SIERRA LEONE CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR

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Apron Management Services

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1. GENERAL

The Sierra Leone Civil Aviation Authority's Advisory Circulars contains information about standards, practices and procedures that the Authority has found to be an Acceptable Means of Compliance (AMC) with the associated Regulations.

An AMC is not intended to be the only means of compliance with a Regulation, and consideration will be given to other methods of compliance that may be presented to the Authority

Information considered directive in nature is described in this AC in terms such as "shall" and "must", indicating the actions are mandatory. Guidance information is described in terms such as "should" and "may" indicating the actions are desirable or permissive, but not mandatory.

1.1 Purpose

This Advisory Circular provides additional guidance to the Apron Management Services (AMS) requirements contained in the SLCAR's Part 14A.

The purpose of an AMS is to:

(a) Regulate movement on the aerodromes airside area with the objective of preventing collisions between aircraft, and between aircraft and obstacles;
(b) Regulate entry of aircraft into, and coordinate exit of aircraft from the apron in coordination with the aerodrome control tower; and
(c) Ensure safe and expeditious movement of vehicles/equipment; and appropriate regulation of other activities conducted at the Apron.

1.2 Description of Changes

This AC is the first to be issued on this subject

1.3 References

(a) SLCAR's Part 14A - Aerodrome Design and Operations
(b) SLCAA-AC-AGA007-Rev.01 - Surface Movement Guidance and Control System
(c) ICAO Doc 9137, Part 8 - Operational Services

1.4 Cancelled Documents

Not Applicable

1.5 Definitions

(a) **Airside** - That area of airport intended to be used for activities related to aircraft operations and to which public access is normally restricted. The movement area of an aerodrome and adjacent terrain and buildings or portions thereof, access to which is controlled.
(b) **Apron** - That part of an aerodrome, other than the manoeuvring area, intended to accommodate the loading and unloading of passengers and cargo, the refuelling, servicing, maintenance and parking of aircraft, and any movement of aircraft, vehicles, pedestrians to allow execution of those functions.
(c) **Dangerous Goods** - Articles or substances which are capable of posing a significant risk to health, safety, property or the environment when transported by air. These are shown in the

list of dangerous goods in the Technical Instructions or are classified according to those Instructions.

(d) **Foreign Object Debris (FOD) -** An inanimate object within the movement area which has no operational or aeronautical function and which has the potential to be a hazard to aircraft operations.

(e) **Ground Support Equipment** - Any motor vehicle or piece of equipment, fixed mobile or towed, whose use is exclusively for aircraft ground handling operations.

(f) **Jet Blast Damage** - Any damage to an aircraft, structure, vehicle or persons on the apron caused by jet blast interference from an aircraft.

(g) **Load Control** - A function to ensure the optimum utilization of the aircraft capacity and distribution of load as dictated by safety and operational requirements.

(h) **Loading Instruction** - Instructions given by load control to the person responsible for the aircraft loading.

(i) **Maneuvering Area** - That part of an aerodrome intended to be used for the taking off and landing of aircraft and the movement of aircraft associated with taking off and landing, excluding aprons.

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

(k) **Power-back** - Moving of aircraft from parking position to taxi position by use of aircraft's engines.

(l) **Push-back** - Moving of aircraft from parking position to taxi position by use of specialized ground support equipment.

(m) **Towing** - Moving of aircraft other than pushback operations, with/without load on board by use of specialized ground support equipment.

(n) **Unit Load Device (ULD)** - A unit in which dead load is bulk loaded and subsequently loaded as a unit into the aircraft.

2. INTRODUCTION

(a) There are a large number of activities taking place on aprons within a congested and time-sensitive environment. Accidents, incidents and occurrences can affect the safety and health of personnel as well as cause aircraft damage. Ensuring safety on the apron is primarily the responsibility of the aerodrome operator, however, all third parties operating on the apron have a responsibility to ensure the safety of their specific operations.

(b) Apron hazards should be identified and mitigation measures developed as part of the aerodrome operator's Safety Management System (SMS). All staff operating on the apron need to be made aware of its hazards: this may be achieved through general safety introduction training for all staff with unescorted access to the apron areas. Part of this training includes aerodrome operating procedures related to apron management and safety.

(c) For safe and efficient apron operations there is need for a close liaison between the aerodrome operator, aircraft operators, air traffic services and other third parties. The operational safety and efficiency of apron management depends very largely upon this close cooperation. Ground Handling and Apron Safety are important aspects of airport operations. The safe and efficient ground handling operations during arrival and departure of an aircraft requires coordinated responsibilities amongst qualified persons. Where an airline chooses to provide these functions through ground handling service providers, it must lay down the responsibilities of its own personnel for the execution, monitoring and verification of the critical points of those functions.

(d) The Air Traffic Control (ATC) Service at an aerodrome extends throughout the manoeuvring area, but does not specifically cover the apron. Therefore, an Apron

Management Service (AMS) is required to regulate the activities and the movement of aircraft, vehicles and personnel on the apron when warranted by the volume of traffic and operating conditions. There are a variety of different approaches to AMS which can, depending on the particular condition, accommodate the requirements of the aerodrome.

(e) An AMS may be provided by ATC, the Aerodrome Operator, by a third-party service provider or by coordinated control between all of them. Apron Management is an essential task at any aerodrome. However, the need to establish a dedicated apron management service is dependent upon three main operational factors, namely:
   (i) The traffic density;
   (ii) The complexity of the apron layout; and
   (iii) The visibility conditions under which the aerodrome authority plans to maintain operations.

3. REQUIREMENT FOR THE OPERATIONS OF GROUND HANDLING.

(a) All Ground Handling Company must obtain an operating license from the Authority. Ground Handling Operators (GHO) must have an approved Operations Manual which must:
   (i) be type written or printed and signed by the accountable person of the ground handling service provider;
   (ii) be in a format that is easy to review;
   (iii) have a system for recording the accuracy of pages or amendments thereto, including a page for logging revisions; and
   (iv) be organized in a manner that will facilitate the preparation, review and approval process.

