivers about the procedure to be followed for movement into and within the airside area. Signs should describe any relevant control methods; such as traffic lights or signal lamps. Uncontrolled crossings should be clearly marked as such, and the conditions of use displayed. Particular attention should be given to the need for the clear statement of prohibition of entry to airside areas by unauthorised pedestrians.

### 3.9 Operations at Night and in Poor Visibility

- 3.9.1 The service provider should promulgate instructions dealing with vehicle operation at night and in conditions of poor visibility.
- 3.9.2 Instructions for operations at night should include descriptions of the airport lighting, including that which is displayed in areas that are not normally used by vehicles, and the lighting required on vehicles.
- 3.9.3 All trailers operating at night should be required to display two red rear lights. Trailers over 2.46m (8ft) in length should be required to have side red or amber reflectors at or near each end in addition to the requirements of the Oman Motor Traffic Regulations.
- 3.9.4 As a general rule, Low Visibility Procedures instituted by the aerodrome operator should include the following procedures for vehicle control:
- a) Check that all entry points into the movement area are either brought under positive control or closed;
  - b) Check that any guard lights or holding point board lights required under operational procedures are switched on;
  - c) Warn or remove all working parties operating vehicles as necessary;
  - d) Ensure that all apron and taxiway crossings are under positive control;
  - e) It is important that communication of the introduction and cancellation of Low Visibility Procedures is fast and effective.

### 3.10 Radio-Telephony (R/T) Equipment and Mobile Telephones

- 3.10.1 When operating on certain areas of the airport it will be necessary to use radiotelephony or mobile telephone communications equipment. This may introduce additional risks whilst driving and vehicle operators must ensure that the use of such equipment does not distract the driver from the primary task of driving the vehicle.
- 3.10.2 Drivers of vehicles requiring to cross or enter active runways and taxiways must normally be in two-way communication with Air Traffic Control and must comply with any clearance issued to them.
- 3.10.3 With regard to other vehicles, the aerodrome operator should decide the basis on which R/T equipment is provided and used. In some cases, a listening watch may be required of vehicles on certain parts of the movement area. The procedures for use of R/T equipment must be clearly promulgated by the aerodrome operator.
- 3.10.4 Any users who are to communicate with Air Traffic Control or to transmit on any frequency used by aircraft must be tested under arrangements agreed between the aerodrome operator and the Air Traffic Control service at the aerodrome. Communications between vehicles and Air Traffic Control demand the same standard of efficiency as aircraft communications. Appropriate R/T phraseology is described in Radiotelephony Manual (ICAO Doc 9432 – Radio Telephone Procedure)

and must be used for R/T communications between vehicle drivers and ATC.

- 3.10.5 The aerodrome operator should establish a system of allocating R/T call signs to be used by vehicles so that the potential for confusion between vehicles and, where relevant, between vehicles and aircraft, is minimised.
- 3.10.6 In the interests of safety, it is essential that Air Traffic Control is made aware of all radio facilities being used at the Airport, whether or not these facilities are used for communication with Air Traffic Control. Therefore, the service provider shall provide a full list of radio fitted vehicles and call signs to the respective Senior Air Traffic Controller in charge of aerodrome control.

### **3.11 Vehicle Accident Reporting Procedures**

- 3.11.1 Every aerodrome operator should publish procedures for the reporting of accidents involving vehicles operating on the airside.
- 3.11.2 A model Safety Instruction that may be suitable for use by an aerodrome operator dealing with Accident Reporting are included at Appendix D-1 to this Chapter.

## **4 Training**

Examples of the topics that should be covered by airside driving training are shown in Appendix E-1 to this Chapter.

## **5 The Monitoring of Standards**

- 5.1 The aerodrome operator should establish procedures for the monitoring and assessment of airside vehicle operating standards.
- 5.2 These procedures should include a review of:
  - a) Any increase/decrease in the number of valid Airside Vehicle Permits and the reasons for the change. An assessment of the impact on overall airside safety should be conducted if the number of vehicles operating in airside areas changes significantly;
  - b) Any reports of defective operation received from aircraft operators or from Air Traffic Control;
  - c) The number of accidents and incidents. Where practical, the severity of the events should be assessed in order to assist in monitoring trends;
  - d) The functioning of training schemes;
  - e) The function of communication and delegation arrangements;
  - f) Security;
  - g) Any other matters contributing to the promotion of airside safety.

**6 Performance Management**

- 6.1 The aerodrome operator should publish any penalties it has established for non-compliance with the rules and instructions for the use of vehicles on the airside. These may include temporary or permanent exclusion from the airside area of individuals, particular vehicles, or group of vehicle controlled by a specified vehicle operator.
- 6.2 In the interests of natural justice, it will be important for any penalty system to include an appeal procedure. However, this should not prejudice the immediate exclusion of a particular individual or vehicle where in the opinion of the aerodrome operator this is necessary in the interests of safety.

**7 Operation of Vehicles on the Airside**

A model Safety Instruction that may be suitable for use by an aerodrome operator dealing with the Operation of Vehicles on the Airside is included at Appendix F-1 to this chapter

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## Appendix A-1: Airside Driving Permits

**Important note:** This Appendix represents model guidance that might reflect the management organization and procedures at an airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

### MODEL GUIDANCE DOCUMENT FOR OBTAINING AIRSIDE DRIVING PERMITS

**NOTE:** This guidance is issued by Anyfield Airport for use by companies with drivers authorised to operate in airside areas. It sets out the general procedure and standards applied for the issue of Anyfield Airport Airside Driving Permits.

#### 1 Introduction

- 1.1 Basic safety awareness training should be regarded as essential to any employer staff operating on the ramp. Failure to provide this means the employer is in breach of his statutory duty.

#### 2 Driving Licences

- 2.1 Prior to commencement of any training every driver must be in possession of a Oman Driving Licence (i.e. not provisional), entitling the holder to drive a motor vehicle on the Public Highway.

The driver must also be in possession of a Permanent ID pass for the aerodrome, to cover all areas they may be required to drive in.

The Certificate of Competence should only be issued if the driver meets equivalent standards to those required for the issue of the relevant Heavy Vehicle licence.

#### 3. Health Standards

##### 3.1 General Health

All drivers should be in good general health and medically screened on induction. This examination should include eyesight, colour vision and hearing.

The standard should not be less than that required for the issue of a Heavy duty vehicle licence by the Registrar of Motor Vehicle.

##### 3.2 Eyesight

Drivers should have visual acuity, using corrective lenses if necessary, equivalent to 6/9 in the better eye and 6/12 in the other eye on the Snellen Chart.

### 3.3 Colour Perception

Drivers operating in airside areas must have the ability to distinguish the signal colours, Red, Green, and White.

### 3.4 Hearing

It is essential that drivers have the ability to hear sufficiently under adverse conditions. The ability to hear a forced whisper at six feet (2 metres) in either ear is recommended.

