



# RFID

## Tool Tracking For Aviation Maintenance

### Low cost approach to FOD risk reduction

#### *Barcoding and RFID are essential components in maintenance management*

For military, civil or general aviation, the highest standards of maintenance engineering are essential to avoid the risks of accidents. However, effective maintenance management also makes a major contribution to keeping aviation costs under control.

Tool Tracking solutions are already used in the maintenance of both civil and military aircraft. By automatically identifying tools and tracking their use in the maintenance cycle, engineering groups can reduce the incidence of human factor related accidents attributable to maintenance.

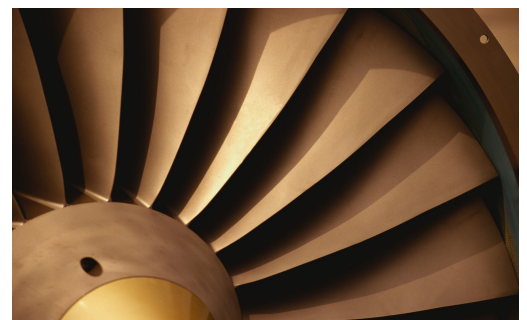
#### Where is it? Who used it?

Estimates of the risks to aircraft of faulty maintenance vary, but data quoted in a study of human factors in aviation accidents<sup>1</sup> suggested that almost 10% of commercial aircraft accidents and over 20% of general aviation accidents were attributable in some way to failures in the maintenance cycle. Many different factors can contribute to this; the principal being inadequately observed procedures.

One area that can contribute to reducing these problems is by managing the availability and use of the tools and tooling that are an essential part of the maintenance environment.

With effective tool tracking it becomes possible to ensure that all tools are issued against a job reference, returned at the end of a job; that the identity of an engineer checking out certain tools is recorded and, the tools are maintained and serviced adequately, this can be scheduled, monitored and audited. However, keeping track of tools with manual methods, using clipboards and forms, is both time consuming and error prone. The process of tracking becomes a problem and is seen as adding to the workload, rather than making life easier.

Automatic identification of tools, engineers and locations with barcode labels or radio frequency identity (RFID) tags can overcome this. With tagged tools, which can be easily identified and located, a simple system can provide the essential information needed by whoever is responsible for signing off an aircraft as safe to fly – information that with today's systems may not be easily available or up to date.



**Tools carelessly left in an aircraft can foul moving parts and cause damage, delay or worse.**

<sup>1</sup> Wiegmann and others, University of Illinois, 2004

*Tool tracking reduces the risk of FOD damage & saves costs by highlighting missing tools.*

## Tool Tracking Solution

The CoreRFID Tool Tracking solution uses tags attached to tools. These tags identify each individual tool and its location. Tags can be based on barcode (low cost and simple to apply) or RFID (higher cost but more flexible) allowing identification data to be read automatically and without error. While barcodes are widely used for identifying retail goods and can also be used for tools, RFID offers the benefit of being able to scan and check items with a single pass of a reader, rather than needing each individual item to be checked.

Whichever form of tagging is used, a simple application running on a hand-held computer reads tags and reconciles the tags found with those expected for a particular building and location or for a particular job.

Handheld computers can be low cost or rugged devices depending on the working environment. Data can be transferred using WLAN or GPRS



**High quality service helps avoid operational delays, aircraft or systems damage, unplanned charter costs and on-costs resulting from non-availability.**

transmission in real time or can be stored on the hand held computer to be transmitted back at the end of the shift. The solution records the tool locations on a central database which can stand-alone for swift implementation or, in turn, be integrated with a corporate asset management system, such as Ellipse or Baan, if needed. Tools can be located anywhere across the globe and the data can be available instantly, anywhere, from EGLL to KJFK, from EDDF to VHHH.

The application can be used in conjunction with unique operator identity tags and personal identity numbers in order to confirm the engineer responsible for checking out tools.

Because data is collected at the point of action, accuracy is improved and the need for supporting paperwork is removed. Direct entry of data and automatic collection of information from tags reduces the risk of mistakes in transcribing.

CoreRFID works closely with customers to select the best type of tag technology and variant for the maintenance environment, selecting barcode labels that are robust and usable in environments prone to fuel, oil or coolant spillage or RFID tags able to function on metal and in areas where radio frequency emissions may be a concern. CoreRFID adapts the Tool Tracking solution to specific customer needs. We supply and install solutions, train staff and provide service on our solutions.

## About CoreRFID

CoreRFID specialise in the technologies that help track, trace, audit and control; to learn more, contact us today:

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### The Benefits

Tool tracking solutions based on barcode or RFID help improve maintenance operations by:

- Reducing FOD risk by ensuring all tools are returned.
- Providing a single system for tracking tools and service stocks.
- Saving engineer time looking for critical maintenance items across hangars, apron locations and stores.
- Enabling service tool and stock tracking across a global maintenance network.
- Reducing effort needed to track maintenance activities.
- Spotting missing tools quickly to increase the chance of their recovery dramatically reduces errors.
- Automatic report generation.