(b) Ground Handling Operations and Maintenance.
   (i) Subject to any directives that the Authority may issue, the GHO must operate and maintain their facilities and equipment in accordance with the approved procedures set out in the Ground Handling Manual.
   (ii) to ensure the safety of aircraft, the Authority may issue written directives to a GHO on the procedures set out in the Ground Handling Manual.
   (iii) The GHO shall ensure proper and efficient maintenance of the operational facilities and equipment.
   (iv) The GHO will coordinate with Apron control/AMS in order to be satisfied that appropriate traffic services are available to ensure the safety of aircraft operations on the aerodrome.

(c) Ground Handling Operator's Safety Management System.
   (i) A GHO shall establish and fully implement an SMS that includes the safety policies, procedures and practices relevant to provide the services covered by its operations in a safe manner.
   (ii) The SMS must be in accordance with the standards set out in the SLCAR Part 19.
   (iii) The GHO must keep under review its Safety Management System and take such corrective action as is necessary to ensure that it operates properly.
   (iv) The GHO should conduct internal Safety Audits and ensure that the audit reports including the report on the Ground Handling facilities, services and equipment are prepared by suitably qualified safety personnel.

(d) Access to Ground Handling Facilities by Authorised Inspector(s).

(i) Personnel so authorised by the Authority may inspect the Ground Handling facilities, services and equipment, document and records and verify the operator's SMS before license is granted or renewed and subsequently, at any other time, for the purpose of ensuring safety of its operations at the aerodrome.
(ii) A GHO should, at the request of the person referred to in paragraph (d)(i) above allow access to any part of the facilities, including equipment, records, documents and operational personnel, for the purpose referred to in paragraph (d)(i) above.
(iii) The GHO shall cooperate in conducting the activities referred to in paragraph (d)(i)

(e) Quality Control System
(i) The holder of a Ground Handling License must establish a system for quality assurance and good service delivery.
(ii) The holder of a Ground Handling license must establish a procedure for ensuring the serviceability of all facilities.
(iii) The Ground Handling License holder must establish a contingency plan.

4. WHEN SHOULD AN APRON MANAGEMENT SERVICE BE ESTABLISHED?

(a) An aerodrome operator shall establish an AMS for his aerodrome. The more complex the apron layout the more comprehensive an apron management service needs to be, particularly when taxiways are included in the apron area. The apron may simply be an area set aside for the parking of aircraft, with painted lines to guide pilots to self-manoeuvring aircraft stands. At the other end of the scale the apron area may be a large part of the movement area with numerous nose-in stands, several terminals and complex taxiways forming part of the layout. A complex apron area such as this will need a comprehensive apron management service including radio communication facilities.
(b) The aerodrome operator must therefore consider what scope of management is needed for the activity on their apron areas to ensure the safe and efficient operation of aircraft and vehicles in close proximity. This is particularly important where low visibility operations are contemplated.

When considering what scope of management may be needed on an apron area, the following points should be considered:
(i) Is the apron area sufficiently large, complex or busy to merit a separate staff to manage it?
(ii) What radiotelephone facilities do the staff need to exercise control over their own vehicles, airline vehicles and if necessary, over aircraft using apron taxiways?
(iii) If apron management staff are required to exercise control over aircraft and vehicles on the apron area to ensure safe separation, then such staff should be properly trained and licensed and their legal authority clearly established.
(iv) Will the apron management service issue its own instructions such as; start-up, push back, taxi clearances, and stand allocation or will these be given by the ATS unit as an element of the apron management service?
(v) How will the various airline service vehicles be regulated on the apron as well as on airside roads serving aircraft stands? Is there a need for roads - controlled or uncontrolled, crossing apron taxiways?
(vi) Who will be responsible for inspection, maintenance and cleanliness of the aprons?
(vii) What size of marshalling service, including leader van service (follow-me vehicles), is required to meet aircraft parking needs?

(viii) Are low visibility operations contemplated at the aerodrome? If so what procedures need to be developed to ensure safety on the apron area?

(ix) Are there procedures to cater for contingencies such as accidents, emergencies, diverted aircraft and flow control, when the stands are nearly all occupied, undergoing maintenance work, stand cleaning?

5. WHO OPERATES THE APRON MANAGEMENT SERVICE?

(a) A preferred system of operating aprons, has been to set up a traffic management control procedure in which a single unit takes over the responsibility for aircraft and vehicles at a pre-determined handover point between the apron and the manoeuvring area.

(b) Generally, the edge of the manoeuvring area represents the handover point. In any event, the handover point should be clearly indicated on the ground and on appropriate charts, (e.g. the aerodrome chart) for the benefit of aircraft/vehicle operators. The apron management unit will then assume responsibilities for managing and co-ordinating all aircraft traffic on the apron, issuing verbal instructions on an agreed radio frequency, and managing all apron vehicle traffic and other apron activities in order to advise aircraft of potential hazards within the apron area. By arrangement with the aerodrome ATS unit, start-up and taxi clearance to the handover point will be given to departing aircraft where the ATS unit assumes responsibility.

6. CO-ORDINATED MANAGEMENT

6.1 Overview

Whichever method of operating an apron, the need for close liaison between the aerodrome operator, aircraft operator and ATS is paramount. Stand allocation, aircraft arrival or departure time, start-up clearances, dissemination of information to operators, notification of work in progress and non-availability of facilities, security arrangements and the availability of safety services, are all items of vital importance to both ATS and the Aerodrome Operator. The operational efficiency and safety of whichever system is adopted, depends very largely upon this closed cooperation.

One form of the co-ordinated AMS, is where radio communication with an aircraft requiring start-up or push-back clearance on the apron is vested in the Air Traffic Control Service Unit, and the control of vehicles is the responsibility of the aerodrome operator. At such aerodromes, ATS instructions to aircraft are given on the understanding that safe separation between the aircraft and vehicles not under radio control is not included in the instruction.