### 3.5 Monitoring

Companies employing drivers who will work in airside areas should establish a system to monitor health standards of drivers in order to ensure that they continue to meet the minimum standards.

3.6 Details of the medical standards used by individual companies and the methods used to monitor health standards must be notified to the Anyfield Airport Operations Manager.

## 4 Airside Driver Training

4.1 Before an Airside Driving Permit will be issued by Anyfield Airport, drivers must successfully complete a course of training that prepares them to drive in airside areas, ensures that they are familiar with airside driving procedures at Anyfield and ensures that they are familiar with the vehicles that they are required to drive.

4.2 Airside driver training at Anyfield may be delegated to an organisations approved by Anyfield Airport.

### 4.3 Vehicle familiarization

4.3.1 Companies that operate vehicles in airside areas should issue drivers with a Company Driving Permit endorsed with the types of vehicles/specialist equipment that the individual is trained and authorised to drive. A Company Driving Permit should not be endorsed unless the holder has successfully completed any necessary theoretical training and demonstrated their practical competence to drive the vehicle. The Company Driving Permit is supplementary to the Anyfield Airside Driving Permit that must be held by any driver operating in airside areas. In the case of complex vehicles or specialist equipment, regular refresher training and testing should be conducted in order to maintain the Company Driving Permit endorsement.

4.3.2 All training, testing and Company Driving Permit endorsement is to be recorded and available for audit by Anyfield Airport.

#### 4.4 Airside driver induction training

4.4.1 Airside driver induction training should be carried out for all drivers new to airside driving or new to Anyfield Airport. Induction training should have three distinct modules: -

- Theoretical (see para 4.5.2)
- Topography, Familiarisation, and Practice
- A Programme of Supervision and Monitoring following the Training

#### 4.5 Airside driver theoretical training

4.5.1 All drivers who are required to operate in airside areas should have successfully completed a course of training covering basic airside driving techniques and procedures. Holders (or previous holders) of Airside Driving Permits issued by other aerodrome recognised as covering the same training material may be exempted from all or part of the basic theoretical training.

4.5.2 All drivers who are required to operate in airside areas at Anyfield Airport should have successfully completed a course of training covering driving procedures at Anyfield Airport.

**NOTE:** *The typical content of an 'Airside Driver Training Syllabus' is shown in Appendix E-1 to this chapter*

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## Appendix B-1: Model Instruction for the issue of Airside Vehicle Permits

**Important note:** This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

### 1 Introduction

- 1.1 Vehicle access to the airside area at Anyfield is controlled strictly by Anyfield Airport Ltd, through the issue of AIRSIDE VEHICLE PERMITS.
- 1.2 AVPs are valid for a maximum of 12 months from the date of issue.
- 1.3 All vehicles must have a valid AVP whilst airside. An AVP does not confer the right of entry and does not identify the driver or the passengers.

### 2 Function of an AVP

An AVP serves to identify the vehicle and its operator and is an acknowledgement by Anyfield that the vehicle needs to be used in the controlled or restricted areas specified on the Permit when on official use.

### 3 Types of AVPs

- 3.1 There are two types of AVP issued by Anyfield.
  - 3.1.1 **Annual AVP** - valid for a maximum of one year from the issue date for a specified vehicle. An Annual AVP will only be issued for vehicles needing essential access to all restricted or controlled airside apron areas and airside roads on a regular basis. It is the responsibility of the vehicle owner/operator to apply for renewal of an Annual AVP if required.
  - 3.1.2 **Short Term AVP** - valid for a specified period at the time of issue for a specific vehicle. A Short Term AVP will be issued for access through a specified Access Gate to a specific airside area(s) for a particular purpose.

### 4 Display of AVP

- 4.1 An AVP must be clearly displayed on the windscreen of the vehicle (in a position that minimises the obstruction to the driver's view) while airside.
- 4.2 Emergency Services vehicles, called to an emergency or major training exercise, are exempt from the requirement to hold or display an AVP.

## 5 Conditions of Issue

- 5.1 A permit is issued subject to a signed “Declaration by the Applicant” indicating that the details provided are accurate and in order.
- 5.2 The permit is issued to a specific vehicle, approved for access by Anyfield Airport, the pass is not transferable between vehicles, companies or persons and serves only to identify the vehicle, NOT the driver or passengers.
- 5.3 The applicant or sponsor, is responsible for returning an AVP to the Anyfield Airport Permit Office for cancellation in the following circumstances:
- 5.3.1 When the purpose for which the pass was issued has ceased;
- 5.3.2 When the vehicle ownership changes;
- 5.3.3 When the vehicle is scrapped, sold or otherwise permanently ceases operation airside; or
- 5.3.4 In the case of a sponsored vehicle, when that vehicle is no longer used by the sponsoring company, even though the pass is still valid.
- 5.4 On request by Anyfield Airport Manager’s Department or the Airport Security, Anyfield Airport may cancel or request the return of an AVP if:
- ✓ The pass is defaced, altered, amended or bears markings not entered by the issuing authority;
  - ✓ The pass is found on any vehicle other than that for which it was issued; or
  - ✓ A pass is obtained for a privately owned vehicle purported to be company owned.

## 6 Acceptance of Conditions of Issue

The submission of an Application Form, duly signed, shall be regarded as acceptance of the conditions contained in this Instruction, as well as those contained in the Declaration on the Application Form.

## 7 Vehicle Requirements

### 7.1 Vehicle maintenance

The applicant or sponsoring company applying for an AVP is responsible for the safe operation and fitness of the vehicle/equipment it uses airside and is required to certify:

- 7.1.1 That the vehicle/equipment for which the pass is required has been properly

inspected, maintained and serviced by an appropriately qualified within the twelve months prior to the date of application and will continue to be inspected, maintained and serviced by an appropriately qualified engineer throughout the period of validity of the pass. This is to ensure that the minimum safety and performance standard specified by Anyfield Airport are maintained.

- 7.1.2 The applicant or sponsoring company will ensure that the frequency of inspections, maintenance and servicing is appropriate to the type and age of the vehicle used and in accordance with the manufacturers recommendations.
- 7.1.3 That a record of the inspection, service and maintenance of the vehicle/equipment will be made available for inspection by Anyfield Airport upon request.
- 7.1.4 That only person trained and competent to drive/operate that vehicle / equipment will drive it.
- 7.1.5 That an inspection has confirmed that the electrical and mechanical condition of the vehicle meets the standard required for the issue of an MOT certificate under the Motor Traffic Regulations. Where appropriate, the vehicle must be maintained to the standards required to gain an MOT Certificate and a valid MOT certificate must be held by the vehicle at all times that the vehicle is used airside.

