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FOD Management @ FRA

FOD Control Program at Frankfurt Airport

Version

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1 *Legal Basis and Scope*

Regulation (EU) 2020/2148, dated October 8, 2020, obligates Fraport AG, as the operator of Frankfurt Airport, to implement a control program for foreign object debris (FOD) in accordance with ADR.OPS.B.016.

This document describes the FOD control program at Frankfurt Airport and specifies the requirements regarding the handling of FOD. It supports the Fraport AG SMS Regulation of and other relevant regulations in effect at Fraport AG.

All persons and organizations involved in airport operations are obligated to support the Fraport AG FOD control program; this also includes the obligation to report any FOD identified. Its scope extends to the entire apron and maneuvering area.

In addition, the contractual obligations and requirements arising from the Airport User Regulations, General Airport Regulations, Traffic Regulations, ID Card Regulations and SMS Regulation shall remain binding.

2 FOD Control Program of Fraport AG

2.1 Program responsibility

Program responsibility for FOD management lies with Fraport AG's Safety Management System (SMS). Marcel Becker and Holger Metschan (both AVN-EM) are the program managers.

2.2 Contact for the FOD control program

Safety hotline: +49-696-902-4444

E-mail: fod@fraport.de

Mailing address: Fraport AG, AVN-EM, Building 181 b, Letter Box No. 181 B / 008, 60547 Frankfurt am Main, Germany

2.3 Objective of the document

This program is intended for all employees authorized to access the movement areas of Frankfurt Airport (ID Card colors "red" and "yellow").

All persons and organizations involved in airport operations are obligated to support the FOD control program and to familiarize themselves with its content.

Government agency employees are not exempt from the obligation to support the program.

2.4 Definitions of FOD

The abbreviation "FOD" has two meanings: First, it refers to objects on the movement areas (aprons and maneuvering areas) that pose a hazard to airport operations; and second, to the damage caused by such objects.

2.4.1 Foreign object debris = FOD

Foreign object debris refers to any objects or materials – e.g. screws, fragments, lashing eyes, lashing straps, plastic films, stones, pieces of plastic or rubber, waste, spills, etc. – found on movement areas. These objects can cause serious damage to engines, tires and other parts of an aircraft and so potentially jeopardize airport operations.

2.4.2 Foreign object damage = FOD

Foreign object damage refers to the damage caused by foreign objects. These can cause serious aircraft accidents, including the total loss of an aircraft as well as personal injury.

The damage caused by FOD to engines, tires and other parts of an aircraft can be extremely expensive. The resulting repair and maintenance costs constitute major financial losses for airlines. In addition, FOD-related issues can not only lead to long delays and even cancellations but also harm the reputation of Frankfurt Airport and result in claims for damages.

2.5 Obligation to report FOD

All employees on the movement areas shall remove any FOD during checks. Potentially hazardous FOD (e.g. at positions in the vicinity of an aircraft's undercarriage) shall be reported. All other types of FOD can be reported on a voluntary basis.

Refer to Section 8 of the guidelines for information on what types of found objects/material need to be reported.

A report shall state where and when the FOD was found and the type of FOD. If possible, a photo of the FOD should be included.

Reports shall be e-mailed to the FOD program at fod@fraport.de. A simple writeup is sufficient.

Reports can also be submitted using the safety report form (LINK), which is available on Fraport AG's intranet and website.

Employees of the airport operations services use the SMART shared platform.

The FOD program team maintains and evaluates all the reports using the SMART documentation tool.

3 Employee Training

3.1 Basic training

Basic, theoretical FOD training is part of mandatory SMS basic training.

Completion of this training by all employees authorized to access the movement areas (ID Card colors "red" and "yellow") is mandatory before authorization to access the apron areas can be granted/renewed.

The training content is based on the regulatory requirements of the EASA, Annex to ED Decision 2021/003/R (AMC1 ADR.OPS.B.016(b)(1) Foreign object debris control programme), which covers – among other things – the obligation to report FOD.