The Apron Management Service Unit (AMSU) provided by the aerodrome operator should maintain close communication with the Air Traffic Control Service Unit, and is responsible for aircraft stand allocation, dissemination of movement information to aircraft operators by monitoring ATC frequencies, and by updating basic information continuously on aircraft arrival times, landings and take-offs. The AMSU should ensure that the apron area is kept clean by airport maintenance and that established aircraft clearance distances are available at the aircraft stand. A marshalling service and a leader van (follow-me vehicle) service should also be provided. The (AMU) staff will be responsible for the maintenance of discipline and compliance with Regulations relating to the control of vehicles and persons, as laid down by the aerodrome operator or operating company.

6.2 Dissemination of Information to Apron Users

(a) The information to be provided to apron users may include the following:

(i) the type of operating restriction;
(ii) the duration of the operating restriction, if known;
(iii) mitigation measures to be applied;
(iv) the operational impact of the operating restriction;
(v) availability of aircraft parking stands;
(vi) restrictions on aircraft parking stands;
(vii) availability of fixed installations at aircraft parking stands;
(viii) special parking procedures;
(ix) temporary change of driving routes;
(x) work in progress; and
(xi) any other information that has operational significance to the apron users.

(b) The dissemination of operational information does not necessarily require a technical system to be developed. The methods and the means to be used will depend on the complexity of the aerodrome, in particular, the number of organizations or apron users needing to be informed.

7. APRON MANAGEMENT FUNCTIONS.

7.1 Aircraft stand Allocation

A key element of aircraft stand allocation is ensuring that there is sufficient clearance between the aircraft, equipment and/or buildings.

Overall responsibility for aircraft stand allocation shall be retained by the aerodrome operator although for operational convenience and efficiency a system of preferred user stands may be established. Instructions shall clearly state which stands may be used by which aircraft or groups of aircraft (taking into consideration, the aircraft weight, wingspan, fuselage length, fuelling requirements etc.). The safety aspects of this involves ensuring that aircraft can only be allocated to stands that are large enough to accommodate them with the required margins. Where considered desirable, a preferred order of use of stands shall be laid down (depending on a number of factors e.g. Airports traffic volume / movement schedule for the day, principle of first come first serve and the duration of intended parking). Apron management staff shall be given clear guidance on the stand occupancy times to be permitted and the steps to be taken to achieve compliance with aerodrome rules. The responsibility for stand allocation may be delegated to an airline, where that airline has a dedicated terminal or apron area.

7.2 Aircraft Parking / Docking Guidance System

(a) The apron guidance system provided will depend upon the accuracy of parking required and the type of aircraft operating on the apron. The simplest form of stand guidance where precise accuracy is not required will comprise stand identification and centre line paint markings with an arrow to indicate the position in which the aircraft shall be brought to rest. This system will be suitable for nose-in parking where the aircraft does not have to mate with a loading bridge and hydrant refuelling is not in use.

(b) Paint markings must be maintained in a clean condition to ensure maximum visibility. Where frequent night movements take place, centre line paint markings will be supplemented by centre line lighting. These will comprise omni-directional fittings with a yellow filter.

(c) Switching for stand centre line lighting will either be locally controlled or at the centralized apron control room. Stand centre line lighting shall be inspected at-least weekly to ensure replacement of lamp failures where necessary.

(d) Where a nose-in stand is equipped with a loading bridge, precision parking is required to mate aircraft with the loading bridge. In such cases, a visual docking guidance system will be used.

(e) Should in case these systems be unserviceable it will be necessary either to marshal aircraft onto stands where loading bridges are provided, or to park aircraft short of the loading bridge to ensure safety clearances are maintained.

7.3 Marshalling Service

(a) An aerodrome marshalling service shall be provided where self-help parking or docking guidance systems do not exist or are unserviceable, and where guidance to aircraft parking is required to avoid a safety hazard or to make the most efficient use of available parking space.

(b) Appropriate training arrangements shall exist for aircraft marshallers and only those who have demonstrated satisfactory competence shall be permitted to marshal aircraft. Where airport marshalling is provided, comprehensive instructions shall be written for marshallers including:

(i) the absolute necessity for using only authorized signals (Copies of these shall be displayed at suitable points);

(ii) the need to ensure that prior to using the authorized signals, the marshaller shall ascertain that the area within which an aircraft is to be guided/aircraft stand to be used, is clear of fixed and mobile obstructions which the aircraft in complying with the signals might otherwise strike;

(iii) the circumstances in which single person marshalling may be used, and the occasions when additional assistance/wing walkers should be employed;

(iv) the action to be taken in the event of an emergency or incident involving an aircraft and/or vehicle occurring during marshalling e.g. collision, fire, damage of equipment, fuel spillage etc.

(v) the action to be taken when re-positioning of aircraft is to be carried out by a tractor and signalling is necessary to close down engines.

(c) All marshallers shall have appropriate personal protective equipment, including distinctive high visibility clothing at all times whilst working on the apron. This can be of the waistcoat variety coloured day-glow red, reflective orange or reflective yellow with the word Marshaller clearly written on it

(d) A badly executed aircraft manoeuvre could lead to the need for use of excessive engine power for corrective action, with consequent risk of injury or damage from blast. If necessary, aircraft in these situations should be signalled to close down engines and re-positioning carried out by an aircraft tug.

7.4 Engine Start-Up Clearances

(a) These are normally given by the ATC Unit. The Pilot normally seeks from the control tower, a clearance to start up engines. Before allowing an aircraft to start engines, the aerodrome operator through the designated officer or an aircraft operator's engineer shall ensure that the aircraft is in a state in which it can safely do so in relation to people and equipment around and behind the aircraft.

(b) Where an AMS operates its own radio communication on the apron area, procedures will need to be established between the AMS and the ATC to ensure the efficient co-ordination and delivery of such clearances.

7.5 Leader Vehicles (follow-me)

Aerodrome operators should provide a follow-me (leader vehicle) service to lead aircraft when requested. This is especially relevant when operations occur at night or in low visibility conditions. Follow-me vehicles should be easily identified either by a distinct marking and/or colour and be adequately equipped.

At airports where ground guidance (follow me) vehicles are in use, the aerodrome operator shall develop procedures to provide guidance on aerodrome movement areas for; vehicle/equipment operators, a pilot taxiing in low visibility conditions and any other situations relevant to this service. The aerodrome operator shall also ensure that all drivers are suitably trained in RT (radiotelephony) procedures, visual signals, taxiing speeds and the correct aircraft/vehicle spacing, and are authorised to operate in their designated areas.