**NOTE:** (1) *All airside operating vehicles shall undergo MOT to ensure the operational health of the vehicle and test shall be carried out by the Anyfield airport management.*  
(2) *A copy of the MOT certificate must accompany the Vehicle Airside Pass Application form for each vehicle. In the case of a vehicle/equipment that does not require an MOT certificate, the appropriate Motor Transport Vehicle (MTV) Inspection Forms, available from Operations Administration, must be completed and submitted with the application form.*

## **7.2 Vehicle Inspection by Aerodrome Operator**

- 7.2.1 The aerodrome operator reserves the right to inspect vehicles and relevant documentation to ensure that they comply with standards.

## **7.3 Obstacle lights**

- 7.3.1 The vehicle must be equipped with an Omni-directional flashing yellow obstacle light. These lights shall meet a uniform international standards.
- 7.3.2 In conditions where emergency vehicles not normally based at the airport are operated on airside areas, flashing blue lights, where fitted, will be used.

## **7.4 Vehicle identification and livery**

A vehicle for which a Vehicle Airside Pass is required must be in company livery. The company logo must be clearly displayed on BOTH SIDES of the vehicle. An exception may be made for an un-liveried vehicle with a short term Vehicle Airside Pass if it is carrying permanently installed equipment which is essential to the purpose of the visit.

## 7.5 Vehicle specification

- 7.5.1 A vehicle or trailer should not normally exceed 3m in width. Exemption to this requirement may be granted by Anyfield Airport in certain circumstances where a specific need exists.
- 7.5.2 The vehicle or trailer must be able to meet the airside height restrictions which are clearly marked by warning plates wherever headroom clearance is limited.
- 7.5.3 Any vehicle or equipment capable of elevation must be fully retracted before being driven anywhere on the airside road system.
- 7.5.4 The total overall length of a trailer train including the prime mover and couplings must not exceed 18.3 m. Subject to this maximum, the following numbers of trailers of specific categories may be drawn by one prime mover:
- Not more than four single size baggage or single LD3 trailers;
  - Not more than three double LD3 trailers;
  - Not more than three large cargo trailers;
  - Where more than one category of trailer is drawn by one tug, no more than three trailers are permitted.

## 7.6 Other requirements

- 7.6.1 The exhaust system must be in good order.
- 7.6.2 The vehicle must be free from oil/fuel leaks.
- 7.6.3 The prime mover must be of adequate power and weight and capable of braking efficiently the prime mover itself and all trailers it is towing.
- 7.6.4 The prime mover must have front and rear lights illuminated if operating during the hours of darkness or in poor visibility.
- 7.6.5 Any vehicle or trailer over 2.46m in length must have red or amber reflectors at or near each end, clearly visible in conditions of poor visibility or in darkness. High intensity reflective sheet material or reflective paint is an acceptable alternative.
- 7.6.6 Trailers must have a proper parking brake system.
- 7.6.7 Tow bars, even when not in use for towing aircraft, must be made clearly visible when being moved from one place to another, for example with fluorescent strips.
- 7.6.8 Any load, loose baggage or freight must be securely fastened to ensure it cannot spill/fall on the aprons and airside roads.
- 7.6.9 Whatever colour scheme a vehicle or equipment is painted in, it must be made highly conspicuous to be visible from all sides.
- 7.6.10 For any vehicle or trailers, or combinations of the two, which it is essential to use and

which cannot satisfy the requirements of this instruction, specific clearance must be applied for and obtained from Anyfield Airport Management before use on the apron or airside roads.

- 7.6.11 Consideration shall be given to installing an effective fire extinguisher on vehicles that will be operating in airside areas.

## **8 Employer's Responsibility**

- 8.1 It is the responsibility of the Employer to ensure that any employee or person who drives the Employer's vehicles on airside areas meets the following requirements.

8.1.1 The driver must hold an Identity Document valid for use at Anyfield I Airport. The driver must be in possession of an Oman Driving Licence (i.e. not provisional), that entitles the holder to drive a motor vehicle (of a specific category) on a public road. The driver must hold a valid Airside Driving Permit issued by or recognised by Anyfield Airport. The driver must also be in possession of a company driving permit which specifies that the named person has been specifically trained and is competent to drive/operate airside the vehicles/equipment listed on the permit. Access to such training records must be made available to CAA inspectors and Anyfield officials on request. In the case of heavy or specialist vehicles the driver must hold the appropriate category of licence which would apply to that vehicle if driven on a public road.

8.1.2 The driver must be familiar with and comply with the relevant requirements of all Instructions and Notices applicable airside and the Anyfield Airport Byelaws.

8.1.3 Periodically, Instructions and Notices are issued which regulate or amend procedures for the movement of vehicles on airside areas, or publish other requirements applicable to the airside. The employer must ensure that the contents of these Instructions and Notices are brought to the attention of and complied with by their employees.

## **9 Insurance Requirements for the Issue of an AVP**

9.1 The following insurance requirements must be fulfilled by the applicant before an application for an AVP is made.

9.2 Anyfield requires the holder of an AVP to carry adequate insurance covering all actions claims, costs and demands in respect of any loss, damage or injury to property or persons (including fatal injuries) which may be made against them or their servants' agents or contractors, arising in connection with the use of the vehicle airside at Anyfield.

9.3 The policy or policies of insurance must remain in full force and effect during the currency of the AVP, and the sum insured must be such a sum as is adequate to cover any potential liability in respect of the above actions.

- 9.4 Applicants for an AVP are required to produce documentary evidence of the insurance cover and the original policy document or cover note must indemnify Anyfield Airport.
- 9.5 Special arrangements apply to the insurance of vehicles owned or on hire to contractors working on behalf of Anyfield Airport Ltd. The details of these arrangements are as follows.
- 9.5.1 The Contractor shall effect with insurers or underwriters a policy or policies of insurance in the joint names of the contractor and Anyfield Airport Services Ltd.
- 9.5.2 The Contractor must produce for inspection by Anyfield Airport Ltd upon request at any time the said policy or policies of insurance and the receipt for the last premium paid in respect thereof.

## **10 Application Procedure for the Issue of an AVP**

An example of the application form for the issue of an AVP is shown at the end of this Instruction.

### **10.1 Annual AVP**

- 10.1.1 Application forms for Annual AVPs shall be available at Anyfield Airport Managers Office.
- 10.1.2 Applications must be made to Anyfield Airport Management using the approved forms.
- 10.1.3 Once approved, the Anyfield Management will issue the AVPs.

**NOTE:** *Applications for privately owned or non-operational vehicles will not be authorised.*

**NOTE:** *The issue of an AVP during the previous year carries no automatic right to reissue.*

**NOTE:** *The issue of an AVP does not confer the right to park airside.*

### **10.2.1 Short Term AVP**

- 10.2.1 Application forms for the Short Term AVPs can be obtained from the Anyfield Airport Management
- 10.2.2 Duly perfected application forms can be taken to the Anyfield Airport Management office, where a Short Term AVP can be issued immediately.
- 10.2.3 Out of hours, permits can be obtained from the respective permit office.