3.2 Further training

3.2.1 Driver training

As part of driver training and future refresher training, drivers receive further in-depth training about FOD and FOD prevention. The content includes the following:

- Hazards posed by FOD
- Obligation to cooperate / obligation to report
- Special obligations to cooperate incumbent upon drivers

3.2.2 Advanced training

Upon request, Fraport AG's Safety Management (Fraport SMS) also organizes advanced and functional FOD prevention training courses.

3.2.3 Organizations requiring additional training

Organizations that do not take part in the FOD program or do not take part to a sufficient extent will receive the necessary additional training from Fraport AG's Safety Management (Fraport SMS).

3.3 Practical training from employers

Practical training is organized by the managers of the different organizational units at Frankfurt Airport, including with respect to the specialist machinery and equipment used by the unit in question. Practical training shall focus on the following:

- How to search for FOD correctly
- How to use specialist machinery and equipment, particularly such that FOD is prevented
- How to perform work operations and drive vehicles such that FOD is prevented
- Locations of FOD bins and apron telephones

The training documentation covering the above points is provided by SMS and shall be adapted by the different organizations to include work-specific content.

Practical training and the subsequent performance review shall be documented and submitted to SMS upon request.

4 Measures to Prevent FOD

Foreign objects can cause serious damage to engines, undercarriages, tires and other parts of an aircraft and so potentially jeopardize airport operations.

All organizations are therefore obligated to perform their processes in such a way as to prevent FOD. Machinery and equipment shall be designed and maintained such that no parts can fall off and become FOD.

4.1 Individual obligation to cooperate

Regardless of the cost-by-cause principle, any employee on the movement areas (aprons and maneuvering areas) is obligated to pick up any FOD immediately upon finding it and to dispose of it in the FOD bins provided (obligation to cooperate and duty of care). Furthermore, employees shall always take care to ensure that they themselves do not cause FOD.

When waste from aircraft is disposed of, it shall be ensured that the container is properly closed to prevent attracting flocks of birds or waste from being blown out by drafts or wind.

When employees perform work requiring different tools, they shall check that they have all their tools with them when they finish work.

4.2 Special obligations to cooperate incumbent upon drivers

Before, during and after use, vehicle drivers and equipment/machinery operators shall ensure that there is no risk of FOD arising from their vehicle/equipment/machinery. Drivers are responsible for the loads they transport. The following shall be ensured in particular:

- All loads are properly secured against slipping or falling off.
- Small parts are not left lying around loose or in boxes in the vehicle interior or loading area.

- The loading area is free of waste, and no objects can fall out of the vehicle when the door or tailgate is opened.
- Objects that do go astray are removed immediately or, if this is not possible without assistance, reported.

4.3 Dealing with FOD

If it is not possible to remove FOD without assistance, the following shall be informed immediately:

- **Airside Duty Management (ADM)**, tel. 069-6907-7777

or

- **Movement Area Supervision Unit (MASU)**, tel. 069-6907-0580

5 Disposing of FOD

5.1 Discovery of aircraft parts

Objects or fragments that could belong to an aircraft are subject to the reporting obligation (see Section 2.5) and shall be reported immediately and handed over to ADM or MASU. This shall also be done if you are unsure of the origin.

ADM will then immediately inform the aircraft operator – if this can be established – of the found object/material.

5.2 Disposing of FOD

Any FOD or residual waste for which no other disposal method has been defined shall be disposed of in the FOD bins. These are highly visible and can be found in all the relevant locations. If an FOD is subject to the reporting obligation (see Section 2.5), it must be reported before being disposed of.

Plastic film or waste resulting from cabin cleaning operations shall **not** be disposed of in the FOD bins. The film/compacting containers shall be used instead.



6 FOD Prevention Measures

6.1 Access to the movement areas

Drivers/operators are responsible for their vehicles/machinery/equipment.

