



EASA
European Aviation Safety Agency

INTERNAL OCCURRENCE REPORTING SYSTEM

Facts and Figures
2016



Acknowledgements

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Scope

The Agency, as competent Authority, receives occurrence reports from many aviation organisations, on either a mandatory or voluntary basis. The internal occurrence reporting system provides for the closed-loop processing of all incoming occurrence reports. This closed-loop system ensures that an individual assessment of those reports is performed and that any relevant safety actions taken by the Agency (e.g. Safety Information Bulletin, Airworthiness Directives) are recorded. When such actions fall outside the EASA remit, the information is coordinated with the competent Authority.

In addition to those occurrence reports, the Agency also collects information on accident and serious incidents as reported by EU Safety Investigation Authorities (notifications of occurrences, investigation reports) or as publicly available.

The EASA occurrence database is therefore an important source of information for many EASA tasks, such as safety analysis and trend monitoring. It enables data-driven, safety-related decision making, while taking into account the limitations of the data set linked to the sources of information presented above. Data quality is very important as this data is also used as a source of information for the Safety Risk Management Process [input for the European Plan for Aviation Safety (EPAS)]. Thus, occurrence reporting is also part of a bigger system.

The EASA database does not represent the full scope of occurrences that happen in Europe. The Agency collects more technical occurrences due to its responsibility in airworthiness while other types of occurrences (operations, ATM related ...) are mainly collected by the Member States due to their oversight responsibility.

The European Central Repository (ECR) integrates all reporting into a unique database and is therefore complementary. It provides the global view of all the occurrences processed by EASA and the Member States.

The main objective of this document is to present an overview of IORS data, where it comes from and how it is processed, in a statistical manner. It does not have the ambition at this stage to include in-depth safety analysis of the aggregated data.

Who shall report to EASA?

The EASA website provides information on occurrence reporting at the following web page: <https://www.easa.europa.eu/easa-and-you/safety-management/occurrence-reporting>

In brief, Regulation (EU) No 376/2014 is the legal basis on reporting, analysis and follow-up of occurrences in civil aviation and Commission Implementing Regulation (EU) 2015/1018 of 29 June 2015 provides a list classifying occurrences in civil aviation to be mandatorily reported according to Regulation (EU) No 376/2014.

- Holders of a type-certificate, restricted type-certificate, supplemental type-certificate, ETSO authorisation, major repair design approval or any other relevant approval deemed to have been issued under Commission Regulation (EU) No 748/2012 unless bilateral agreements specify different provisions where applicable¹,
- Holders of a production organisation approval issued under Commission Regulation (EU) No 748/2012;
- Organisations approved under Commission Regulation (EU) No 1321/2014 Part 145, for whom the competent Authority is the Agency;
- Organisations approved under Commission Regulation (EU) No 1321/2014 Part M, for whom the competent Authority is the Agency;

1 Current bilateral agreements exist with the USA, Brazil and Canada.



- Training Organisations approved under Commission Regulation (EU) No 290/2012 for whom the competent Authority is the Agency;
- Air Navigation Service providers approved under Commission Implementing Regulation (EU) No 1035/2011 for whom the competent Authority is the Agency.





Occurrences & Reports received

The data shown in the figures below provide an overview of occurrences and incoming reports (each occurrence is almost always associated with initial and follow-up reports) that were received and processed by EASA in 2016. Amount of reports received are distributed by month and type of reporting organisation. Occurrences are distributed by aircraft category, aircraft mass group and ATA chapter number. Historical views since 2012 of open versus closed occurrences, actions taken on closed occurrences and causes of occurrences are also presented. The data presented should only be read as a statistical overview of the number and type of occurrences reported to the Agency.

