

**STANDARD OPERATING PROCEDURES**

**FOR**

**FIRE PREVENTION  
AND  
PROTECTION ON RAMP  
AREA**

**SECOND EDITION**

**February 2022**

**AERODROME SAFETY STANDARDS DEPARTMENT**

**CIVIL AVIATION AUTHORITY OF NEPAL**

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## Foreword

Nepal as a Contracting State to the Convention on International Civil Aviation has an obligation to the international community to ensure that civil aviation activities under its jurisdiction are carried out in strict compliance with the Standards and Recommended Practices contained in the nineteen Annexes to the Convention on International Civil Aviation in order to maintain the required aviation standards.

This Standard Operating Procedures (SOP) has been prepared by complying with latest editions of Civil Aviation Requirements (CAR-14) Part 1 Aerodrome Design and Operations, and Airport Services Manual Part 1 Rescue and Fire Fighting (ICAO Doc 9137) to the extent possible and commensurate the provisions of Airport Emergency Plan of the respective Airports.

Users of this SOP are requested that the provisions of the **Civil Aviation Authority Act - 1996 (2053 B.S.)**, **CAAN Airport Certificate Regulations - 2004 (First Amendment - 2016)** and **Civil Aviation Regulation 2002, (Third Amendment 2017)** rather than this manual, determine the requirements of, and the obligations imposed by or under, the civil aviation legislation. Users should refer to the applicable provisions when any doubt arises.

Any suggestions from the stakeholders shall be appreciated and considered as important elements for the amendment and updating the manual towards implementing it in more effective way.

This Authority may, without any prior notice, change the content of this SOP as appropriate.



Director General

Civil Aviation Authority of Nepal

February 2022

# Chapter 1. Introduction

## 1.1 General

Ramp safety is a major safety concern in the aviation industry. The airport's ramp area thus involves lots of activities and movements from various aircraft, vehicles, equipment and people. Moreover, it accommodates personnel from different departments like airport operation and maintenance staff, airport police, airport fire service, airline engineers, planners and other regulatory and security personnel all performing different activities and task every day. Ramp accidents are considered one of the major problems in the industry and a major concern all airports are taking seriously nowadays. Ramp area is a very dynamic, complex and intensely busy area of the airport wherein the majority of all accidents and incidents has probability to occur.

Ramp accidents vary and range from ordinary to serious and dangerous. All these can be primarily attributed to human error.

The Airport authority, airline operators and other stakeholders form part of the Ramp Safety Operation that aims to identify hazards and create a better and safe work environment at all airports and its primary objective it to prevent injuries and reduce the economic loss.

## 1.2 Objective

Objective of this Standard Operating Procedures (SOP) is to ensure the actions of employees in relation to the role and responsibility of the ground staffs who work on Ramp Area.

This SOP is intended to assist ramp and ground safety personnel in the initial intervention of any type of fire related incidents or accidents that occur on ramp area. It will further facilitate them with the different operational procedures and responsibilities that are directed and documented in this procedure.

## 1.3 Abbreviations

RFFS:	Rescue and firefighting services
FOD:	Foreign Object Debris
SOP:	Standard Operating Procedures
CAR:	Civil Aviation Requirements
DCP:	Dry Chemical Powder
ICAO:	International Civil Aviation Organization
PPE:	Personal Protective Equipment
IATA:	International Air Transport Association
FPO:	Fire Prevention Officer

## **Chapter 2. Legal Requirements**

### Legislation and Standards

- Civil Aviation Authority act, 2053
- Airport Certificate Regulation 2004 (First amendment 2016)
- Civil Aviation Requirements(CAR)-14, Part 1
- Ground Handling Directives 2061
- Dangerous Goods Handling Requirement, Second Edition 2021

## Chapter 3. Fuelling

### 3.1 General Consideration on Ramp Safety

The following procedures and considerations should be applied to all operations on the ramp:

- Always be aware of your surroundings;
- Always wear personal protective equipment (PPE);
- No smoking;
- No alcoholic drinks or any drugs, legal or illegal, that are likely to impair performance or judgment;
- No rough or boisterous play; practical jokes may lead to injury or damage;
- Report all injuries, equipment damage and near-collisions to an Aerodrome Safety office;
- Do not operate any equipment that has been declared unserviceable;
- Keep the ramp area clear of foreign object debris (FOD);
- Only a trained operator may drive a vehicle or operate its controls;
- Always obey speed limits;
- Never try to get on or off a moving vehicle; wait until it stops;
- Never carry co-workers on vehicles unless seats are available “No seat, no ride.”
- Do not operate vehicles or equipment in the no-drive zone under the aircraft’s fuselage and wings. Loading/unloading of some containerized narrow body aircraft may require vehicles or equipment to be operated between the inboard engine and fuselage; great care must be taken to avoid contact with the engine or fuselage;
- Never drive over fuel hoses;
- Minimize the distance a high-lift vehicle is driven with the rear van body raised;
- Never back a vehicle towards an aircraft unless a marshaller is present and the view is clear;
- Be very careful near moving aircraft;
- Avoid the intake and exhaust areas of aircraft engines;
- Use extreme caution when walking under any part of an aircraft;

- Wait until the aircraft's anti-collision beacon is off before approaching the aircraft;
- Never try to load late-arriving baggage if the aircraft's anti-collision beacon is on;
- Do not approach the aircraft until the propellers stop turning and the anti-collision beacon is off;
- Never walk close to or between propellers or between propeller blades, even if they are motionless;
- Never touch a propeller blade;
- Never carry matches, lighter or the objects that gives spark on apron area; and
- Do not litter in apron area.

### **3.2 Aircraft Fuelling**

Aircraft refuelling operations can be hazardous and therefore require constant attention of all personnel involved. Team work is essential to prevent the incident/accident particularly during aircraft refuelling operations. During refuelling operation, the following precautions should be followed:

- Fuelling of aircraft shall only be done outdoors and not less than 15 meters away from any building;
- Fuelling staff shall ensure that clear path is maintained to permit removal of fuelling equipment in case of emergency;
- "No smoking" signs shall be prominently displayed;
- Smoking or, the use of any appliance employing naked flame or, capable of producing a spark or, in any other way igniting the fuel vapour shall not be permitted within 30 meters of aircraft or fuelling equipment;
- Aircraft engines shall not be started and the ignition switches shall be in the "OFF" position;
- Aircraft electrical radar and radio system shall not be operated and pertaining switches shall be in the "OFF" position. However, electrical switches are permitted to be put "ON" for the following:
  - i. Power and light essential for fuelling.
  - ii. Minimum amount of cabin lighting.
  - iii. Steady parking lights. Parking light switches shall not be operated during fuelling operation.

- Ground power supply, air conditioning units and similar equipment shall be permitted to operate only if they are located outside the danger zone. Danger zone is defined as the area within the largest polygon obtained by joining points 3 meters away from the wings and the fuelling vehicle. And if the operating units including their electrical equipment shall be flame proof and of a type approved by the Inspector of Dangerous goods.
- The fuelling equipment and aircraft shall be bonded to each other.
- During fuelling operations, every fuelling vehicle shall be constantly attended by at least one competent person appointed by the aviation fuel supplier. Adequate manpower shall be constantly made available to shut off the flow of fuel in emergency.
- Fire extinguisher of adequate capacity and of approved type shall be made available for immediate use. The fire extinguisher shall be unclamped and kept at appropriate place near fuel bowser.
- Prior to recommencing of fuelling, action shall be taken to clean the spilled fuel.
- The fuelling equipment shall not be positioned until the airline operators are satisfied that there is no risk from heated components.
- Fuelling operations shall cease when a turbo-jet aircraft manoeuvres so as to bring the rear blast within 50 meters of the fuelling equipment or the aircraft fuelling point and vent system.
- Fuelling of aircraft shall be avoided during severe electric storms.
- In such cases when the fuelling vehicle is parked under the aircraft, it shall be entrusted that any accidental spillage from the aircraft air vent does not fall on the refuelling equipment.
- Using mobile phone shall be prohibited at least 30 meters around the fuelling aircraft.
- Movement of other vehicle except refuelling vehicle shall be restricted near the fuelling area.
- Airlines operator may call stand by position for ARFF Service during refuelling if needed.
- If fuel vapour is detected inside the aircraft, or if any other hazard occurs, refuelling or defueling must be stopped immediately.
- If passengers have to board or disembark during fuelling drills, this must be achieved under the supervision of a responsible person.

### 3.3 Fuel Spillage

During a fuel spill and the associated clean-up and disposal of all fuel spills and absorbent clean-up activities, all sources of ignition should be removed and terminated, all fuel or fuel spills should be immediately controlled and contained with fuel absorbing materials.

