FOD MANAGEMENT PROGRAMME

FOD

- **Foreign Object Debris (FOD) is a general term which applies to all loose objects which are a danger to the safety and integrity of an aircraft and which, therefore, must not be left in any area so as to constitute a hazard.**

- **Aircraft and vehicle parts. Plastic and paper bags / sheets, rags, empty oil and hydraulic fluid cans, empty soft drink cans, disposable mugs, food remains, nuts and bolts, tools and equipment, luggage wheels and tags, metal cutlery, broken wooden items and miscellaneous rubbish.**

FOD


Plastic
Safety Wire
Nails
Catering Supplies
Stones
Baggage Pieces

FOD

- **The presence of FOD on an aerodrome movement area and adjacent areas poses a significant threat to the safety of aircraft operations.**

- **FOD has the potential to damage aircraft during critical phases of flight, which can lead to catastrophic loss of life and airframe, and at the very least increased maintenance and operating costs.**

- **FOD can severely injure aerodrome and airline personnel or damage equipment.**

- **Types of potential damage include cutting aircraft tires being ingested into engines or becoming lodged in mechanisms affecting flight operations. Personnel injuries or even death can occur when jet blast propels FOD through the environment at high velocities.**

FOD

- **FOD hazards can be reduced, however, through the implementation of a FOD management program and the effective use of FOD detection and removal equipment;**

- **It is important that all personnel with access to the movement area understand their role in the prevention of FOD. FOD control is normally a module of the initial training given to personnel with access to the movement area.**

- **It is necessary to have an established process to regularly clear the movement area of FOD. Removing FOD is the responsibility of everyone.**

FOD

- **Great care must be exercised by all those working on the apron, particularly those working on aircraft, to ensure that no FOD is left behind from their operation.**

- **After completing the ground handling, refuelling and servicing of an aircraft, the stand areas must be left clean and tidy.**

Use of FOD Bins

FOD

- **FOD must be removed or placed in FOD bins**
- **Food remains must be properly disposed of so as not to attract wildlife on the airside**
- **Every individual has a responsibility to ensure that the risk of damage to aircraft from FOD is minimised**

FOD

- **Other trash other than FOD must be properly disposed of in general Waste Bins and NOT in FOD bins**

- **No one is allowed to open the FOD bin. Only the aerodrome operator is allowed to empty and analyse the FOD from the FOD bin.**

FOD Bin and Litter Bin

ICAO DOCS REFERENCE

Procedures for Air Navigation Services (PANS) Aerodromes, Doc 9981, Third Edition, 2020

- **Attachment C to Chapter 2: Aerodrome Manual includes component on arrangements and methods for carrying out inspections on FOD. The scope of certification includes procedures from the aerodrome operator concerning FOD management at an aerodrome.**
- **Para 5.2 – FOD Management Programme - Aerodrome operators shall establish an FOD control programme commensurate with the assessed risks and appropriate to the local operating conditions.**

FOD Management Programme

The aerodrome operator shall implement a FOD Management Programme which shall commensurate with the assessed risks and to the local operating conditions. The FOD Management Programme shall comprise of the following five main areas:

- **FOD sources;**
- **FOD prevention;**
- **FOD detection;**
- **FOD removal; and**
- **FOD evaluation.**