2016 Reports processed by Reporting Entity

► **Figure 1:** Number of reports per month in 2016 and by Reporting Entity

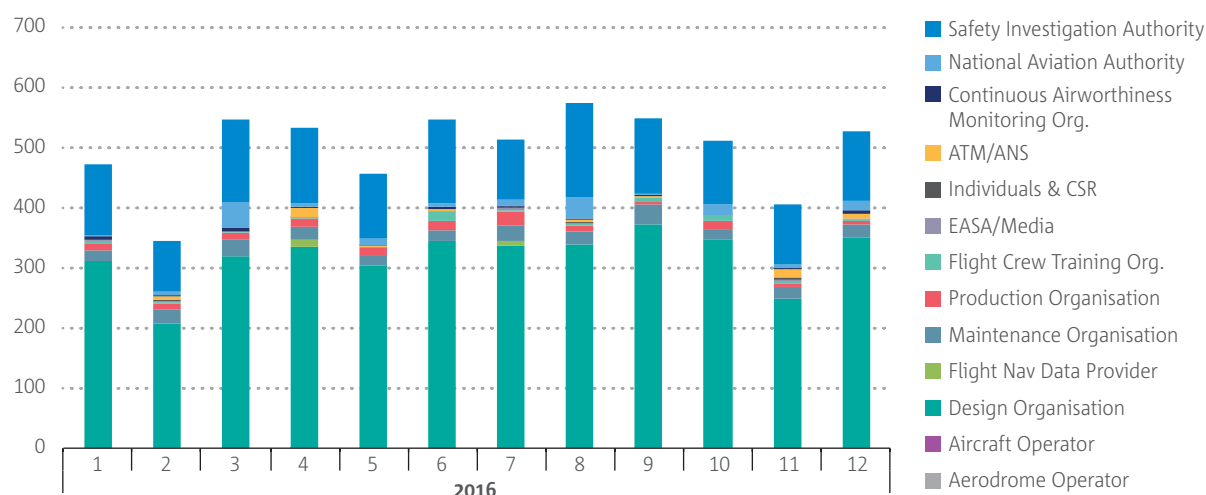


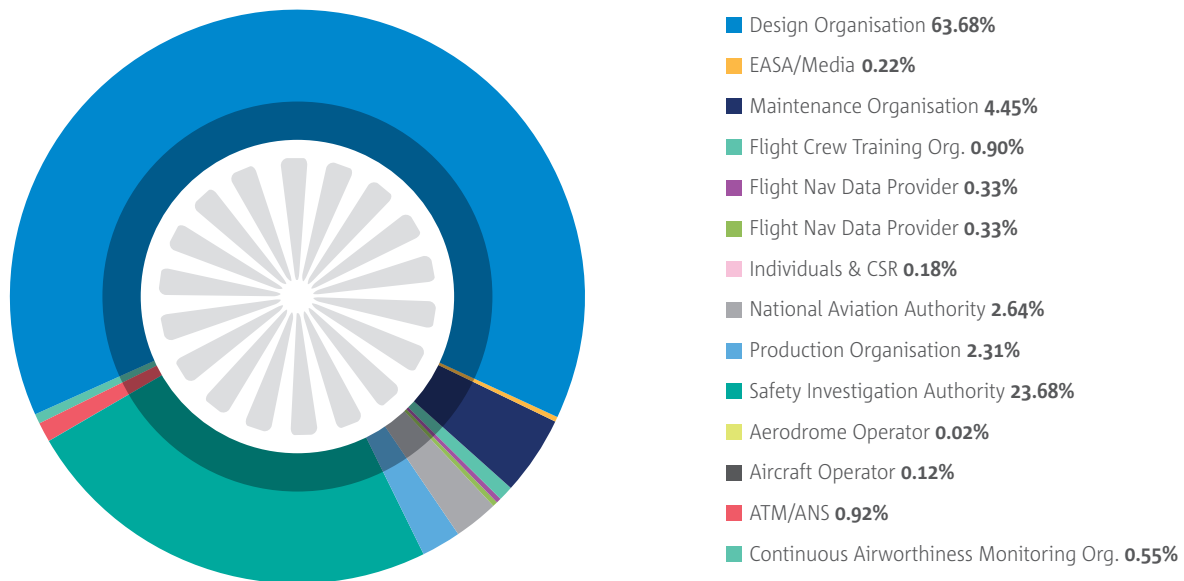
Figure 1 shows the number of reports - a total of 5 980 initial and follow-up - processed in the Agency's IORS system for the year 2016 by month and by the reporting entity. On average, about 500 reports were processed each month in 2016.

Occurrences are reported to the Agency by the organisations for which the Agency is the competent Authority. Additionally, the Agency receives also a number of voluntary reports and reports from European and non-European competent Authorities which are also processed and assessed according to the reported safety issue.