7.6 Load Handling

Recognized lifting techniques should be utilized at all times to reduce the risk of personnel injury. The following precautions should be taken while handling the load:

(a) Loads should not be lifted by metal strapping normally used to bind the heavy shipments.
(b) All loads should be set down rather than dropping to avoid personnel injury and/or damage to the aircraft.
(c) While moving pallets/containers, body parts should be kept clear of stops/locks/guides.
(d) While handling live animals, exposed body parts should be kept clear of the interior of the containers.
(e) Laid down guidelines should be followed while handling dangerous goods. See ICAO Doc 9284 (Technical Instruction for the Safe Transport of Dangerous Goods by Air).

7.7 Aircraft Loading and Unloading Operations

(a) Special precautions should be observed to prevent damage that may result from the following:

  (i) Exceeding aircraft floor load limitations.
  (ii) Inadequate tie-down and failure to fasten separation nets and door nets.
  (iii) Loading cargo on seats in the passenger cabin.
  (iv) Incorrect opening or closing of doors and operation of cargo doors during strong or gusty wind conditions.
  (v) Mishandling of catering equipment.

(b) During loading and unloading operations, full allowance should be made for vertical movement of aircraft when the ground support equipment is positioned/operated at the aircraft. Care should be exercised to avoid damage to the doors or their openings.
(c) The loading of any bulk item/ULDs onto an aircraft must be undertaken according to written load instruction to ensure correct weight and balance requirements. ULDs should be cross checked by unit number with the load instructions, while loading.

(d) The condition of the load including ULDs should be checked prior to loading, in order to protect leaking or otherwise damaged items. ULDs with any evidence of leaking contents should not be loaded.

(e) The handling of dangerous goods must be undertaken with particular care to ensure that the integrity of the packaging is not adversely affected. Dangerous goods which are damaged should not be loaded. Loading and stowage of dangerous goods should conform to the requirements of the SLCAR Part 18.

(f) Spills of any sort in the holds should be reported immediately as it may result in damage to the aircraft floor or wiring.

(g) Any spillage on the apron e.g. fuel, oil, hydraulic liquids etc. should be reported immediately and the area cleaned.

(h) While manoeuvring large or heavy items within the holds, crow bars and similar implements should not be used directly upon the aircraft floor.

(i) When loading pallets or containers, it should be ensured that the edges are either guided by the side rails or fit under the stocks/locks/guides and that the height of the pallet allow for the sufficient clearance in the door opening.

(j) during manual handling of pallets/containers, full control should be exercised as their impact against locks and stops at high speed may cause damage.

8. FURTHER CONSIDERATIONS

(a) When the aerodrome control tower does not participate in the AMS, procedures shall be established to facilitate the orderly transition of aircraft between the apron management unit and the aerodrome control tower.

(b) An AMS shall be provided with radiotelephony communications facilities.

(c) Where low visibility procedures are in effect, persons and vehicles operating on an apron shall be restricted to the essential minimum. All vehicles operating on an apron shall:

(i) Give way to an emergency vehicle; an aircraft taxiing, about to taxi, or being pushed or towed; and

(ii) Give way to other vehicles in accordance with local traffic regulations.

(d) An aircraft stand shall be visually monitored to ensure that the recommended clearance distances are provided to an aircraft using the stand.

(e) Emergency vehicles responding to an emergency shall be given priority over all other surface movement traffic.

(f) If the AMS is provided by a third party service provider, then the Service Provider shall ensure that it is familiar with the Aerodrome Emergency Plan (AEP) and any role that it may have as part of AEP requirements, and that it has a Safety Management System that works in harmony with that of the Aerodrome Operator.

9. APRON SAFETY

9.1 Aircraft Parking Safety Issues

(a) The aerodrome operator is responsible for safeguarding the arrival and departure movements of aircraft on stands and for the dissemination of information to airline operators.

(b) Where a Visual Docking Guidance System (VDGS) is provided, the airport operator should arrange for the stopping guidance element to be calibrated, and indicated for all selected user aircraft, in a clear and unambiguous manner. The azimuth guidance should be regularly checked for accuracy. Such systems should be subject to daily serviceability checks and the results of such checks recorded.

(c) The aerodrome operator should ensure that aircraft stands remain serviceable, clean and free from obstruction. When a stand is allocated for use to an aircraft operator and the arrival of their aircraft on that 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 (where provided) is fully retracted or correctly parked with the drive wheels in the parking box provided before the arrival of the aircraft. These actions must be completed by the aerodrome operator before the VDGS is switched on. Once the VDGS is switched on, the stand must remain under supervision until the aircraft arrives on the 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 the stand, the VDGS should be switched off.

(d) When turnaround operations have been completed and the aircraft is ready to depart, the aerodrome operator and airline staff should ensure that the stand is free from obstruction by vehicles and equipment before push-back commences. Before leaving the stand, the handling staff must ensure that the VDGS is switched off.

(e) 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 equipment with cables or hoses should be fully retracted and stowed. The stand must be clear of all obstructions when an aircraft is in motion.

(f) The aerodrome operator/Handling staff is responsible for the parking/docking operations, once the aircraft has entered the stand. Where a marshaller is responsible for guiding the aircraft on to the stand, instructions should clearly indicate the point at which responsibility is transferred from the marshaller to the handling staff.

(g) No person should guide an aircraft unless trained, qualified and approved by the aerodrome operator to carry out the functions of a marshaller.

(h) the marshaller should wear a distinctive fluorescent identification vest with the word Marshaller clearly written on it to allow the flight crew to identify that he or she is the person responsible for the marshalling operation.

(i) Daylight-fluorescent wands, table-tennis bats or gloves should be used for all signalling by all participating ground staff during daylight hours. Illuminated wands should be used at night or in low visibility.

(j) prior to using signals, the marshaller should ascertain that the area within which an aircraft is to be guided is clear of objects.

(k) Staff should be aware of the dangers of the movement of aircraft flaps and other underwing devices when an aircraft is on stand. These areas should be avoided by staff and vehicles. Equipment should not be driven or parked in such a way so as to avoid damage to the flap or other control surface movements.