- All electric tools likely to produce sparks should be avoided;
- Electrical ground power supplies should be disconnected;
- Flash equipment should not be used within 3 m of refuelling operation;
- Evacuate the area up to 15 m from the spillage and prevent the movement of unauthorized person or vehicles within the affected area;
- To reduce any ignition sources, switch off all the electrical apparatus;
- In the event the fuel spills over 2 meters in any direction or of continuous nature, fuelling of the aircraft shall be discontinued and the engine of ground power supply unit shall be stopped but the electrical circuits and switches shall on no account be touched except for stopping the power unit.
- In case of minor spills, the Aviation Gasoline shall be immediately covered with sand or dry earth, which shall be removed to safe place at the earliest opportunity for disposal and for Jet A-1, the spilled fuel, shall be soaked off with soak mat.

## **Chapter 4. Fire Prevention**

### **4.1 Fire Prevention**

Ramp personnel and staff should know fire prevention procedures, emergency evacuation plans and procedures for inspecting and maintaining fire protection equipment.

Aerodrome operators, Airlines Operators and Ground handling agencies should ensure that:

- Appropriate types and numbers of fire extinguishers are serviceable and positioned in well-marked areas, and that access to them is kept clear.
- Fire alarm stations are well marked and accessible.
- Fire hydrants and hoses are well marked and accessible.
- Emergency shutoff points for in-ground fuelling systems are clearly marked and accessible.
- All personnel should know the locations of fire extinguishers, hydrants, alarms and emergency fuel shutoff systems, and are familiar with their operation.
- Emergency exits and escape routes are clearly marked and unobstructed, and illuminated exit signs are functional.
- Inflammable materials are properly stored and disposed.
- No-smoking areas should be defined with proper signs.
- Aircraft and fuel servicing equipment are securely bonded before refuelling or defueling commences.
- If possible, doors and hatches, etc, on the aircraft should be closed.
- Unserviceable fire equipment shall be reported immediately to a supervisor.
- If the fire is detected in any ground support equipment, it should be controlled utilizing the apron fire extinguishers or extinguishers on the equipment. As soon as practicable, the equipment should be removed from the vicinity of aircraft.
- If fire is detected in the parked aircraft, the persons on board should be immediately evacuated.
- Emergency Telephone numbers should be posted on wall clearly.
- Proper inspection and maintenance of equipment should be done on monthly basis.

## **4.2 Protective Clothing**

Ramp personnel shall wear safety footwear, gloves, knee pads, high-visibility clothing. High-visibility clothing shall be mandatory on the ramp for the safety of employees. Protective Clothing should fit snugly to prevent becoming snagged.

## **4.3 Fire Prevention in Ramp Area**

- Portable and mobile radio should not be operated within 10 ft. (3m) of fuelling equipment or of the fill or vent point of the aircraft.
- Hot works within 75 m of fuelling is ceased.
- All vehicles other than those performing fuel servicing should not be driven or parked under aircraft wings.
- All ramp personnel should have the knowledge of operation of Fire extinguisher.
- Employees have to inform about the unserviceable extinguisher to the Aerodrome safety Office/Fire Prevention Officer.

## **4.4 Provision of Fire Extinguishers**

Portable fire extinguishers are required in the immediate vicinity of all flammable and combustible liquid storage, use and dispensing: welding and cutting; spray finishing and other maintenance operations, service vehicles and as well as on aircraft refuelling area. A minimum of one portable fire extinguisher shall be provided for each aircraft parking areas.

Ramp area shall be provided and maintained for all fire protection equipment to permit safe operation and maintenance of such equipment. Different types of fire protection systems like fire hydrant and different types of portable fire extinguishers shall be installed.

Storage, trash and other materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible.

Portable fire extinguisher is required on aircraft fuel servicing vehicles. Each aircraft fuel servicing vehicle shall have minimum one fire extinguisher. Additionally, the portable fire extinguishers should be installed on following areas:

1. Aircraft towing area.
2. Aircraft maintenance area.
3. Aircraft refuelling area.
4. Aircraft servicing vehicles area.
5. Aircraft fuel dispensing stations.
6. Helipads.

#### **4.5 Training**

The majority of accidents and incidents can be attributed to lack of attention to or failure to carry out or deviations from prescribed procedures. It is the responsibility of the Manager to ensure that the personnel under his control are adequately trained.