## **11 Validity of AVPs**

### **11.1 Annual AVPs**

An Annual AVP becomes valid at 0001 hours on the day of issue and remains valid until 2359 hours 12 months from the date of issue.

**11.2 Short term AVPs**

A Short Term AVP will normally be valid for specific period from the time it is issue (Specific Period to be determined in accordance to the request)

**12 Charges for AVPs**

12.1 The administration charges for AVPs are as follows.

12.1.1 Annual AVP - To be determined by the aerodrome operator

12.1.2 Short Term AVP - To be determined by the aerodrome operator

**13 Lost or Stolen AVPs**

13.1 If an AVP is lost or stolen it must be reported immediately to the aerodrome operator Security Department and police entry shall be made at nearest police station.

13.2 The cost of a replacement AVP is shall be as informed by the aerodrome operator Management.

**14 Further Requirements for the Issue of a Short Term AVP**

A short term AVP will normally be issued only for a vehicle which displays a recognised company livery and is fitted with a yellow flashing obstacle light. However, exceptions may be made if the vehicle is escorted by another vehicle which meets this requirement.

**15 Personnel Identity and Escorts**

The issue of an Annual or Short Term AVP does not, in itself, represent permission for any individual to go airside. If the driver does not hold an Airside Driving Permit, then he/she must be escorted by someone with a valid Airside Driving Permit and AVP.

The driver and any other occupant of the vehicle must be in possession of an Identity Document either permanent or restricted. If restricted, they must, at all times whilst airside, be escorted by a representative of the sponsoring company. It is the driver's responsibility to ensure that unauthorised persons are not carried in the vehicle.

**16 Low Visibility Operations**

Vehicles engaged in work on taxiways or stands, must have their routing or escort arrangements detailed in advance. On entry airside, drivers should check whether or not there are low visibility conditions or as that may impose further restrictions. Drivers of vehicles with Short term AVPs are not permitted to enter the manoeuvring area in low visibility conditions.

**17 Illegally Parked Vehicles**

The AVP will be removed from vehicles parked in direct contravention of Instructions and the Anyfield Airport Byelaws. The AVP shall be withheld until an investigation is completed.

**18. Model Application for Vehicle Apron Pass (Sample)**

To: Airport Manager  
Anyfield Airport

Telephone:

**To be completed by the Applicant in Block Capitals or Typewritten**

**1 Name and private address of registered vehicle**      **Name and address of applicant owner of if different from registered Owner of vehicle**

.....  
.....  
.....

Tel No. . .....      Tel No. . .....

**2 Name and address of employer of applicant**

..... Tel No.: .....  
.....Ext. ....

**3 Details of vehicle**

Weight Category: .....  
Make: .....      Model: .....  
Colour: .....      Registration No.:.....  
Company Livery: .....  
Width (if over 2.5m): .....

**4 Detailed reasons for application**

(Application for privately owned vehicles will only be authorized in exceptional circumstances).

**5 Name of company or body for whom service is being provided****To be completed by Sponsor****6 I, the undersigned certify that:**

- a) The vehicle operated by the applicant is required to enter Apron areas owing to their service to this Company and for the detailed reasons in Part 4 above.
- b) The driver and any other persons carried (except airline passengers) will be in possession of an approved identity document.
- c) I will bring the traffic and vehicle requirements as set out in the Airport Byelaws and Managing Director's Notices as modified from time to time, to the attention of all drivers who may use the vehicles for which this Pass is required.

- d) I will return the Pass if the applicants vehicle ceases to serve this Company/body during the period of issue.
- e) \*The applicant/owner/this company has taken out a policy or policies of insurance as set out in paragraph 9 overleaf.

Name of Sponsor: ..... Tel No.. ..... Ext .....

Signed on behalf of sponsor:

.....

Position ..... \* delete as appropriate

**For** Airport Record No. Pass Serial No. Date of Issue Previous Pass No  
Date Collected

**Office  
Use**

Signature of  
Recipient

**Declaration by the Applicant**

I, the undersigned, agree that

- (1) In view of the nominal sum, if any, charged for the Pass I accept that all vehicles are admitted to and remain on the aprons and service roads on the express condition that neither the Airport nor its servants or agents shall be liable to any loss of, or damage to, the vehicle or its contents, howsoever such loss or damage may be occasioned. The Pass is the property of the Airport and is issued subject to Airport Byelaws and Regulations.
- (2) I will ensure that the driver is aware that this Pass applies to the Aprons and Airside roads only and that he should not drive on the manoeuvring area (see note below) except when specifically authorised by Airport and ATC so to do.
- (3) I will bring the traffic and vehicle requirements as set out in the Airport Byelaws and Instructions, as modified from time to time, to the attention of all drivers who may use the vehicle for which this Pass is required.
- (4) The Pass is valid only when exhibited upon the windscreen of the vehicle for which it is issued and that any defacement or alteration will render it invalid.
- (5) The Pass is concerned with access only to airside and does not confer the right to park in airside areas, and that a vehicle reported for parking in airside areas may have its Pass cancelled.
- (6) The Pass remains at all times the property of the Airport and will be returned to the Authority issuing office upon request, or if the vehicle is no longer required for the purposes stated in Part 4 overleaf.
- (7) The driver and any other persons carried (except airline passengers) will be in possession of an approved identity document.
- (8) The vehicle has a valid MOT certificate where applicable under the Motor Traffic Act or should the vehicle require no Revenue Licence because it will not be required to operate on roads where the Motor Traffic Act applies, the vehicle has been inspected

by a Motor Engineer within the past three calendar months of the date of this application and that the mechanical and electrical condition of the vehicle meets the standards required for the issue of a MOT certificate under the Motor Traffic Act. All vehicles should be serviced and maintained to ensure MOT standards are complied with.

- (9) Prior to driving a vehicle on airside for which a vehicle apron pass has been issued to me there will have been taken out a policy or policies of insurance covering all actions, claims costs and demands in respect of any loss, damage or injury to property or persons (including fatal injuries) which may be made against us or any of our servants, agents or contractors, howsoever arising in connection with the use of the vehicles airside, which policies of insurance we undertake to maintain in full force and effect during the currency of the said Pass. The sum insured shall be such sum as is adequate to cover our potential liability in respect of the said actions, claims and costs.
- (10) Any fee charged for the Pass is not returnable upon cancellation of the Pass howsoever arising.

Signed .....  
Name (BLOCK LETTERS) .....  
Company .....  
Position in Company ..... Date .....

