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1.0 PURPOSE

The purpose of this Advisory Circular is to provide guidance to the aerodrome operators for implementing operational safety procedures at the apron. The procedures illustrate how safety risks can be managed and provides guidance on how airside safety can be administered within the context of a systematic and structured management approach.

2.0 REFERENCES

- 2.1 Civil Aviation (Aerodrome Design and Operations) Regulations, 2024
- 2.2 ICAO Doc 9981 - PANS – Aerodromes
- 2.3 ICAO Doc 9137 Part 8 - Airport services Manual – Guidance on Apron Management Services
- 2.4 ICAO Doc 9476 – Manual of Surface Movement Guidance and Control System

3.0 APRON SAFETY MEASURES

3.1 Managing Foreign Object Debris

Foreign Object Debris, known as FOD, is any loose item on an aerodrome airside, which could be a danger to aircraft operations if sucked into an engine. It is essential that the airside is a clean and FOD free environment.

The Aerodrome operator shall develop procedures to prevent FOD damage to any aircraft or person. The procedures so develop as a minimum shall encompass measures to:

- i. Ensure all rubbish are collected and put into secure rubbish bins before being disposed of in an off airside location;
- ii. Ensure any rubbish skips located on airside have a secure lid to prevent any material escaping;
- iii. Ensure building sites and cargo operations prone to producing FOD have specific procedures to contain their site;

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- iv. Ensure Vehicle and equipment utilizing the airside undergo regular maintenance to ensure no loose objects that could cause FOD;
- v. Ensure all airside operators practice good house keeping by cleaning their designated areas regularly throughout each day.
- vi. Ensure Ground handling agents engaged in the servicing or handling of aircraft inspect the aircraft stands to ensure that no foreign objects or materials are left on the parking stand before every arrival and after every departure.
- vii. Ensure drivers inspect their vehicles to ascertain that the loads are properly secured to prevent them from falling off the vehicle.

3.2 Procedures for pedestrian movements on the apron.

The aerodrome operator shall develop procedures to protect the user of apron against jet blast hazards. The procedures so develop as a minimum shall encompass measures to:

- i. Ensures vehicles and wheeled equipment are left properly braked to minimize the risk of movement when subjected to jet blast.
- ii. Ensures prior to engine start up, all obstacles that are likely to be struck by jet blast are cleared.
- iii. Ensure apron employees and passengers are restricted to pass behind or near an aircraft with running engines.
- iv. Ensure airlines when taking their passengers from the aircraft to the Terminal Building and vice versa are guided safely by taking the following precautions:
 - a) Passengers are taken into or out of the aircraft only when its engines are off power and, if applicable, propellers have stopped spinning.
 - b) When there is another aircraft with engines on, passengers must be led at a sufficient distance from the aircraft so as not to be exposed to jet blast or air intake area of the engines.
 - c) Passengers are not led to cut across the route of a moving aircraft.
 - d) Special case passengers are preferably not be led on foot across the apron.

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- v. Ensures pedestrian use crossings marking or walk paths and look out for traffic at all times, and that the designated passenger route are kept free of any equipment and surface conditions kept clean and passengers are kept clear of protrusions on the aircraft, propellers and ground support equipment as well as jet blast from other aircraft.

3.3 Safety Procedures for Personnel Working on the Apron.

As earlier stated, the apron is an area of high probability of accidents. Therefore, aerodrome operator shall have procedures that ensure occupational Health Safety of personnel working on the apron. The procedures so develop as a minimum shall encompass measures to:

- i. Ensure personnel are conversant with safety rules applicable to the job; first aid, location and use of fire fighting equipment.
- ii. Ensure personnel wear safety protective gears appropriate to the job being performed.
- iii. Ensure personnel wear ear protection to protect against the noise level of GPU, air starter and aircraft engines.

3.4 Low Visibility Operations

During Low Visibility Operations it can be very difficult to see aircraft movements. The aerodrome operator shall develop procedures to be followed during low visibility operations. The procedures so develop as a minimum shall include measures to:

- i. Ensure persons without essential aircraft operational requirements are not permitted to drive on the Maneuvering Area;
- ii. Ensure aircraft owners tied down or chocked their aircraft to prevent uncontrolled movement;
- iii. Ensure particular care are exercised when moving around apron areas;

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- iv. Ensure any airside works or constructions are stopped and contractors including construction equipments are removed from the maneuvering area.
- v. Ensure any blanket clearance to operate on the maneuvering area previously issued by ATC is automatically cancelled when low visibility operations become effective.