Vehicles or machinery/equipment that pose a risk of FOD or on which

- the load is not properly secured against slipping or falling off;
- small parts (e.g. screws, bolts, lashing material) are left lying around loose or in boxes in the vehicle interior or loading area

may be denied access to the movement areas pursuant to Section 45 of the German LuftVZO air traffic licensing legislation (hazard prevention) until the situation has been resolved.

6.2 Cleaning and checking the movement areas (aprons and maneuvering areas)

On behalf of the AVN-A department, the movement areas shall be cleaned both on a regular basis and upon request by the IFM-IA (Area Services) department working as the contractor. In addition, inspections to detect any FOD shall be performed by the surface cleaning team and MASU. FOD that could potentially jeopardize airport operations shall be reported to MASU or ADM. The type and scope of cleaning operations in the movement areas are defined in the Area Services department's SLA.

If any FOD cannot be removed quickly or by straightforward means (e.g. by picking it up or using a broom), a sweeper can be requested between 5 a.m. and 10:30 p.m. seven days a week from the **Municipal Equipment Center** (tel. 069-690-21740). From January 1, 2022, the sweeper will also be available between 10:30 p.m. and 5 a.m. from the on-call service team via TMC Technical Disruption Support (tel. 069-690-77711).

All FOD found shall be documented and reported in accordance with the requirements outlined in Section 2.5.

6.3 Inspection of the movement areas by ADM and MASU

During regular movement area inspections performed by ADM, the runway system and main taxiways – among other areas – are checked for FOD. Further regulations can be found in the operations manual for Operational Airport Duty Management (ADM) and supporting documents.

Further inspections of the movement areas – including the taxiways on the apron – are performed by MASU and also include FOD controls. Further regulations can be found in the Movement Area Supervision Unit (MASU) instruction manual and supporting documents.

FOD found during inspections of the movement areas shall be documented in SMART (see Section 2.5).

6.4 FOD prevention during aircraft ground handling

6.4.1 Ground handling services as per BADV annexes 1, 5.4 and 5.6

Independent handlers and third-party handlers that are specially commissioned by an airline and render services in accordance with the German BADV ground handling services regulations, annexes 1, 5.4 and 5.6, shall take appropriate measures to ensure

that an FOD check is performed both before and during aircraft ground handling and after boarding once the aircraft has left its parking position.

If FOD is found during these checks, it shall be documented as explained in Section 2.5 and reported to the FOD program.

Once the aircraft has left its parking position, the parking position shall always be left in a clean and orderly condition. In particular, any small parts, plastic films, loading residue, loading aids or other FOD shall be disposed of in the proper manner.

Ballast bags, boards and lashing material shall be returned to their designated storage locations. Temporary storage on the ground, in/on loading units or on machinery/equipment is not permitted.

6.4.2 Aircraft cabin cleaning

It is not permitted to obstruct or block service stairs with waste bags / items from the cabin or to use the service stairs as storage space. When waste bags are placed on the service stairs, it shall be ensured that they cannot fall off or get blown away.

Throwing waste bags on the apron is prohibited. When waste bags are being handled, it shall be ensured that they cannot burst or split open. Once the relevant activities are complete, the service stairs and parking positions shall always be left in a clean and orderly condition.

Waste arising during cabin cleaning operations shall be disposed of only in the compacting containers provided (see Section 5.2).

6.4.3 Aircraft catering

Seals torn off from catering containers or from vehicles shall be disposed of in the proper manner. Once the relevant activities are complete, the service stairs and parking positions shall always be left in a clean and orderly condition. The temporary storage of catering containers at the parking positions is not permitted.

6.4.4 Other persons/organizations performing ground handling operations

Other persons/organizations performing ground handling operations shall take appropriate measures to ensure that the parking position is left in a clean and orderly condition once the relevant activities are complete.

6.5 Apron storage areas and other areas

When loading equipment and machinery/equipment are not in use, it shall be ensured that they do not pose a risk of FOD.

When the weather is bad (e.g. during storms), they shall be secured appropriately.

6.6 Adjacent cargo and hangar areas

The tenants of the cargo and hangar areas adjacent to the movement areas shall ensure that their operations do not pose a risk to airport operations.