Sources of FOD

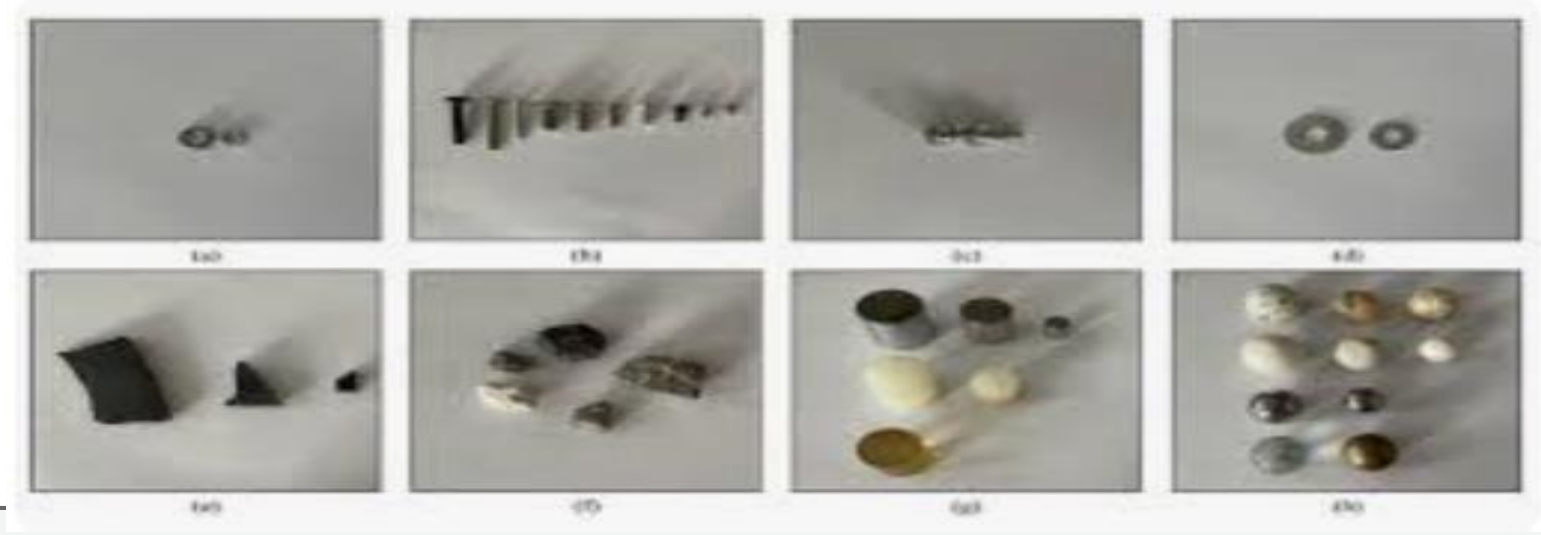
Typical FOD includes the following:

- **aircraft and engine fasteners (nuts, bolts, washers, safety wire, etc.);**
- **aircraft parts (fuel caps, landing gear fragments, oil sticks metal sheets, trapdoors, and tire fragments);**
- **mechanics' tools;**
- **catering supplies;**
- **airline items (nails, personnel badges, pens, pencils, luggage tags, soda cans, etc.);**

Sources of FOD

- apron items (paper and plastic debris from catering and freight pallets, luggage parts, and debris from ramp equipment);
- runway and taxiway materials (concrete and asphalt chunks, rubber joint materials, and paint chips);
- construction debris (pieces of wood, stones, fasteners and miscellaneous metal objects);
- (plastic and/or polyethylene materials; and
- (natural materials (plant fragments and wildlife).

SOURCES OF FOD



FOD sources

- **FOD can be generated from personnel, aerodrome infrastructure (pavements, lights, and signs), the environment (wildlife etc) and the equipment operating on the airfield (aircraft, aerodrome operations vehicles, maintenance equipment, fuelling trucks, other aircraft servicing equipment, and construction equipment);**

- **FOD can collect both on and below ground support equipment stored or staged on the apron, particularly in apron areas. Jet blast can then blow FOD onto personnel or an aircraft. Weather can also be a source of FOD;**

- **Helicopters that manoeuvre over freshly mowed or loose-dirt infield areas can also move FOD onto runways, taxiways, and ramps.**

- **FOD is often more common during aerodrome construction activities.**

FOD Prevention

- **Awareness of the FOD programme using FOD letters, notices and bulletins, FOD lessons-learned, FOD bulletin boards, safety reporting drop boxes, and electronic reporting through email and FOD discussion at employee staff meetings.**

- **Appointment of accountable officer for FOD management.**

- **Setting up of FOD Committee for managing the FOD programme.**

- **Training and education of staff having access to airside.**

- **Mitigation measures to reduce sources of FOD including aircraft maintenance, cargo areas, aerodrome works, pavement maintenance, mowing and other maintenance operations and airfield lighting maintenance.**

FOD Detection

- **While proper FOD awareness is fundamental for any successful FOD programme, the act of detecting FOD is one of the critical FOD operations that occur at an aerodrome.**

- **This process involves not only the identification of potential FOD causes and locations, but also the timely detection of any FOD on surfaces.**