## Appendix C-1: Model Safety Instructions – Airside Vehicle, Plant and Equipment Safety Inspections

**Important note:** This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical regional airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

### INSTRUCTION ON AIRSIDE VEHICLE, PLANT AND EQUIPMENT SAFETY INSPECTIONS

#### AIRSIDE VEHICLE, PLANT AND EQUIPMENT SAFETY INSPECTIONS

##### 1 Introduction

1.1 This instruction describes the vehicle, plant and equipment safety inspections to be conducted by airside vehicle operators and suggests procedures to ensure compliance.

1.2 All vehicles, plant and specialist equipment (as defined in Annex - 1) are required to possess an airside plate or pass. To qualify for a pass/plate a vehicle must be maintained in a similar standard to that required for the vehicle fitness (MOT) certificate for public road vehicles, including checks associated with the specialist function of the particular vehicle, plant or equipment. Evidence of a satisfactory inspection (describe in Para 4) is required at the time of issue or renewal of the plate/pass.

##### 2 Definitions

For the purpose of this instruction:

- i. A vehicle is defined as any mechanically propelled conveyance.
- ii. Plant is defined as mechanically or electrically powered equipment
- iii. Equipment is defined as non-powered equipment i.e. aircraft steps, trailers, dollies or tow-bars

##### 3 Validity of a Vehicle, Plant or Equipment Safety Inspection

3.1 All airside vehicles, plant and equipment should have as an absolute minimum two full safety inspections per year, even if lightly used and irrespective of operation time or mileage. However, for the administration of this procedure, one of these safety inspections must be carried out within one-month period before the date of issue or re-issue of an airside pass.

3.2 Anyfield Airport Ltd. will require evidence of defect-free safety inspections on four occasions, as follows:

- a) On the first application for an airside pass;
- b) On annual renewal of an airside pass;
- c) During audit checks by Anyfield, when maintenance records will be inspected;
- d) Following a vehicle related incident or accident when maintenance and safety

inspection records will be inspected.

- 3.3 A prerequisite of the issue/re-issue of a Vehicle, Plant, and Equipment Airside Pass is the production of the following: **Table 1**

	Service Stamp	Safety & Serviceability Certificate	MOT Certificate
Airside Plant/Equipment – new 0-1yr	N/A	N/A	N/A
Airside plant/Equipment 1-3yrs	N/A	√	N/A
Airside Plant/Equipment >3yrs	N/A	√	N/A
MA personal Company vehicles 0-3yrs	√	N/A	N/A
MA personal Company vehicles > 3	N/A	N/A	√
Company (liveried) vehicles new 0-1yr	√	N/A	N/A
Company (liveried) vehicles 1-3yrs	√	N/A	N/A
Company (liveried) vehicles >3yrs	N/A	N/A	√
Private Vehicles –new 0-1yr	√	N/A	N/A
Private vehicles 1-3yrs	√	N/A	N/A
Private Vehicles >3yrs	N/A	N/A	√
<b>EXCEPTIONS</b>			
Company and private vehicles from Ramp Road Security Point to Facility Services/Fire Station car parks	N/A	N/A	N/A
Company and Private Vehicles from Hangar Road to Fuel Farm car parks	N/A	N/A	N/A

**NOTE:** Service Stamp means a certified stamp entered on to the vehicles servicing logbook

**NOTE:** Vehicles operating landside must comply with MOT requirements.

**NOTE:** A copy of the insurance certificate.  
Risk Zone Proof of cover will be required for each vehicle.

#### 4 Providing Evidence of a Satisfactory Vehicle, Plant and Equipment Inspection

- 4.1 There are two basic means of providing acceptable evidence of a defect-free safety inspection. The first requires a copy of the current MOT certificate and the second requires the submission of a Anyfield Vehicle, Plant and Equipment Safety

and Serviceability Inspection Form. (Sample- Form Annex -2)

- 4.2 Companies/organisations operating at Anyfield should provide a photocopy of relevant forms to Anyfield Airport. as required, always maintaining a master copy of each form for their own records.

## **5 Vehicle, Plant and Equipment Safety Inspections Accepted by Anyfield**

- 5.1 Companies/organisations operating at Anyfield Airport may have their own transport servicing procedures. These companies/organisations may issue Safety and Serviceability forms for their vehicles which may be used by the Anyfield Airport.

## **6 Apron Vehicle/Plant and Equipment Safety Audits**

Anyfield Airport Standards and Compliance Advisors will carry out random safety inspections on vehicles, plant and equipment in airside areas. Vehicle, plant and equipment will not be entered or inspection panels lifted without first consulting the company concerned. Companies/organisation with airside vehicle, plant and equipment will also be visited to carry out audits on safety inspections and maintenance records.

## **Annex -1: Vehicles, Plant and Specialist Equipment**

### **1 Standard Vehicles**

All vehicles that have to comply with licensing regulations.

Cars and light commercials  
Articulated Tractor Units  
LGVs  
HGVs  
PSVs (mini buses and coaches etc.)  
Agricultural vehicles  
Forklift trucks  
Road sweepers.

### **2 Specialist Vehicles**

Aircraft pushback tugs  
Belt loading vehicles  
Main deck loaders  
Pallet transporters  
Major foam tenders  
Airport buses over 2.5 metres wide  
Freight moving tugs  
Ambulifts

**Annex -2: Safety and Serviceability Inspection Forms (Sample)****ANYFIELD AIRPORT****SAFETY INSPECTION**

Owners Name: ..... Fleet No: .....

Engineer's Name: ..... Registration No: .....

Engineer's Company: ..... Km : .....

Seating Capacity :..... Inspection Date: .....

Marking Code:     √ = Serviceable     X = Defect Present     N/A = Not applicable

ALL ITEMS ARE TO BE CHECKED IN ACCORDANCE WITH THE VEHICLE SERVICE MANUAL

Safety Inspection - Passenger Carrying Vehicles					
No.	Item	Check for	Code	TM	Comments
1	Smoke emission	Density			
2	Road wheels & hubs	Security, condition			
3	Size & type of tyre	Miss-matching			
4	Condition of tyres	Wear, damage, inflation, re-cut pattern			
5	Bumper bars	Security, condition			
6	Condition of wings & wheel arches	Security, condition			
7	Passenger doors	Condition, operation			
8	Driver's doors	Condition, operation			
9	Emergency exits	Condition, operation, access			
<b>I certify that the final road test/Inspection has been carried out. The unit is roadworthy and serviceable</b>					
Signature of engineer:		Signature of maintenance superintendent:		Date completed:	
Print name		Print name			

## Appendix D-1: Model Safety Instruction - Airside Accident/ Incident Reporting and Investigation Procedures

**Important note:** This Appendix represents a model instruction that might reflect the management organisation and procedures at a typical airport. The material contained in this Appendix is intended to act as an example that can be modified to suit the actual arrangements at an airport. The job titles, responsibilities and procedures will not necessarily be suited to or appropriate at any particular aerodrome and are intended only to illustrate the type of procedures that are likely to be required in order to adequately manage the safety of aircraft and people in airside areas.