(l) when an aircraft is in motion staff should keep well clear of all wheels to avoid becoming trapped. Apron staff should exercise care when required to work in the vicinity of aircraft wheels. Where there is some free movement of aircraft wheels, care must be exercised to ensure that clothing, hands or feet do not become trapped.

(m) except where full self-maneuvering is permitted, a marshalling service should be provided automatically on stands not equipped with VDGS or where the VDGS, or other stand facilities are unserviceable.

(n) 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. Where Fixed Electrical Ground Power (FEGP) units are provided on stands, they should be used in preference to other forms of auxiliary power. The running of aircraft

Auxiliary Power Units (APUs) and engine driven Ground Power Units (GPUs) should be strictly controlled to the minimum operational requirement.

(o) to ensure aircraft and personnel safety upon arrival of aircraft for aerobridge docking, and ensuring the prescribed safe clearances between aircraft and bridge are maintained, it is mandatory that aerobridges are operated by authorized person(s) only. The aerodrome operator should impart proper training and provide requisite Permit/licence to the persons authorized for aerobridge operations. While operating the aerobridge, the following precautions should be observed:

(i) Before the aircraft enters the stand, the drive wheels of an apron-drive bridge must be positioned in the marked parking box provided or, in the case of a rail-drive aerobridge, it must be fully retracted.
(ii) Before the aircraft enters the stand, it should be confirmed that the stand is set up for the approaching aircraft type.
(iii) A careful check should be made to ensure that no vehicles or equipment are obstructing the horizontal or vertical movement of the bridge.
(iv) The aerobridge cab should be adjusted vertically and in azimuth to suit the incoming aircraft type.
(v) Only when the aircraft has stopped with wheel chocks in place, the engines have stopped and the aircraft anti-collision beacon has been extinguished, the aerobridge be driven from its parking position and docked to the aircraft.
(vi) The aircraft passenger door 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;
(vii) The aerobridge operator should remain in attendance in the cab until passenger disembarkation is completed.

(p) to avoid damage during departure and to maintain the prescribed safe clearance from the aerobridge, the following precautions shall be observed before the aircraft push back:

(i) The aircraft passenger door must be closed.
(ii) The aerobridge canopy and auto-leveller must be retracted.
(iii) The aerobridge safety barrier should be erected or the doors should be closed.
(iv) Apron Drive Bridge should be withdrawn and the drive wheels placed in the parking box provided.
(v) A rail drive bridge should be fully retracted.
(vi) 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.

(q) Where self-maneuvering is employed, all responsible personnel at the Apron should ensure that the following arrangements and requirements are met:

(i) Stand entry routes, parking positions and departure routes should be marked with standard paint markings in accordance with the appropriate standards.
(ii) Buildings and installations adjacent to self-maneuvering stands should be constructed to withstand the engine blast or be protected by blast screen.

(iii) Vehicles and equipment should not be placed in a position where they can be affected by the blast.
(iv) Equipment parking areas should be protected by blast screens or located remotely from the stands.
(v) 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.
(vi) Self-maneuvering stands should be inspected regularly and kept clear of any FODs in order to minimise the risk of ingestion.

(r) as part of the aerodromes SMS, all responsible personnel at the Apron should ensure the following for safe conduct of push-back operations:

(i) Unless required to ensure the safety of the aircraft, all personnel involved should stay within the aircraft tug.
(ii) All tug drivers should be qualified to drive aircraft tugs in all weather conditions.
(iii) Push-back crews should be thoroughly familiar with push-back procedures.
(iv) The airline personnel should, ideally be in speech contact with the flight deck crew throughout the push-back operation. 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.
(v) All push-back crew members should wear reflective garments.
(vi) 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.

(s) before approving power-backs, the aerodrome operator should take into consideration aircraft characteristics, apron layout/stand density, the stand clearances available and any gradients involved on stands or taxiways.
(t) before approval is issued to an airline, for a particular aircraft type, the aerodrome operator should satisfy that the intended operation will be safe and will not give rise to unacceptable levels of noise, vibration, blast or fumes on the adjacent apron areas. The following shall be ensured:

(i) The procedures to be used are incorporated in the airline's operations manual.
(ii) Pilots are trained and experienced in power-back operations.
(iii) The aircraft is directed by a trained marshaller using standard power-back marshalling signals.
(iv) Wing walkers are employed to safeguard the rearward movement of the aircraft, particularly wing tip clearances, to prevent collisions with other aircraft or vehicles or personnel.
(v) Procedures, training and personal protective equipment should be employed which ensure the safety of these personnel during power-back operations.

9.2 Aircraft Equipment

The AMS shall ensure:

(a) Aircraft equipment such as ULDs etc. should be inspected before use to ensure serviceability. Unserviceable equipment having protruding bolts, torn metal, damaged doors etc. should be tagged, isolated and reported for maintenance action.
(b) Maximum floor loads and maximum weights for pallets and containers should not be exceeded.
(c) Aircraft floor locks for pallets and containers should be secured to prevent the load shifting during flight.