As shown in the figures 1 and 2, the majority of occurrences come from Design Organisation Approval Holders followed by Safety investigation Authorities and Maintenance Organisations.

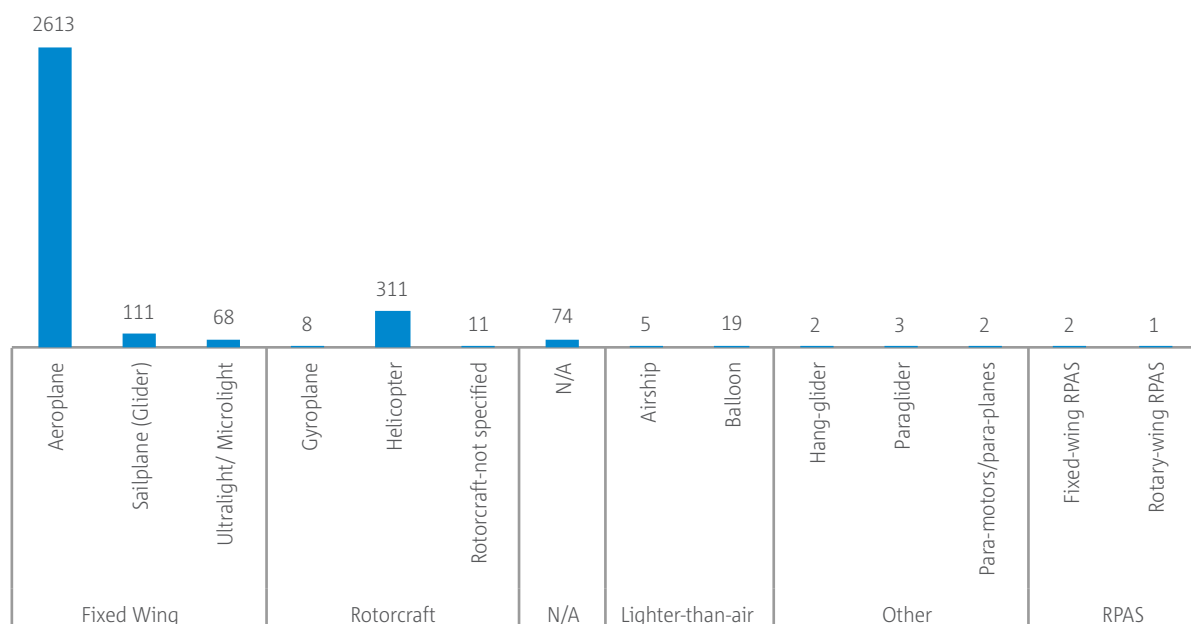


► **Figure 2:** Reporting Entity share of all reports processed in 2016



2016 Occurrences by aircraft category

► **Figure 3:** Number of new occurrences by aircraft category in 2016



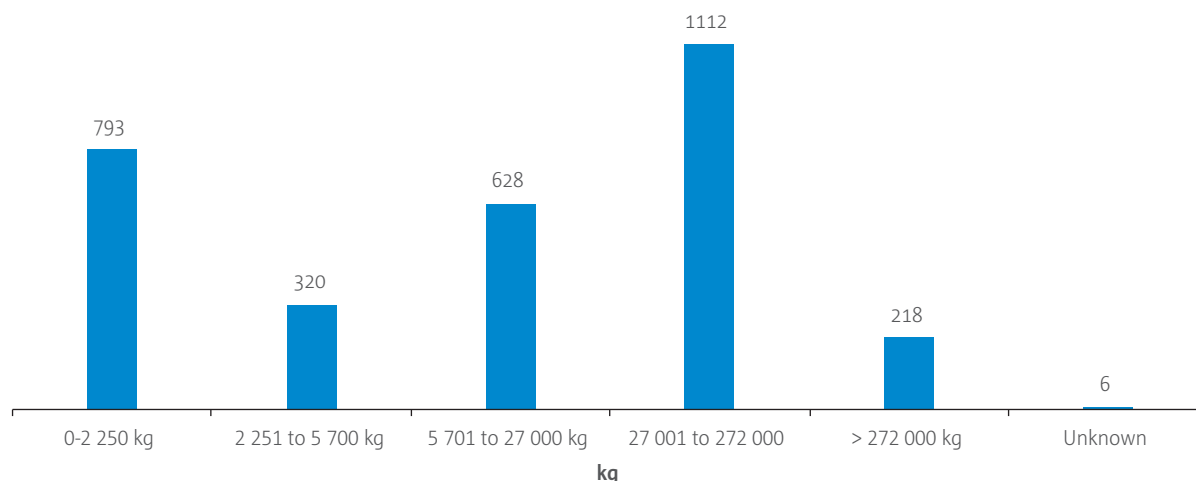
A total of 3,230 new occurrences were received and processed in 2016 and Figure 3 depicts the main aircraft categories involved. Fixed-wing aeroplane occurrences (a total of 2,792) dominate the subject of reports submitted by organisations that report to EASA followed by a considerably lower number of rotorcraft occurrences (a total of 330). The 'N/A' category are occurrences usually reported by Part-145 approved component maintenance organisations where aircraft data is not made available.