In particular, it shall be ensured that the movement areas are kept free of foreign objects (e.g. plastic film, tags, etc.).

6.7 Construction sites on the apron and in the maneuvering area

Construction site managers shall ensure that their operations do not pose a risk to airport operations.

In particular, it shall be ensured that the movement areas are kept free from foreign objects (e.g. plastic film, stones, tools, etc.) and that such objects do not cause any soiling or contamination.

7 Documentation and Analysis

It is important that all FOD that is found be properly documented by FOD Management for further analysis and to optimize FOD prevention. This is likewise a precondition for implementing the reporting obligation.

7.1 Fundamentals of documentation

FOD is always documented by MASU, ADM, FRA Vorfeldkontrolle GmbH (apron control) and the SMS.

Notifications and reports are documented in SMART. It shall be ensured in this respect that the FOD and the location where it was found are documented clearly and unambiguously. The map feature in SMART shall be used for documenting the exact location where the FOD was found. A photo shall be included (see Section 7.2 for detailed instructions on how to proceed).

Each item of FOD shall be documented individually in SMART; collective entries are not permitted.

Reports concerning FOD found by other persons working on the movement areas shall first be submitted to the FOD program team, which will then enter and process these reports in SMART.

7.2 Analysis and FOD prevention measures

On the basis of the events documented in the SMART Safety Management System, FOD Management will perform the necessary analyses and, if necessary, initiate corrective and/or preventive measures to further support implementation of the FOD program.

The analyses cover a range of aspects including whether there are specific locations with an increased occurrence of FOD; whether there are conspicuous/clear causes/culprits; and whether there is an increased occurrence of specific types of FOD.

This is why the data for the entries documented in SMART is subject to extremely strict requirements. The person entering an FOD-related incident shall ensure that it is possible to tell by the perspective of the photo(s) exactly where the FOD was found. It is best to take two photos:

1. One of the object itself
2. One of the object in the context of its surroundings so that its location can be clearly identified

The GPS function integrated in SMART shall also be used for documentation purposes. The FOD shall be photographed at the location where it was found. Exemptions to this rule are possible only in situations in which it is not possible to spend any significant length of time in one place due to airport operations.

The type and nature of the found object/material – if this is not evident from the found object/material itself – shall also be entered; e.g. a screw/bolt needs to be described in more detail only if it is not made from metal.

The evaluation and classification of the found object/material are finally described by the SMS. For classification purposes, it is important to document the nature of the found

object/material rigorously because without this information, it will not be possible to identify clusters.

If a found object/material can be assigned to a specific person/company, it is essential that this be stated in the description of the found object/material. This applies in particular to parts of aircraft. If the person/company responsible for the found object/material is known, this shall also be documented.

The cost-by-cause principle also applies in the evaluation of work performed by service providers on and around the aircraft. Activities that are more likely to produce FOD shall be supervised and/or subject to special checks and documented. In particular, cabin cleaning and catering service providers shall be subject to such checks. In this regard, too, it is important that the documentation contain all the relevant data and that the location where the FOD was found be marked in the SMART map feature.

This data shall allow the FOD program team to perform the necessary inspections and analyses, especially in relation to the location and type of the FOD, and to establish who is responsible for it. Since it is possible to determine the exact location of increased occurrences at locations to be defined, the analyses can be clustered at specific positions. Evaluation is usually performed using the SMART map feature. Incident data is either anonymized before being passed on to third parties or is not passed on at all.

If it is established that certain service providers or handling agents tend to be responsible for FOD more often than others, the FOD program will inform the Safety Manager. The latter will then decide in consultation with the FOD program on what action to take to resolve the issue.

The analyses are usually performed on an incident-specific basis or at regular intervals (e.g. monthly or quarterly).

The person/company responsible for the FOD shall take part in incident-specific analyses and be requested to implement direct and indirect prevention measures. The FOD program supports and advises the process owners.