9.3 Ground Support Equipment Operations

(a) Ground support equipment should be operated only by adequately trained, qualified and authorized personnel.
(b) Use of portable devices like mobile phones are not permitted whiles operating the vehicles/equipment. Such devices should not be used unless when absolutely required and must be used only when a suitable hands-free is available.
(c) Equipment should not move across the path of taxiing aircraft or embarking and disembarking passengers. Aircraft and ground personnel should always have the right-of-way.
(d) Apron equipment should be positioned behind the equipment restrained line with parking brakes 'ON' prior to the arrival of the aircraft at bay.
(e) The passenger loading bridge (where available) should always be in fully retracted position prior to the aircraft arrival.
(f) During bridge operations only the bridge operator should be in the bridgehead.
(g) For safety reasons, all other staff should maintain sufficient distance from the bridgehead.
(h) Equipment including passenger loading bridges should not move close to the aircraft until; it has come to a complete stop, chocks are positioned, engines shut down, anti-collision beacons switched-off and ground / flight deck contact established.
(i) Equipment approaching or leaving the aircraft should not be driven at high speed.
(j) Attachment fittings/transfer bridges and platforms should be correctly deployed.
(k) Ground equipment with interfaces with the aircraft passenger doors (e.g. passenger steps, catering vehicles, etc.) should have platforms of sufficient width which will allow the aircraft doors to be opened/closed with the equipment in place and the safety rails deployed.
(l) prior to movement of any ground support equipment, a walk around check should be carried out.
(m) Hoses and cables on equipment should be properly stowed before the unit is moved.
(n) Elevating devices must not be driven in the elevated position except for final positioning.
(o) Unserviceable equipment should be clearly tagged 'out of service' and immediately sent for repair.
(p) While positioning equipment, care must be exercised to ensure adequate clearance of vehicles, aircraft and other equipment.
(q) Standard hand signals must be used to guide ground support equipment. The guide person must be positioned so that clearances can be accurately judged.
(r) No vehicle shall be allowed to tow more than six carts, pods, containers, baggage or pallet dollies at any one time. When left disconnected or parked, all dollies or group of dollies must be left with the parking brakes ON.
(s) No vehicle shall be towed by another vehicle unless a suitable tow bar or tow-rope is used for that purpose.
(t) the aircraft may be towed only by trained and qualified personnel having airside operations endorsement on their Airport Driving Permit (ADPs). The maximum permitted towing speed shall be 5 km/h.

9.4 Chocking Of Aircraft

(a) Chocks should be positioned on an aircraft according to the aircraft manufacturer recommendations.
(b) Chocking of the aircraft main gear should be achieved by positioning the chocks in the front and rear of the outboard tyres using an approach path directly from the front and rear.
(c) Placing of chocks on an arriving aircraft should be performed after engine spool down, anti-collision lights switched off and clearance to approach the aircraft is given by the authorized person.
(d) Chocks when positioned should be parallel to the wheel axle and only lightly touching the tyres. In the event of high wind conditions, additional chocking/other measures should be taken to secure the aircraft.
(e) Chocks should not be removed from the aircraft until clearance is given by the authorized person. After removal, the chocks should be removed to a designated storage area.

9.5 Marker Cones

(a) Marker cones should be used to create safety buffer around specific areas on aircraft that are susceptible to ground damage.
(b) Cones should be positioned near each wing tip, in front of all wing mounted engines and in front of other areas near the aircraft that are in conflict with the normal flow of equipment during handling operations.
(c) Cones should be removed just prior to the aircraft departure and stored in a designated storage area.

9.6 Blast Precautions

The aerodrome operator shall ensure that all apron users shall be made aware of the hazards arising from jet effluxes and propeller slipstreams. Where necessary apron design shall incorporate blast fences and the best use must be made of these to protect equipment. All vehicles and wheeled equipment must be left properly braked and, where appropriate, equipment should be left on jacks or choked to minimize the risk of movement when subjected to jet blast or propeller slipstream. Where practicable, equipment should be parked in areas where the risk of jet blast is minimised. Particular care must be exercised with apron equipment having a large flat side surface area. Litter or rubbish can constitute a risk when acted on by blast and it is thus necessary to ensure that aprons are kept clean. Responsibility for the marshalling of passengers across aprons rests with the airline or its agent. However, airport staff must be aware of the risk to passengers on aprons from jet blast and shall be prepared to give warning where this seems necessary.

Foreign object debris (FOD) may be moved by jet blast, creating additional hazards and it is thus necessary to ensure that aprons are kept clean. The responsibility for the safety of passengers walking across aprons, rests with the aircraft operator or its handling agent. The relevant procedures shall be in line with the safety requirements established by the aerodrome operator. All staff operating on the apron shall be aware of the risk to passengers on aprons from jet blast, propeller slipstream and rotor wash and should be prepared to take appropriate action when necessary.

When designing or making changes to aprons layout, consideration should be given to jet blast and if necessary, the installation of blast fences.

9.7 Engine Hazards

(a) Airport Operators should ensure that rules and procedures for safe engine running on the airport are promulgated and understood by flight crew and handling staff.
(b) Engine running on the apron and adjacent taxiway areas should be limited to the minimum, necessary to meet aircraft operating needs.
(c) It should be ensured that vehicles and personnel do not pass behind running engines. Staff must not approach running engines unless absolutely required/part of their job function.
(d) The aircraft anti-collision beacon(s) must be switched on before an engine is started. However, the absence of such illumination should not be regarded as proof that the engine is safe to approach.
(e) Where possible, blast screens should be provided to protect buildings, installations, vehicles and staff areas that are vulnerable to blast.
(f) When turning on to a stand, it is desirable that the flight crew use the minimum power needed to carry out a normal arrival manoeuvre.
(g) Thrust levers should not be exercised for any purposes when the arriving aircraft is on stand, unless specifically approved by the aerodrome operator.
(h) the aircraft anti-collision beacon(s) must remain on until engines have run down or propellers/rotors have stopped rotating.
(i) during start up and push-back, engine power settings should not normally exceed ground idle.
(j) Engine runs and check starts should be controlled and only carried out with the prior approval of the ATC.
(k) 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 materials.
(l) the aerodrome operator should establish a programme to educate all apron users on the hazards and requirements associated with foreign object debris (FODs) and to stress the responsibilities of all personnel employed on the apron to minimise risks from FOD.
(m) the airport operator must ensure that there are programmes of regular apron sweeping, cleaning and inspection, including rapid reaction to fuel and other liquid and chemical spillages. Facilities for the disposal of solid and liquid aircraft waste and FOD protection must be provided.
(n) all vehicles and equipment used on the aprons should be maintained in a clean and serviceable condition.
(o) the aerodrome operator should ensure safeguarding apron operations around propeller driven aircraft. Apron staff must be alert to the dangers of running propellers.
(p) the aerodrome operator should ensure that the safeguarding of ‘propeller areas’ is included in airline operating procedures.
(q) Airport operator 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 apron equipment when the aircraft is at, or approaching its parking position.
(r) Passengers should not be allowed to walk on the apron when propellers/jet engines are turning. Where it is operationally essential to have the propellers/jet engines turning, passenger movement must be effectively controlled.