### 1 Introduction

- 1.1 One of the prime contributory factors for the establishment and maintenance of effective safety discipline is an open and honest accident/incident reporting scheme
- 1.2 It is the responsibility of everyone employed at Anyfield Airport to report any circumstances affecting safety.
- 1.3 An accident or Near Miss incident can indicate that there is a failure within safety programmes or procedures. It is therefore important that all accidents or near miss incidents are reported and investigated. The purpose of this Airport Safety Instruction is to ensure that everyone working or operating at the airport is aware of Anyfield Airport's mandatory requirements for the reporting of accidents or incidents.
- 1.4 Everyone is required to be familiar with this Instruction and their own company procedures.

### 2 Initial Reporting Procedures

- 2.1 Accidents must be reported immediately by the vehicle driver, aerobridge, plant or equipment operator and any other persons involved. It is possible that those involved may be incapacitated because of an accident, in this case any witness to the accident should carry out the initial reporting procedure. The report is to be made to the Airport Management or ATC as appropriate in the following way: From telephones on the airport exchange or any other means of communications.
- 2.2 The following details should be given:
- Name and ID number
  - Telephone Number
  - Location
  - Nature of the accident/incident
  - Any injuries/damage
  - Emergency services required
- 2.3 On receipt of the information the switchboard operator is to inform the relevant people as required by the Airport directives.
- 2.4 The scene of the accident/incident should be isolated and the vehicles, plant and

equipment involved in the accident/incident should not normally be moved until the police or Airport investigator is in attendance. However, if in the judgement of the senior person present or the Officer in Charge of the Fire Service their removal is necessary in the interests of safety or to effect a rescue, this may be done. The scene should preferably be photographed before being disturbed.

Note: Should the Accident/incident involve an aircraft; it shall be reported to the Public Authority for Civil Aviation as first priority.

### **3 Accident/Incident Investigation**

- 3.1 The primary purpose of any accident investigation should be to gather information and evidence in order that the facts can be determined with a view to preventing recurrence. It should not have as its primary objective, the determination of a 'Liability'.
- 3.2 All accidents, including 'Near Misses' and minor events should be investigated by a departmental manager/supervisor.
- 3.3 On completion of the initial investigation, the manager/supervisor carrying out the investigation is to complete Form in Annex -3 (ARF 1/00) (Sample) and forward the completed form to the Airport Management.

### **4 Near Miss Accidents/Incidents**

- 4.1 A 'Near Miss' is defined as an unplanned and unforeseeable event that could have resulted, but did not result in personal injury, property damage or other form of loss.
- 4.2 It is essential that all Near Misses are reported and action taken in terms of investigation and analysis, so that appropriate remedial action can be taken on the philosophy that "Yesterdays near miss could be tomorrow's serious accident"
- 4.3 Near Miss accident/incidents are to be reported on the Form in Annex 3 (ARF 2/00) (Sample) and the completed forms forwarded to the Airport Management. The reports can be made anonymously.

### **5 Report of a Hazard or Unsafe Condition**

- 5.1 A "Hazard" is something with a potential to cause injury/harm or loss. An important adjunct to all form of health and safety monitoring and accident prevention is the operation of an effective hazard reporting system.
- 5.2 The Form in Annex 3 (ARF3/00) (Sample) - Report of a Hazard or Unsafe Condition, is to be made available to all staff working at the airport. The report can be made anonymously. Completed forms should be forwarded to the Airport Management.

**PLEASE ENSURE THAT THIS INSTRUCTION IS BROUGHT TO THE ATTENTION OF ALL STAFF WHO NEED TO BE AWARE OF THE PROCEDURES**

**Annex -3 – Reporting Forms (Sample)****Report Form ARF1/00 - Report of an Incident Involving Injury or Property Damage****Report Form ARF2/00 - Near Miss Report****Report Form ARF3/00 - Report of a Hazard or Unsafe Condition**

<b>ANYFIELD AIRPORT</b>		<b>REPORT OF AN INCIDENT INVOLVING INJURY OR PROPERTY DAMAGE FORM ARF1/00</b>						
<b>To be completed by all airside operators and companies</b>								
Time of Incident		Date		Location				
<b>Company details</b>								
Company				Type of Business				
Address				Tel. No.				
				Fax				
				E-mail				
<b>Details of persons involved in the incident</b>								
First name			Surname			Age	DOB	
ID No. if known			Job title			Employing company		
Dept.			Length of Time with the Company				Date joined company	
<b>Details of the incident</b>								
Use other side of sheet if necessary								

<b>ANYFIELD AIRPORT</b>		<b>REPORT OF AN INCIDENT INVOLVING INJURY OR PROPERTY DAMAGE FORM ARF1/00</b>					
<b>Details of any injuries</b>							
Use other side of sheet if necessary							
<b>Equipment/plant/property details</b>							
Type of equipment/plant/property							
Equipment/plant/structure owner		Fleet/ Serial No.		Date of Last Inspection/servicing			
<b>Damage Sustained by Equipment/plant/property</b>							
Use other side of sheet if necessary							
<b>Witness Details</b>							
<b>Witness 1</b>				<b>Witness 2</b>			
First Name		Surname		First Name		Surname	
Address				Address			
Post Code				Post Code			
Tel:				Tel:			
Statement taken	YES "	NO "		Statement taken	YES "	NO "	
Name Of Person Making Report				Signature		Date	
COMPLETED FORM TO BE SENT TO THEAIRPORT MANAGEMENT							

<b>ANYFIELD AIRPORT</b>			<b>NEAR MISS REPORT Form ARF2/00</b>		
Area: i.e. airside/terminal			Location		
Name (Optional)				Date of Near Miss	
Company				Time of Near Miss	
Description of Near Miss					
What Caused the Near Miss to Occur? (if Known)					
<b>Evaluation of the Potential of the Near Miss</b>					
Severity Potential			Probable Recurrence Rate		
Major	Serious	Minor	Frequent	Occasional	Rare
Action Already Taken					
Recommendations					
Date Action Required By			By Whom		
Manager			Signature		
Completed Forms to be Sent to the Airport Management				Date	

<b>ANYFIELD AIRPORT</b>		<b>REPORT OF A HAZARD OR UNSAFE CONDITION</b> <b>Form ARF3/00</b>								
Name of Person Reporting Hazard (Optional)										
Date Of Observation		Time								
Location of Hazard or Unsafe Condition										
Hazard or Unsafe Condition Description										
Injury Sustained	Yes		If Yes Please Complete Form ARF1/00		No		Damage Caused	Yes		No
Weather Condition	Wet		Dry		Icy					
Visibility	Good		Poor							
Has Your Employer Been Informed	Yes		No							
Remedial Action Taken by Company/department										
Name And Employing Company of Manager Submitting The Report										
Completed Forms to be Sent to the Airport Management										

## Appendix E-1: Example Airside Driving Training Syllabus

The following topics should normally be included in an airside driver training scheme.

