



The European Organisation for Civil Aviation Equipment
L'Organisation Européenne pour l'Équipement de l'Aviation Civile

DEFINITION AND TAXONOMY FOR FOREIGN OBJECT DEBRIS

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TABLE OF CONTENTS

FOREWORD	I
CHAPTER 1 INTRODUCTION	1
1.1 SCOPE OF THE DOCUMENT	1
1.2 CONTEXT	1
CHAPTER 2 DEFINING FOREIGN OBJECT DEBRIS	2
2.1 PREREQUISITE	2
2.2 CONSIDERATIONS	2
2.3 FOD DEFINITION	3
CHAPTER 3 WAY FORWARD	4
APPENDIX A WG-83 MEMBERSHIP	5
APPENDIX B HISTORY AND TERMS OF REFERENCE OF WG-83	6
APPENDIX C ACRONYMS AND GLOSSARY OF TERMS.....	10
IMPROVEMENT SUGGESTION FORM	11

CHAPTER 1

INTRODUCTION

1.1 SCOPE OF THE DOCUMENT

The aim of this work is to develop a universally agreed and unambiguous definition of what constitutes Foreign Object Debris (in the context of an aerodrome) and how it can be usefully classified.

As up to now, there is no official definition given to FOD. Before launching any standardization activities, it is necessary to clearly state what a FOD is, which is the purpose of this document.

This paper presents a proposed definition for FOD and a suggested primary and secondary taxonomy to describe FOD which captures all parameters pertinent to the risk it poses and the source.

1.2 CONTEXT

FOD can be present on aerodrome runways, taxiways and parking areas and poses both a safety risk and financial burden on aerodromes and for aircraft operators. It causes damage that costs airlines, aerodromes, and aerodrome tenants millions of dollars every year.

For airlines, FOD can appear to be principally a cost-management issue. For aerodromes, it may be principally a matter of good housekeeping. FODWG examined FOD in terms of its actual or potential significance in each of the following contexts:

- 1) Firstly and above all, FOD poses a potentially very serious safety hazard. This can manifest itself in two ways. First in a direct manner, as a danger to aircraft operation. And second indirectly, through the delays to which FOD events can give rise, and the ensuing "hurry up" factor. If FOD management is smoothly efficient, imposing minimal delays or other stresses, the system as a whole will be inherently safer.
- 2) FOD is also an economic issue. Clearly its day-to-day management carries a cost. If not removed, it can impose maintenance and repair costs on airlines, through damage to jet engines, propeller blades, tyres, and fuselage skins. Further and considerable costs can arise when an aircraft needs to be taken out of service for repairs made necessary by FOD damage.
- 3) Traditional FOD management may involve the periodic temporary closure of a runway, which – depending on how busy is the aerodrome – may bring potential losses in runway capacity and aerodrome revenue, potential delays to inbound and outbound aircraft, the risk of a negative passenger perception of the overall aerodrome and airline experience. The use of an automatic FOD detection system may contribute to mitigate the risks and limit impacts on aerodrome operation.
- 4) Delays consequent on runway closures for debris inspection and clearance also give rise to additional fuel burn and costs, to additional engine emissions, and in some circumstances an increased noise burden on local communities.
- 5) FOD management raises important questions around responsibility and liability, and around the integration of FOD data into other data streams available within an aerodrome's overall safety management system to aerodrome managers and air traffic controllers. Both sets of questions are sharpened where an aerodrome has adopted automated FOD detection.