9.8 Inadequate Lighting, Glare or Confusing Lights

(a) During darkness and periods of low visibility, apron areas must be provided with good standard lightings of sufficient coverage and brilliance to enable pilots and apron staff to operate safely and effectively.

(b) 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 person on the airfield, including ATC staff.

(c) It is equally important that every workplace on the apron has suitable and sufficient lighting to ensure a safe working environment.

(d) Apron lighting should be regularly checked for damage and disturbance of the settings of the illumination.

(e) Any lightings used on the apron must not conflict with aircraft guidance systems and if coloured lights are used they must not be capable of creating confusion with colour coded aviation lights.

(f) 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.

(g) Traffic lights controlling crossings of taxiways/taxi-lanes should be clearly identifiable to vehicle drivers but must be shielded from the vision of pilots.

9.9 Hazards to Passengers on the Apron

(a) The airport operator, the airline operator and ground handlers all have responsibility for ensuring that the movement of passengers is strictly supervised and controlled.

(b) The airport operator should ensure that the layout and marking of airside areas are proper and conspicuous so as to enable safe movement of passengers to and from the terminal areas.

(c) The following steps should be taken to ensure passenger safety on the apron:

  (i) Passengers should not be permitted to roam free.

  (ii) Passenger routes to the aircraft should not pass below aircraft wings or beneath fuel vents, or close to propellers of the aircraft they are embarking/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 Apron equipment.

  (iii) 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.

  (iv) The airline ground staff should be so positioned on the apron to ensure that passengers follow a safe path to the terminal/aircraft.

  (v) For remote stands or stands in a different location to the terminal lounge, passengers should be transported to the aircraft by bus.

(d) Whenever passengers have to walk across the apron, there should be adequate staff to ensure that passengers do not wander away from safe routes.

(e) Safety of passengers between the aircraft and the terminal building should be the responsibility of the airline, the airport operator and the ground handler (if any). There should be clear responsibility amongst the airline, the airport operator and the ground handler on provision of staff to supervise and/or escort passengers across the apron.

9.10 Personnel Protection

(a) As manual handling of baggage and material is the primary cause of personnel injuries, sufficient risk assessment of the manual handling task should be conducted and appropriate control measures put in place.
(b) Approved hearing protection should be used when working in noise-intensity areas such as on the apron, maintenance lines/hangers, etc.
(c) Outer garments containing reflective material and high visibility colours should be worn by personnel whose duties require airside access.
(d) On an arriving aircraft, all personnel should remain clear of the propellers, engine inlets and exhausts until the engines have spooled down or propellers stop turning.
(e) On departing aircraft, as soon as the anti-collision lights are 'ON', personnel should remain clear of propellers, engine inlets and exhausts.
(f) The surface of the apron should be kept free of any objects that might cause damage to aircraft or equipment.
(g) Personnel should not walk between ULDs which are being transported by vehicles.

9.11 Security Arrangements

In addition to normal security arrangements, there are security requirements which are of interest to many parties who operate on the apron. These would include contingency plans for such eventualities as baggage identification on the stand, bomb warnings and hijack threats. The Aerodrome Operator shall ensure that such security requirements are in place.

9.12 Fire Protection and Prevention/Availability of safety services

(a) Location of firefighting equipment, fire alarms etc. should be known to the ground personnel. If fire is detected in a parked aircraft, the persons on board should be immediately evacuated.
(b) If the fire is detected on any ground support equipment, it should be immediately controlled utilizing the apron fire extinguishers or extinguishers on the equipment. As soon as practicable, the equipment should be removed from the vicinity of the aircraft.
(c) Personnel should have knowledge of types of fire-fighting equipment available and trained on their use.
(d) The Rescue and Fire Fighting Services (RFFS) shall be alerted to an incident on the movement area by ATS. However, at aerodromes where aircraft on the apron area are controlled by the AMS, a communication system needs to be established to immediately alert the RFF when an incident occurs in the apron area of responsibility.

9.13 Aircraft refueling

Airlines and fuel companies are responsible for the observance of safety procedures during the fuelling of aircraft. All personnel working on aprons shall, however, be made aware of the major safety precautions and shall report any apparent breach to the person in charge of the fuelling operations (the fuelling overseer). The main points to be observed are:

(a) no smoking or naked lights within the fuelling zone;
(b) auxiliary power units and ground power units shall not be started during the fuelling operation;
(c) a clear exit path maintained to and from the aircraft to allow the quick removal of fuelling equipment and persons in an emergency;
(d) aircraft and supply sources shall be correctly bonded and the correct earthing procedures employed;

(e) fire extinguishers of a suitable type shall be readily available; and
(f) fuel spillage shall be immediately brought to the attention of the fuelling overseer.
(g) Detailed instructions should be laid down for dealing with fuel spillage.

When necessary, aircraft fuelling companies shall be given instructions with respect to the acceptable positioning of vehicles relative to the aircraft to ensure that taxiing clearance limits are not infringed.

Note - Guidance on precautionary measures to be taken while fuelling operations are carried out is contained in the SLCAA-AC-AGA013-Rev.01 (Aircraft fuelling facilities and operations). Further guidance can be found in ICAO Doc 9137- Part 8 (Operational Services).

9.14 Apron sweeping

The cleanliness of paved areas is vital to prevent foreign object debris **(FOD)** to the engines of taxiing aircraft. A regular programme shall be instituted for the mechanical sweeping of aprons and taxiways so that in a given period of time all the operational paved areas where aircraft taxi or park will have been swept. In addition, sweeping shall be available "on request" to deal with those areas on which loose material has accumulated since the last regular sweeping and which represent a hazard to aircraft. It is unlikely that there will be any requirement to sweep the runway on a regular basis unless the airfield is located in a dusty or sandy area.

9.15 Apron cleaning

The aerodrome operator should ensure that at regular intervals, aircraft stands and adjacent areas should be cleaned in order to remove oil, grease and rubber marks. Spillages may occur involving fuel, oil, hydraulic fluids, water, toilet waste and other contaminants. Aerodrome operators shall ensure that procedures are established to contain, remove and correctly dispose of such spillage.