### 1 Theoretical training

#### 1.1 National legal and regulatory obligations (relating to airside driving)

- Overview of the existing Regulations.
- Specific Regulations in respect of Certification of Aerodromes
- Basic Health and Safety Recommendations during airside operation.
- Airside Safety Management
- Oman motor traffic driving regulations and rights of way within the airport.

#### 1.2 Local requirements and procedures

- Airport bye-laws
- Airport Conditions of Use
- Methods used to disseminate instructions and procedures (e.g. Airport Operational Instructions)
- Airport Safety Instructions
- Access to particular areas and taxiway crossing.
- Privileges of Airside Driving Permits (ADP), and Airside Vehicle Permits (AVP)

#### 1.3 Personal Responsibilities

- Fitness to Drive (Medical/Health Standards)
- Personal Protective Equipment (PPE) - (Hearing, Foot, High Visibility Clothing etc.) and their use.
- Driving Standards
- Authorisation to drive a vehicle
- Smoking and other hazardous activities
- Responsibilities with respect to FOD/fuel or oil spillages
- Responsibilities of drivers with respect to avoiding collisions

#### 1.4 General airport layout and organization

- Surface markings and signs (for both vehicles and aircraft)
- Prohibited areas
- Speed limits
- Parking areas and restrictions

#### 1.5 Vehicle standards

- Condition and maintenance standards
- Displaying of lights (general and obstruction)
- Daily inspections and fault reporting and maintaining of necessary records.

#### 1.6 Precautions when driving at night, in low visibility and adverse weather

- Additional risks
- Differences from normal conditions

- 1.7 **Procedures to be used in conditions of low visibility and in adverse weather**
  - Airport Low Visibility Procedures (LVPs) (Only if Applicable)
  - Notification of weather warnings etc.
- 1.8 **Hazards**
  - Danger zones around aircraft
  - Fuelling of aircraft
  - FOD (Foreign Object Debris/Damage)
  - Pedestrians
  - Reversing
- 1.9 **The Role of**
  - The Public Authority for Civil Aviation (PACA)
  - The ROP/Police
  - The apron law enforcement
- 1.10 **Security Procedures**
  - Personal requirements (e.g. ID Cards) and exemptions where applicable
  - Airside Driving Permits and Airside Vehicle Permits (ADP & AVP)
  - Security-Restricted/Controlled zones.
- 1.11 **Emergency Procedures**
  - Action to be taken in the event of a vehicle accident
  - Action to be taken in the event of a fire
  - Action to be taken in the event of an aircraft accident or incident
  - Reporting procedures
- 1.12 **Driving around aircraft stands**
  - Indication of 'live' aircraft/stand (Bay)
  - Stand markings
  - Dangerous areas
  - Responsibilities of stand users
- 1.13 **Communications**
  - Light signals and their use by ATC
  - Hand signals and aircraft marshalling.
  - Radio communication procedures (VHF use).
  - Familiarisation with applicable equipment
- 1.14 **Penalties for non-compliance**
  - General and local penalties and driving offence procedures
- 2 Practical training**
- 2.1 **Visual familiarisation of:**
  - Airside service roads
  - Aprons
  - Stands
  - Surface markings and signs
  - Prohibited areas
  - Parking areas and restrictions
  - Speed limits and signs
  - Hazards.

## Appendix F-1: Operation of Vehicles on the Airside (Sample)

### CONTROL OF VEHICLES

#### 1 Introduction

- 1.1 All vehicle operators, who operate within the boundary of the Airport, are to comply with the instructions determined by the Oman motor traffic regulation, and Any Airport Safety Instructions and airport safety policy.
- 1.2 Failure to comply with the provisions of this Instruction may render the offender liable to penalties, which could include withdrawal of permission to enter the airside.

#### 2. Definition of Movement and Manoeuvring Areas

##### 2.1 Manoeuvring Area

That part of the aerodrome provided for the take-off and landing of aircraft and for the movement of aircraft on the surface, excluding the Apron and any part of the aerodrome provided for the maintenance of aircraft.

##### 2.2 Movement Area

That part of the aerodrome intended for the surface movement of aircraft including the manoeuvring area, aprons and any part of the aerodrome provided for the maintenance of aircraft.

#### 3 Licensing Requirements

##### 3.1 Licensing of Drivers

- 3.1.1 Drivers of vehicles or plant operating airside are required to possess a valid Oman Driving licence for the particular class of vehicle.
- 3.1.2 All drivers of vehicle or plant operating airside must be in possession of a current Airside Driving Permit (ADP).
- 3.1.3 Operators of specialist vehicles, equipment and plant airside e.g. hydraulic lifts, mobile conveyors, catering vehicles etc. are required to hold a certificate issued by their employing company to confirm their competence to operate such vehicles, equipment and plant.
- 3.1.4 Drivers must produce personal Identity Documents, Driving Licences, Airside Passes and specialist qualification certificates on demand to authorised officials of the aerodrome operator, and to any PACA Inspector.

### 3.2 Airside Passes - Vehicles

- 3.2.1 Subject to the exceptions listed below, no vehicle is permitted to enter the movement area unless it bears a current Airside Vehicle Permit (AVP). Permits will not be issued to bicycles or motorcycles.
- 3.2.2 Vehicles in the following categories will be admitted to the airside, subject to conditions that may be specified: -
- Police vehicles attending an emergency;
  - Specialist military vehicles, escorted by police vehicles, attending an emergency;
  - Local Authority fire appliances attending an emergency;
  - Local Authority ambulances attending an emergency;
  - Local Authority or private ambulances on non-emergency medical duties provided that they have a proven requirement and approval from the Airport management and are escorted by an authorised person.
  - VIP escorted vehicle during a VIP movement.

## 4 Traffic Rules - General

- 4.1 Whether inside or outside a vehicle, the airside is a **no smoking** area.
- 4.2 Vehicles must not be driven into or through works areas, unless in conjunction with the work. Such areas shall be prominently marked and, where necessary, diversion routes are indicated.
- 4.3 Vehicles must not be driven onto or across stands, even when no aircraft is present, unless in connection with work on the stands such as aircraft turn-round or maintenance on the stand itself.
- 4.4 Vehicles must not move on or off a stand when an aircraft is moving, its engines are running, or the anti-collision lights are on.
- 4.5 Vehicles must stay well clear of the area directly in front of and behind aircraft engines when they are running or when the anti-collision lights are on.
- 4.6 Vehicles must always remain at least one metre away from any part of an aircraft unless they are engaged in a task that specifically requires them to operate closer to the aircraft.
- 4.7 Vehicles may only be driven in reverse gear when it is essential for the task in hand. When this is on an occupied stand, it must be done under external guidance.
- 4.8 Personnel must, at all times, travel only within passenger carrying compartments of vehicles. Riding in or on any other part of a vehicle or trailer is an unnecessary risk and constitutes a serious breach of safety.