However, it has to be highlighted that the amount of reports does not directly relate to the safety level of the aircraft categories shown above since the amount of reports are not normalised against their share of amount of flight hours or number of registered aircraft of those categories.



2016 Occurrences by aircraft mass group

► **Figure 4:** Number of new occurrences by aircraft mass group in 2016



As can be seen in Figure 4, the largest number of new occurrences processed in 2016 relates to aircraft in the 27 001 – 272 000 kg mass group followed by the 0 – 2 250 kg and the 5 701 – 27 000 kg mass group. As already mentioned above, here also the amount of reports does not directly relate to the safety level of the aircraft mass groups since no normalisation has been applied to above data against their share of amount of flight hours or number of registered aircraft.

2016 Occurrences distributed by ATA chapter number

► **Figure 5:** Occurrences distribution by ATA chapter number - Top 20 in 2016

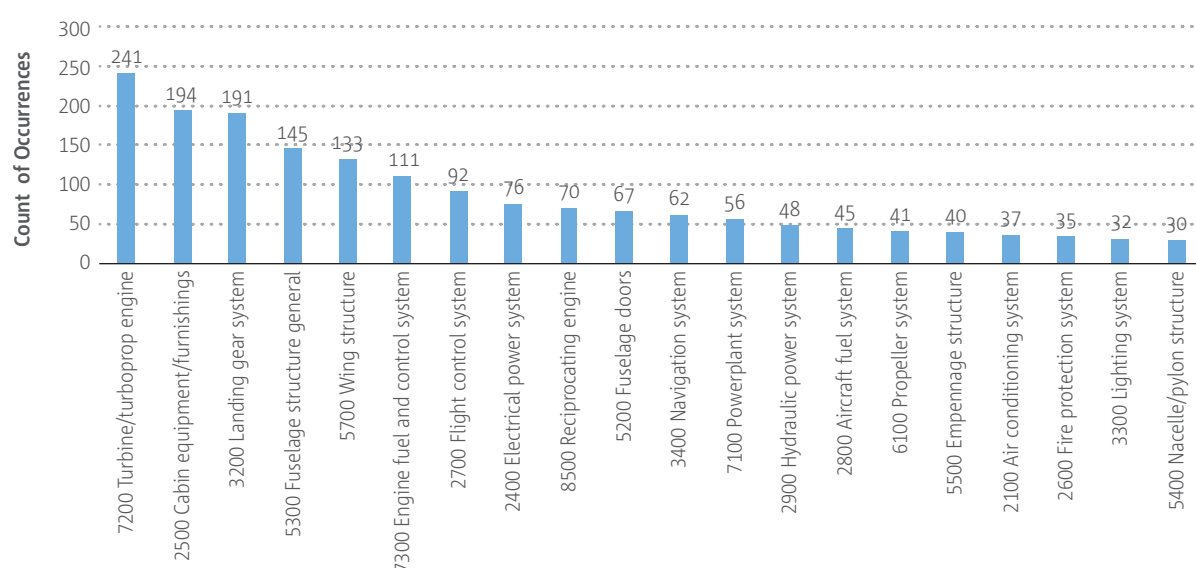


Figure 5 depicts the top 20 ATA chapters involved in the 2016 reported occurrences. Occurrences involving Turbine/turboprop engines are leading followed by Cabin equipment/furnishings, Landing-gear systems, Fuselage structure, Wing structure, etc.