- **The FOD detection programme shall make provisions for the following:**

FOD Detection

- **FOD risk assessment : A FOD risk assessment shall enable an aerodrome operator to determine where unsafe FOD conditions exist.**
- **FOD prone areas and operations including runway, taxiway, apron, aircraft maintenance areas, cargo operations area, construction areas.**
- **Detection methods and techniques including inspections, automated systems including CCTV, drones, radar, infra red technologies etc.**
- **Detection campaigns like FOD walks in groups.**

FOD Detection

- **Reporting of presence of FOD by pilots.**
- **Participation of airport tenants in the process of FOD detection.**
- **Inspection of parking stand before arrival and departure of an aircraft.**
- **Detection campaigns like FOD walks in groups.**
- **Responsibilities and procedures shall be established with the ATS unit to ensure that appropriate and timely action is taken if FOD is detected.**

FOD Removal

- **Once FOD is detected, it has to be removed as soon as possible.**
- **The most effective resource for FOD removal is the use of FOD removal equipment, especially in areas where FOD can be expected, such as near areas of construction.**
- **For removal of an isolated FOD object detected on a runway, manual removal will be the most efficient;**
- **FOD bins shall be conspicuously placed at all gates for the collection of debris.**
- **The containers shall be well marked, properly secured, and emptied frequently to prevent them from overflowing and becoming a source of FOD themselves**

FOD Removal

- **FOD bins to be placed near all entry points to the operations area, in hangars, in aircraft tie-down and aircraft maintenance areas, and at each aircraft gate or baggage area.**

- **FOD fencing or netting to restrict movement of airborne FOD; fencing to prevent animals from entering the aerodrome.**

- **FOD removal operations shall include use of airside sweepers and deploying personnel with garbage bags to pick up FOD in grassy areas and along fence-lines. This process is intended to pick up debris before it returns to the pavement areas.**

FOD Evaluation

- **Detailed documentation of the FOD shall be maintained for analysis and prevention efforts.**
- **All personnel operating on the operations area shall report FOD occurrences to the FOD officer.**
- **Major FOD incidents and accidents shall be investigated by the aerodrome operator and report submitted to the Authority.**
- **The aerodrome operator shall maintain a record of the measures taken to fulfil the objectives of the FOD management system.**
- **Records can also provide quantitative data for future risk assessments, support the assessment of system operational history and assure operational capabilities.**

FOD Evaluation

- **All FOD identified and collected on the aerodrome shall be recorded, analysed and evaluated.**

- **The sources of FOD, including its location and the activities generating FOD on the aerodrome, shall be identified and recorded.**

- **This information shall be analysed in order to identify trends and problem areas as well as to focus efforts of the FOD control programme;**

- **The FOD management programme shall be periodically reviewed and updated based on the data and trend identified through the evaluation of FOD collected on the aerodrome.**

FOD Evaluation

- **Systematically review the effectiveness of existing FOD-management procedures used by and air carrier personnel, including all available feedback from daily self-inspections, assessments, reports, and other safety audits.**

- **Verify that the aerodrome is meeting identified performance indicators and targets.**

- **Communicate findings to staff and implement agreed-upon corrective procedures, mitigation strategies, and enhanced training programs.**

- **Promote safety in the overall operation of the aerodrome by improving coordination between aerodrome staff, airlines representatives and stakeholders.**

FOD Reporting Form

FOD Reporting Form			
Identification Date:		Reporting Date:	
Identification Time:		Reporting Time:	
Name:		Company:	
Description Of FOD:			
Location:			
Possible source			
Weather condition			
Description Of Situation - How Was Foreign Object Discovered?			
Action Taken:			
Additional Comments:			
Signature :			

FOD Evaluation

FOD Risk Assessment Density Example

		Types of FOD		
	FOD Location	Metal	Bolts Nuts	Plastic (small) Paper cloth
RISK INDEX	Apron	4C	4C	5D
	Taxiway	2B	1B	2C
	Runway	**2A**	1B	2C

Risk Probability	Risk Severity: Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent 5				Ap-P	
Occasional 4			Ap-M,B		
Remote 3					
Improbable 2	RWY- M	TWY- M	TWY-P RWY-C		
Extremely Improbable 1		TWY-B RWY-B			

FOD Management Programme

QUESTIONS?

THANK YOU