At regular intervals, aircraft stands should be withdrawn from service and scrubbed with a chemical solvent to remove oil, grease and rubber marks. This is also required prior to repainting stand markings. The solvent may be applied from a bowser using spray booms and the stand is then scrubbed using a mechanical rotary brush. It is important that the stand being scrubbed shall not be used by aircraft during the scrubbing operation.

9.16 Aircraft arrival / departure times

Foreknowledge of arrival and departure times scheduled, estimated and actual is required by ATS, AMS, terminal management and the operators. A system should be established to ensure that this information is passed between all interested parties as quickly and efficiently as possible.

9.17 Dissemination of information to operators

A system should be established to ensure the efficient distribution of relevant information between AMS, ATS and operators. Such information could include notification of work in progress, non-availability of facilities and low visibility procedures.

9.18 Special Procedures for Low Visibility Conditions

Special procedures related to low visibility conditions are described in the SLCAA-AC-AGA-007-Rev.01 (Surface Movement Guidance and Control Systems)**.**

9.19 Aircraft pushbacks

Aerodrome operators shall establish procedures or ensure that procedures are in place to ensure aircraft pushbacks are conducted safely. The following shall be included in the procedures:

(a) ensure that conflicts with other pushbacks in progress or with an aircraft that is ready to taxi, as well as with other traffic on the apron, are avoided;
(b) prior to pushback, ensure that the area behind the aircraft is clear of obstacles; and
(c) after pushback, ensure that the aircraft is positioned in such a way as to avoid concentrating break-away blast at buildings, parked or taxiing aircraft, vehicles and/or persons on the apron.
(d) In some cases, aircraft operators may request to "power-back" from an aircraft stand. Given the potential hazards created by power-back operations, a safety assessment shall be carried out prior to approval of the procedure. The safety assessment shall include the following factors, at the minimum:
    a) jet blast or prop-wash;
    b) surface conditions;
    c) noise levels;
    d) communication with other apron users that a power-back is about to take place (especially if there is a rear of stand road);
    e) manoeuvring space;
    f) conflict with other traffic (pushback, power-back or taxiing); and
    g) effect on pedestrians, buildings, vehicles, mobile equipment and other aircraft.

9.20 Operation of air bridges

The area used for the movement of the air bridge should be kept free of vehicles and/or equipment to ensure its safe operation. Operators should do a visual check (camera, mirrors or looking out the window) before moving the air bridge in order to ensure that there are no obstructions. When not in use, the air bridge should be parked with the wheel base in the designated position.

9.21 Vehicle movements

The aerodrome operator shall ensure that the movement of vehicles on the apron is safely managed through:

a) the establishment and implementation of driving rules, and the monitoring and enforcement of their application; and
b) the establishment of vehicle driving routes, as appropriate, and the installation and maintenance of proper signs and markings.
c) An overview of the topics that should be covered in the airside vehicle rules is provided in Appendix 1 of this AC.

9.21.1 Vehicle requirements

The aerodrome operator shall develop, maintain and ensure that specific requirements for the condition and maintenance of vehicles operating airside are in place. The requirements should include:

(a) specifications for vehicles to be marked and, if they are used at night or in conditions of low visibility, lighted with obstruction lights;

(b) specifications for regular vehicle safety inspections; and

(c) specifications for the rectification of faults

9.22 Apron discipline

The aerodrome operator, either through its own means or through arrangements with other parties, should monitor activities or take action when deviations from the established rules are observed. If the designated party for monitoring apron discipline is different from the aerodrome operator, the aerodrome operator should be informed of any deviations observed.

The aerodrome operator should establish enforcement measures, or ensure that such measures are established and implemented, in order to manage any violation of the apron safety rules.

10. DIVERSIONS

Contingency arrangements shall be made at each airport to deal with the possibility of apron congestion due to a large influx of diverted aircraft. These arrangements shall include the setting up of a liaison committee of all parties concerned to enable quick decisions to be made. Warning arrangements shall be made to alert operators to any approaching saturation of apron or terminal facilities.

11. TRAINING

(a) The functions of the AMS require that its staff be appropriately trained and authorized to carry out their respective responsibilities. This applies particularly to those responsible for; the operation of an apron management centre or tower, to marshallers and to leader van (follow-me vehicle) operators. Staff operating an apron management centre or tower have the responsibility for managing and, at some aerodromes, controlling aircraft movement within their area of responsibility. To a considerable extent their function is similar to that of ATC control on the manoeuvring area and similar training of staff is required. Among the issues addressed by a training programme will be:

(i) ATS unit / apron management co-ordination;
(ii) start-up procedures;
(iii) push-back procedures;
(iv) gate holding procedures;
(v) taxi clearances; and
(vi) en-route clearances.

(b) To satisfy training requirements for apron management operating staff, aerodrome operators can utilize programmes developed for ATS staff or require that apron management staff hold ATC or other licences or have as part of their training, experience in aerodrome control.

(c) Aircraft marshallers require training to ensure that they are properly qualified to direct aircraft movements. Their training should focus on:

(i) signalling;
(ii) Aircraft characteristics, both physical and operating, that relate to manoeuvring of aircraft within the confines of the apron; and

(iii) Personal safety around aircraft and particularly engines.

(d) At aerodromes where leader vans ("follow-me" vehicles) are in use, the aerodrome operator should ensure that drivers are suitably qualified in radiotelephony procedures, know visual signals and have a suitable knowledge of taxiing speeds and correct aircraft/vehicle spacing. A thorough knowledge of the aerodrome layout with an ability to find one's way in low visibility is important.

(e) To ensure safety of all personnel engaged in airside activity, the aerodrome operator should establish minimum training requirements. The objective of the training is to ensure that required personnel are provided with requisite skills and knowledge to handle ground handling operations efficiently.

(f) The elements of the training programme should cover safety training, drivers training and aircraft handling training. The training should be a combination of theoretical and practical skills to verify the personnel understanding of the task being trained.

(g) All training records should be documented and made available for review by authorized personnel of the Authority.

(h) To maintain ongoing competence, all personnel engaged in airside activity should undergo recurrent training periodically.