3.5 Ground servicing of aircraft

Fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and personnel trained in its use shall be readily available during the ground servicing of an aircraft, and there shall be a means of quickly summoning the rescue and firefighting service in the event of a fire or major fuel spill.

When aircraft refuelling operations take place while passengers are embarking, on board or disembarking, ground equipment shall be positioned so as to allow:

- a) the use of a sufficient number of exits for expeditious evacuation; and
- b) a ready escape route from each of the exits to be used in an emergency.

Procedures for Aircraft Refueling

Aerodrome operator shall provide procedures complied during aircraft fuelling operations. The scope of such procedures shall address the following:

- i) Aircraft protection;
- ii) Fuel safety zone;
- iii) Fuel hose safety;
- iv) Fuel spillage;
- v) Ground support equipment;
- vi) Notification of persons onboard the aircraft;
- vii) Aircraft evacuation.

Aircraft protection

- 1. Procedures shall ensure when refueling an aircraft the connection or disconnection of any aircraft electrical equipment, e.g. Ground Power Unit (GPUs), batteries and battery charges, are not permitted.

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2. Procedure shall ensure the Auxiliary Power Unit (APU) are not started and/or shutdown during fuelling except in an emergency.
3. Procedures shall ensure aircraft is grounded before the refueling.

Fueling Safety Zones

1. Procedures shall ensure fire hazard associated with fuel vapours are cautioned to ensure that items and processes such as; matches, open flames, welding, use of photographic flashbulb, mobile telephoning etc. are kept out of the fuelling safety zone.
2. Procedures shall ensure fueling safety zone declared as an area extending a minimum distance of 6 meters (20fts) radius from fuelling receptacles, tank vents and fuelling equipment.
3. Procedures shall ensure equipment providing other aircraft servicing functions are positioned within a minimum distance of 3 meters (10fts) radius of aircraft fuel system vent opening.

Fuel Spillage

Aerodrome operator shall develop procedures to be applied in an event of a large mass of fuel spillage on apron. The procedures so develop as a minimum shall ensure:

- i. All personnel are evacuated from the area immediately.
- ii. All available fire fighting equipments are mobilized as standby protection until the arrival of the airport emergency services.
- iii. Movement of unauthorized personnel and equipment into the area are controlled.
- iv. As far as possible all activities inside and outside spill area are restricted to reduce the risk of ignition.

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- v. All electrical equipment in use during the fuelling operations are switched off.
- vi. Normal operations are not resumed on the aircraft or any engines started before the person in charge of emergency determines that is safe to continue.
- vii. If fuel is spilled on any load, then such items are NOT TO BE LOADED into the aircraft.

Fueling Support Equipment

Aerodrome operator shall develop procedures to guide fueling support equipment. The procedures so develop as a minimum shall ensure:

- i. Fuelling vehicles are positioned in such a way that will allow rapid removal of aircraft and servicing vehicles during emergency.
- ii. Fuel dispensers are grounded when refueling is in process.
- iii. Vehicles are not parked under the aircraft wing tip fuel vents.
- iv. That the uses of metal wheeled equipment in close proximity to the aircraft are prohibited.
- v. That the Ground Power Units are not operated unless they are positioned 6 meters from aircraft fuelling vents and venting points.

Fuelling with persons onboard

Aerodrome operator shall develop procedures to be followed when fueling while passengers are onboard. The procedures so develop as a minimum shall ensure:

- i. Person responsible for fuelling inform crew/staff onboard and around the aircraft that fuelling is about to commence and when fuelling is complete.
- ii. Person responsible for fuelling inform crew/staff onboard and around the aircraft should a hazardous situation arise.

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- iii. Ground activities outside the aircraft and work within the aircraft, such as catering and cleaning, are conducted in such a manner that they do not create a hazard or obstructions.
- iv. Fuelling aircraft are controlled by personnel of technical competency from Fuel Company or its official representative.
- v. An aircraft shall be refueled when passengers are embarking, on board or disembarking unless it is properly attended.

3.6 Procedures for Ground Support Equipment

Aerodrome operator shall develop procedures to guide equipments providing ground services to aircraft. The procedures so develop as a minimum shall ensure that :

- i. Only adequately trained, qualified and authorized personnel are permitted to operate equipment.
- ii. Equipments shall be used only for the intended purpose.
- iii. Equipments are not permitted to move across the path of taxiing aircraft or embarking and disembarking passengers, and pedestrians always have the right-of-way.
- iv. Apron equipments are positioned behind the equipment restraint line with the parking brakes applied prior to the arrival of the aircraft at the parking position.
- v. Passenger loading bridges are in the fully retracted position prior to aircraft arrival.
- vi. Equipment, including passenger loading bridges shall not be moved towards the aircraft until it has come to a complete stop, parking brakes on, chocks positioned, engines shut down, anti-collision beacons switched-off, and ground/flight deck contact established.
- vii. Ground support equipment is in good mechanical condition.