Ramp personnel shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment. An initial fire responder is expected to know which type of fire extinguisher should be operated on what type of fire.

Fuel servicing personnel shall receive approved training in the operation of fire extinguishing equipment. Staff involved in the fuel servicing must have adequate training with extinguishers to use them effectively in the event of an emergency.

All the staff working on ramp shall be trained to know the locations and proper use of portable fire extinguisher for its safe and proper use. They shall also be familiar with the location and operation of emergency stop switches and controls.

The training is required of new ramp personnel before they can begin their official duties. Refresher training shall be provided for all the staffs at least annually.

## **Chapter 5. Duties and Responsibilities**

### **5.1 Agencies responsible for the provision of fire extinguishers**

Aerodrome operator shall provide the sufficient fire extinguishers for the safety of aircraft on the ramp area. During start up procedure of aircraft, the Ground Handling agent and Airlines operators should provide appropriate fire extinguisher.

During fuelling operation, Nepal Oil Corporation should provide appropriate fire extinguisher near the fuel bowser with trained manpower.

### **5.2 Agencies responsible for recharge of fire extinguishers**

The discharged and unserviceable fire extinguishers should be immediately recharged and make serviceable by those respective agencies who have provided fire extinguishers.

### **5.3 Responsibility of daily Inspection staff**

Portable fire extinguishers are required to be visually inspected when initially placed in service and at least monthly thereafter. This visual inspection, intended to help ensure that each extinguisher is in its designated place and is at good working condition. Monthly inspection log is maintained according to monthly inspection report form (Appendix A).

### **5.4 Responsibility of Fire Prevention Officer**

Fire Prevention officer's (FPO) assigned duty is to inspect and enforce all standard and recommended practices of Civil aviation requirements (CAR-14) part 1 and Airport Rescue and Fire Fighting Services Manual pertaining to fire prevention. FPO shall be appointed by the Aerodrome operator. All fire protection equipment installed in airport shall be inspected, checked, facilitated and replaced (as directed by the FPO) and shall be reported to concern authority. Fire prevention plan shall be prepared by the FPO.

## **Chapter 6. Fire Extinguisher Installation and Maintenance**

### **6.1 Installation**

The installation of appropriate fire extinguisher should be based on the weight and types of the fire extinguisher.

- Extinguisher weighing less than 18 kg: Fire extinguisher should be installed on the wall such that its top is not more than 5 feet above the floor.
- Extinguisher weighing more than 18 kg: Fire extinguisher (except for wheeled types) should be installed on the wall so that its top is not more than 3.5 feet above the floor.
- Wheeled fire extinguishers shall be conspicuously located in a designated location.
- The clearance between the floor and the bottom of installed hand-held extinguishers must not be less than 4 inches to facilitate cleaning beneath the unit and reduce the likelihood of the extinguisher becoming dislodged during cleaning operation.

### **6.2 Inspection**

Portable fire extinguishers should be required to be visually inspected when initially placed in service and at least monthly thereafter. This visual inspection, intended to help ensure that each extinguisher is in its designated place and will operate if needed, can be performed by ramp staff.

The monthly inspection verifies a number of things including:

- a) Extinguishers are in their designated places.
- b) There are no obstructions to access or visibility
- c) Safety seals are not broken or missing
- d) There is no evidence of physical damage, corrosion, leakage or clogged nozzle.
- e) Fullness of cylinders is confirmed by weighing or lifting.
- f) Daily visual inspection should be carried out.

### **6.3 Maintenance**

Fire Extinguisher should be charged immediately after use. In recharging all parts should be washed thoroughly and flushed out. The chemicals should be thoroughly stirred and dissolved. Extinguishers should be examined at regular intervals to detect deterioration, damage, clogged, gasket, and to see that the appliances are filled to the proper level.

***Civil Aviation Authority of Nepal***  
***.....Civil Aviation Office***  
***Fire Extinguishers Monthly Inspection***  
***report form***

***Date: .....***

<i>S.No.</i>	<i>Fire extinguisher type/capacity</i>	<i>Location of fire extinguisher</i>	<i>Status of Extinguisher</i>	<i>Details of Problem (if any)</i>	<i>Reporting time</i>	<i>Remarks</i>

**Inspected by:**  
**(FPO)**

**Signature:**

**Reported by:**  
**Signature:.....**  
**Name:.....**  
**Designation:.....**

**Reported to:**  
**Signature:.....**  
**Name:.....**  
**Designation:.....**