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FOD ENCOUNTERS OF A DUBIOUS KIND

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The opening of the Concorde crash appeal trial in March has brought back the July 2000 disaster into everybody's mind. For Concorde admirers, the accident, allegedly caused by a piece of metal shed by a previously departing aircraft, was an agonizing event. It was also a reminder to the aeronautical world that the problem of FOD is not to be taken lightly.

A few years ago, FOD stood for Foreign Object Damage. But since all foreign objects, whether they cause damage or not, are a potential threat to the safety of flights, the acronym was redefined as Foreign Object Debris.

To better grasp the scope of the phenomenon and evaluate its real cost, the aviation industry needs an efficient scheme to record and analyze events. The lack of a standardized definition and taxonomy of FOD is an impediment to such a scheme, which is why ICAO, the International Civil Aviation Organization, has set to work on a definition that would be accepted by all its member states. The starting point for discussion is: "any object, animate or inanimate, in an inappropriate location on the movement area, that has the potential to injure humans and damage aircraft and vehicles". (1)

This definition, which includes wildlife, covers a wide range of items. FOD is not only about aircraft parts falling on a runway, it also encompasses stray hand tools forgotten on an apron, pebbles found in a crack on a taxiway pavement, mislaid personal belongings of airside employees such as pens or scarves, catering supplies, luggage, pieces of rag, ice in winter conditions, and even the sly fox that has settled a stone's throw away from taxiway Delta. FOD can also be airborne: recently, volcanic ash clouds have caused a lot of disruptions in airline operations. In short, FOD is any object that can become a hazard either by direct contact with an aircraft or by being blown away by jet blast, rotor wash, or wind. Even a paper cup, if sent spinning at high velocity by jet blast into a ramp agent's eye, can have dire consequences.

FOD damage

FOD is not a concern only in aviation. When you step on a rake in a garden alley and get a lump as

a result, it is FOD damage. But programming unscheduled maintenance for a jet engine following the ingestion of a garbage bag, is a lot more expensive than buying some arnica ointment at the local drugstore.

In the aeronautical industry, the total cost of FOD-induced maintenance operations or flight disruptions, to name only two of the many direct or indirect consequences of FOD damage, reaches a staggering figure. Airlines are not the only ones to suffer losses in the matter. Airport managers, travel operators and passengers are affected too. Direct costs are more likely to concern engine repairs, tire replacements, and aircraft body restoration. Indirect costs are difficult to evaluate, since the list includes items as different as increased insurance costs, delays, maintenance personnel overtime, runway occupancy time, hotel nights. The aeronautical industry has therefore decided to address the problem seriously and to implement FOD management programs that cover prevention, detection, removal, and evaluation.

FOD prevention

Training and awareness are two key words to better control FOD and minimize the hazards associated with it. Personnel working where aircraft operate must understand that FOD prevention is everybody's responsibility. To help them maintain a day-to-day involvement after the impact of initial training has faded, strategies such as seminars, documentation, awareness posters, recurrent training can be developed by airport FOD managers. Procedures can also be established to promote better practices. They include "clean-as-you-go" work habits, FOD incident reports, programs to record and analyze events. Maintenance and design are two other important notions. Efficient maintenance of pavement and airport buildings, or improvements in the protection of safety areas - with for instance special fences that will keep light debris away in windy conditions - are other ways to reduce FOD. Aircraft designers also develop engines able to sustain FOD ingestion without having parts burst out, thus endangering the rest of the aircraft.

F.O.D.
An ounce of prevention is worth a pound of cure.

FOD detection and removal

However hard you try, a completely FOD-free airport is not possible and actions must be taken to search for and collect FOD. The primary means of FOD detection is the human eye. On many airports, it is even the only one. Runways, taxiways and aprons are visually inspected several times a day by specially trained personnel. Flight crews are also required to inform ATC of any debris they spot while taxiing on the airport movement area.

Sometimes, FOD walks are organized. They bring airport and airline employees together to walk down a runway or a sensitive area looking for FOD. These operations have the dual advantage of removing debris and increasing awareness on the subject (2).

Over the years, detection and removal equipment has been developed to help staff check for and remove FOD. These aids range from the very simple waist pouches worn by personnel to collect debris to the more sophisticated sweepers, vacuum cleaners, magnetic bars, or even radars. Technology, however, is only a supplement to visual inspection and manual removal of FOD, and procedures must be established to guarantee that these systems will not themselves become a source of FOD. ●

Vocabulary

DIRE	terrible
DUBIOUS	douteux
TO FADE	s'estomper
AN IMPEDIMENT	une entrave
OINTMENT	de la pommade
A PIECE OF RAG	un chiffon
STAGGERING	prodigieux
STRAY	égaré
TO SHED	perdre
A WAIST POUCH	un sac banane

(1) http://legacy.icao.int/icao/en/assembly/a37/wp/wp191_en.pdf

(2) www.faa.gov/documentLibrary/media/Advisory_Circular/150_5210_24.pdf