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- viii. Equipment, when approaching or leaving an aircraft, are driven at the established low safe speed.
- ix. Baggage/cargo must be transported on equipment specifically designed for that purpose.
- x. Loaded transporters and dollies have the load secured from movement by the use of locks, stops, rails or straps at ALL times, except when the load is being transferred onto or off the equipment. All locks, stops, rails and straps should be checked every time before use.
- xi. Unserviceable equipment are clearly tagged “Out of Services’ and immediately be sent to the repair/maintenance department.
- xii. Motorized equipment make a full stop as a brake check before entering the equipment restraint area and again before reaching the aircraft side.
- xiii. Protective rubber bumpers on equipment, e.g. passenger steps, loading bridges, conveyor belts, catering trucks, are not compressed against the aircraft fuselage, in order to prevent damage and to allow for aircraft settling during servicing.
- xiv. Before removing ground support equipment from any aircraft cabin access door, the operators are advised by cabin crew. Ground support equipment is not removed unless a safety device has been put across the door opening or the door is being closed.
- xv. When opening the gate area, equipments are positioned so as to allow the clear movement of the aircraft.

3.7 Blast precautions

The aerodrome operator shall ensure that all apron users are made aware of the hazards arising from jet blast and propeller slipstream.

All vehicles and wheeled equipment shall be left properly braked. Where appropriate, equipment should be left on jacks or chocked to minimize the risk of movement when subjected to jet blast or propeller slipstream. Where practicable, equipment should be

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parked in areas where the risk of jet blast is minimized. Particular care should be exercised with apron equipment having a large flat side surface area.

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 apron layouts, consideration should be given to jet blast and, if necessary, the installation of blast protection fences.

The aerodrome operator shall develop procedures to protect apron user against jet blast hazards. The procedures so develop as a minimum shall encompass measures to:

- (i) Ensures vehicles and wheeled equipment are left properly braked to minimize the risk of movement when subjected to jet blast.
- (ii) Ensures prior to engine start up, all obstacles that are likely to be struck by jet blast are cleared.
- (iii) Ensure apron employees and passengers are restricted to pass behind or near an aircraft with running engines.
- (iv) Ensure airlines when taking their passengers from the aircraft to the Terminal Building and vice versa are guided safely by taking the following precautions:
 - a) Passengers are taken into or out of the aircraft only when its engines are off power and, if applicable, propellers have stopped spinning.
 - b) When there is another aircraft with engines on, passengers must be led at a sufficient distance from the aircraft so as not to be exposed to jet blast or air intake area of the engines.
 - c) Passengers are not led to cut across the route of a moving aircraft.
 - d) Special case passengers are preferably not be led on foot across the apron.

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- (v) Ensures pedestrian use crossings marking or walk paths and look out for traffic at all times, and that the designated passenger route are kept free of any equipment and surface conditions kept clean and passengers are kept clear of protrusions on the aircraft, propellers and ground support equipment as well as jet blast from other aircraft.

3.8 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.

When dealing with spillages, local or national environmental protection guidelines may also apply.

3.9 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 wheelbase in the designated position.

3.10 Apron discipline

The aerodrome operator, either through its own means or through arrangements with other parties, should monitor activities and 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

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apron safety rules.

3.11 Removal of disabled aircraft

Particulars of the procedures for removing a disabled aircraft on or adjacent to the movement area, including the following -

- (i) the roles of the operator and the holder of the aircraft operator certificate;
- (ii) arrangements for notifying the aircraft operator;
- (iii) arrangements for liaising with the air traffic control unit;
- (iv) arrangements for obtaining equipment and personnel to remove the disabled aircraft; and
- (v) role and telephone numbers of personnel responsible for arranging for the action as necessary, including amendment of the AIS publications.

3.12 Dissemination of information to apron users

The aerodrome operator shall establish a process to disseminate relevant information in a timely manner on limitations to operations on the apron.

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

- a) the type of operating restriction;
- b) the duration of the operating restriction, if known;
- c) mitigation measures to be applied;
- d) the operational impact of the operating restriction;
- e) availability of aircraft parking stands;
- f) restrictions on aircraft parking stands;
- g) availability of fixed installations at aircraft parking stands;

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- h) special parking procedures;
- i) temporary change of driving routes;
- j) work in progress; and
- k) any other information that has operational significance to the apron users.

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.



Tanzania Civil Aviation Authority