8 Annex A: FOD Guidelines

Foreign object debris refers to any objects or materials found on movement areas. These objects can cause serious damage to engines, tires and other parts of an aircraft and so potentially jeopardize airport operations.

Hazard prevention

A potential accident is averted every single time FOD is removed, which is why everyone is obligated to remove FOD whenever they find it and dispose of it in the FOD bin provided. If it is not possible to remove FOD without assistance or if the FOD is a potentially hazardous object or part of an aircraft, it is essential to inform without delay **Airside Duty Management (ADM)** (phone: +49 69-690-77777) or the **Movement Area Supervision Unit (MASU)** (phone.: +49 69-690-70580).

Reporting obligation

In accordance with the applicable EU requirements, FOD on the airport movement areas that has or could have endangered the aircraft, its occupants or any other person shall be reported.

The following FOD shall be reported:

Material	Metal e.g. screws, bolts, lashing eyes, fragments	Hard materials e.g. pieces of concrete, stones, plastic, wood	Soft materials e.g. plastic film, covers	Aircraft parts
Size	> 2 cm	> 5 cm	> 50 cm	all
Location	Anywhere on the operational area where aircraft move			all over

Any other FOD can be reported voluntarily to the SMS FOD program using a safety report. You can find the report template and further information on the SMS and FOD program on the intranet (Unser Flughafen [our airport] > Sicherheitsmanagementsystem [safety management system] > Sicherheitsmeldung [safety report]) or on the Fraport website at www.fraport.de/sms

9 Annex B: Regulatory Requirements

9.1 Laws and regulations

German (LuftVZO) air traffic licensing legislation

Section 45 – Obligation of maintenance and operation

“(1) The airport operator is required to maintain the operational safety of the airport and has a duty to operate the airport properly.”

9.2 Regulation EU No. 139/2014

– ADR.OPS.C.010 Pavements, other ground surfaces and drainage

- Annex to ED Decision 2021/003/R, ‘AMC & GM to Authority, Organisation and Operations Requirements for Aerodromes — Issue 1, Amendment 5’

- AMC1 ADR.OPS.B.016(a) Foreign object debris control programme

FOD CONTROL PROGRAMME — GENERAL

- AMC1 ADR.OPS.B.016(b)(1) Foreign object debris control programme

FOD PREVENTION

- AMC1 ADR.OPS.B.016(b)(2) Foreign object debris control programme

FOD PREVENTION — MEASURES

- AMC1 ADR.OPS.B.016(b)(3) Foreign object debris control programme

FOD DETECTION, REMOVAL, CONTAINMENT AND DISPOSAL

- AMC1 ADR.OPS.B.016(c) Foreign object debris control programme

FOD ANALYSIS — CONTINUOUS IMPROVEMENT

9.3 German BADV ground handling services regulations

Excerpt from Annex 1 of Section 2 (4) regarding ground services

– “5.4 the loading and unloading of the aircraft, including the provision and operation of suitable means, as well as the transport of crew and passengers between the aircraft and the terminal, and baggage transport between the aircraft and the terminal;”

– “5.6 the moving of the aircraft at arrival and departure, as well as the provision and operation of suitable devices;”

9.4 Excerpt from the Fraport AG regulatory requirements

As a future element of the SMS Regulation of Fraport AG, the FOD control program expands on the excerpts from the following Fraport AG regulations concerning FOD.

C2.1 Airport User Regulations for Frankfurt Airport, dated February 8, 2021

– Section 3.1, Operations Management

C2.2 General Airport Regulations, dated January 15, 2019

– Section 4.5.2, Aircraft Handling, Identification Obligation of Responsible Persons

– Section 4.5.7, Waste Disposal on the Apron

– Section 6.5, Safety Management System (SMS)

C2.9 Traffic Regulations, dated January 1, 2020

- Section 3.8, Contamination and Foreign Objects Debris (FOD)
- Section 4, Monitoring of Traffic Regulations
- Section 6, Loading and Trailer Loads

C4.6 Fraport AG SMS Regulation, dated April 1, 2021

- Section: Introduction
- Section 11, Safety Training