However, if we group all structure related ATA chapter numbers (5200+5300+5500+5400+5700) then the structure related occurrences take the lead with a total count of 415.





Occurrences Status – Historical 2012-2016

► **Figure 6:** Monthly occurrence trend by its status received between 2012 and 2016

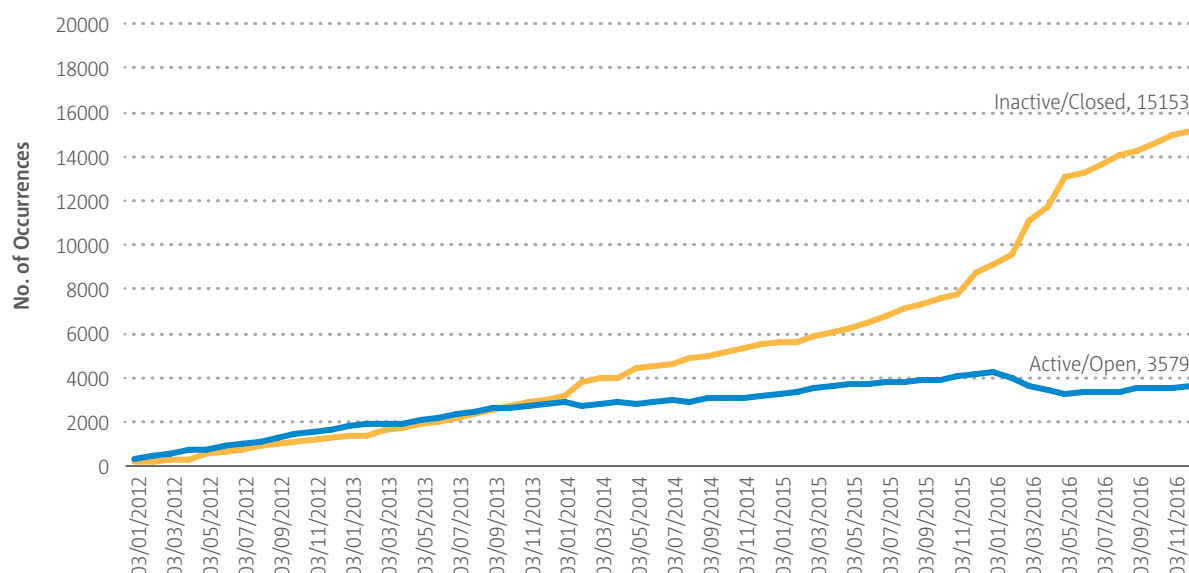


Figure 6 presents a historical view of the status of all occurrences that have been received since 2012. Over the last five years, there is a considerable improvement in faster processing, analysing, assessing and finally closing the reported occurrences, as shown by the positive trend in closed occurrences and the stabilization of the amount of open occurrences being in the processing state.