## 5 Lighting Requirements

### 5.1 Obstacle Lights on Vehicles

- 5.1.1 All vehicles operating on the movement area must display an obstacle light meeting the specification described in regulatory requirements pertaining to *Aerodromes Regulations*, CAR – 139.
- 5.1.2 **The use of hazard warning lights on a vehicle for this purpose is unacceptable.**
- 5.1.3 Obstacle lights on vehicles will normally provide sufficient conspicuity by day and night, and obviate the need for additional marking. However, vehicles intended for continuous use on the Movement Area are to be both marked and lighted.
- 5.1.4 Obstacle lights on vehicles are to be switched on whenever the vehicle is within the Movement Area.
- 5.1.5 Ambulances, Police, fire and rescue appliances should, in addition, carry blue flashing lights for use whilst carrying out emergency duties.
- 5.1.6 If conditions require emergency vehicles not normally based at the aerodrome to be called upon for assistance, flashing blue lights should be operated within the movement area.

### 5.2 Lighting General

- 5.2.1 At night or in low visibility, all vehicles are required to comply with the lighting regulations prescribed by the Oman Motor Traffic Regulations. Dipped headlights are to be used whenever the vehicle is moving at night or in low visibility within the movement area.

## 6 Movement of Vehicles on the Manoeuvring Area

- 6.1 No vehicle is permitted to enter the Manoeuvring Area unless permission to do so has been requested and given on each occasion by Air Traffic Control (ATC).
- 6.2 All vehicles must be equipped with obstacle lights, which must be operating. Vehicles not equipped with obstacle lights are not permitted to enter the movement area. Visiting vehicles, if not fitted with an obstacle, light must be escorted by a vehicle so equipped.
- 6.3 Vehicles operating on the manoeuvring area shall be in two-way contact with ATC/GMC at all times and must comply with instructions issued by the ATC controller.
- 6.4 All vehicles needing to work on or cross a runway must be equipped with VHF with appropriate channel and must comply with instructions issued by the ATC controller.

6.5 In exceptional circumstances, a vehicle not equipped with the appropriate radio may be accompanied by a vehicle so equipped as Pilot. The Pilot vehicle is responsible for ensuring that other vehicles in his party comply with instructions given by ATC, (GMC), and must advise him if for any reason, (e.g. engine failure etc.), any of his charges are unable to follow instructions.

6.7 All drivers must be familiar with the procedures for dealing with a radio failure whilst on the manoeuvring area. These procedures are comprehensively covered in the training on RT procedures. They are summarised below for convenience.

**It is difficult to cover all situations. The following are guideline actions that should be taken.**

In the event of radio failure, if possible:

- Clear the manoeuvring area
- DO NOT cross runways or taxiways
- Contact ATC by telephone

If the vehicle cannot vacate the manoeuvring area (e.g. towing an aircraft, at or approaching a holding point):

- HOLD POSITION Try to attract ATC attention; by flashing headlamps or waving
- Watch for light signals from the control tower
- Await the arrival of a marshaller

Always move clear of the runway if possible and await instructions.

**Meaning of Light Signals to Vehicles on the Aerodrome**

<b>STEADY RED</b>	STOP
<b>FLASHING RED</b>	Move clear of the landing area
<b>FLASHING GREEN</b>	You may move on the manoeuvring area
<b>FLASHING WHITE</b>	Return to starting point on the aerodrome

6.8 Drivers should make themselves aware of aircraft pushback procedures where they affect roadways and crossings, see Airport Safety Instruction - "Pushback Procedures".

**7 Foreign Objects on the Manoeuvring Area**

7.1 Before proceeding from one part of the Airport to another, which involves crossing Aprons, Runways or Taxiways/Taxi-lanes, vehicles and trailers (including tugs), must be carefully inspected to ensure that: -

- 7.2 Anything carried in or on the vehicle or trailer is secured and therefore cannot fall off.
- 7.3 All doors and tail or sideboards are securely closed and locked shut. Catering vehicles must not be moved with the body in the elevated position.
- 7.4 No parts of the vehicle and trailer etc. are loose and likely to become detached.
- 7.5 It is most important to ensure that the safety of aircraft is not jeopardised by debris or other miscellaneous objects on the manoeuvring area or aprons therefore: -

**All operators of vehicles and equipment in Airside areas should pay particular attention to this risk by securing loads and items carried (see also Airport Safety Instruction - "Foreign Objects on the Movement Areas").**

## 8 Speed Limits

- 8.1 With the exception of the emergency services responding to an emergency, all vehicles/drivers are to conform to the speed limits indicated by traffic signs displayed on or adjacent to the roads. The speed limits shall be specified for the followings as a minimum.

Link Roads	X mph/kph
Airside roads around terminal and engineering areas	X mph/kph
Baggage Make-up Areas	X mph/kph

- 8.2 Drivers of vehicles in airside areas are to drive their vehicles with due care and consideration for other airport users.

## 9 Vehicle Parking

- 9.1 Vehicles must not be left unattended in any airside area other than those areas specifically set aside for the purpose of parking.
- 9.2 No vehicle may be left unattended either in landside or airside areas with the engine running.

## 10 Vehicle Height Limitations

- 10.1 The attention of all vehicle drivers and operators is drawn to any airside road height limitations around the Passenger Terminal.
- 10.2 Airside operators are to take these restrictions into account when purchasing or replacing equipment to ensure that they can operate within these restrictions.

## 11 Right of Way

- 11.1 Vehicles must give way to taxiing or towed aircraft.
- 11.2 Vehicles must give way to passenger traffic boarding or alighting from aircraft.

**12 Monitoring of Standards**

- 12.1 All operators are responsible for the standards of training and performance of their staff and are expected to exercise adequate supervision of their activities.

**13 Use of Seat Belts when Driving Airside**

- 13.1 Whilst the use of seat belts when driving airside is not mandatory, the following advice is given.
- 13.2 Current best practice dictates that seat belts should be worn at all times, particularly when driving vehicles that have been fitted with Air Bags. If these measures are not taken serious injury could result to occupants should the airbag become inadvertently deployed, or following an accident.

**PLEASE ENSURE THAT THIS INSTRUCTION IS BROUGHT TO THE ATTENTION OF ALL REQUIRED STAFF.**

**Chapter 4 Reference Documents used within this Document**

- CAR 139, PART 1, Aerodrome Certification Design and Operation
- CAR 139, PART 2, Heliports and Water Aerodromes
- PACA Guidance Document – Manual on Safety Risk Assessment / Aeronautical Study
- ICAO Guidance Documents
- UK Civil Aviation Publication