Occurrences Causes – Historical 2012-2016

► **Figure 7:** Causes of closed occurrences from 2012 to 2016

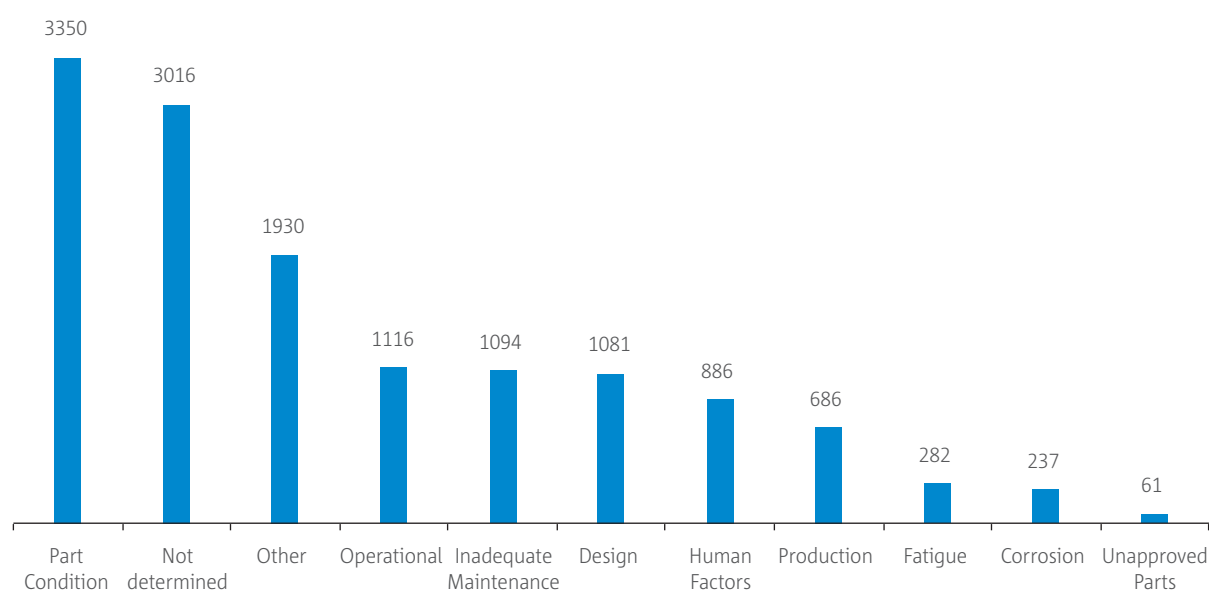




Figure 7 is a historical view of the causes of closed occurrences available in the EASA occurrence database. An occurrence cause may take multiple values amongst those available in ECCAIRS. The difference in the total number of the recorded “occurrence causes” of closed occurrences (13.739) in Figure 7 versus the “closed” occurrences (15.153) in Figure 6 is due to the fact that Figure 6 includes closed occurrences that were initially reported before 2012 (legacy data) and the causes were not reported or recorded. Cause(s) of an occurrence is provided by the reporter in their analysis and/or conclusion and assessed by the EASA technical experts when closing the occurrence.

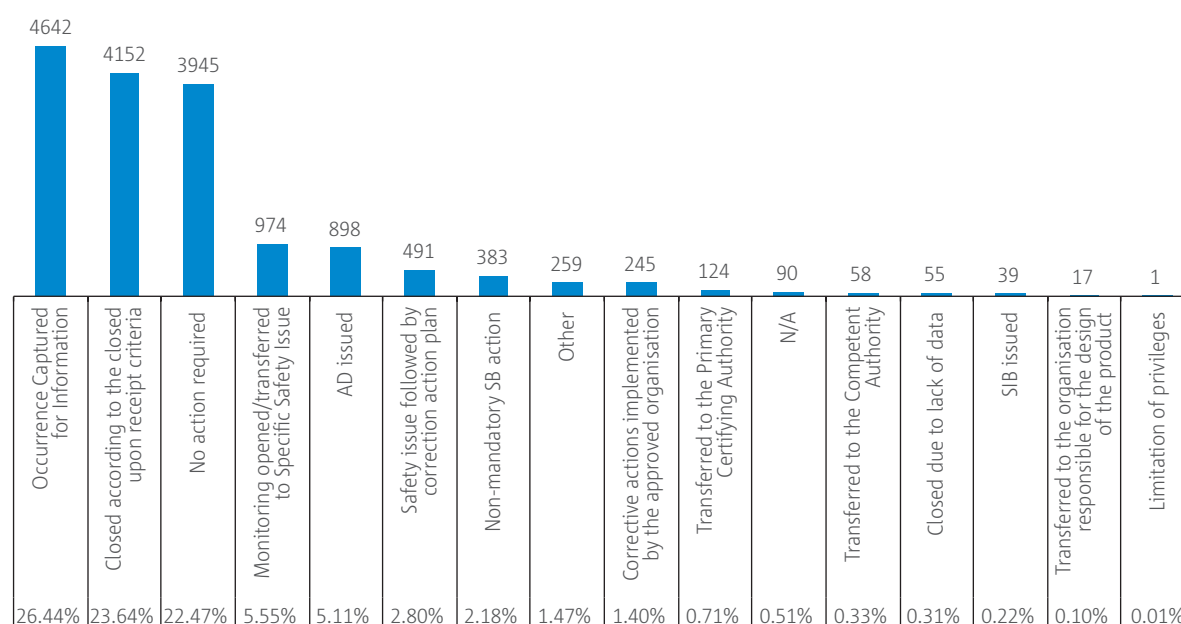
Moreover, as depicted in Figure 7, “Part Condition” is the dominant cause because most occurrences are reported by the EASA approved design organisations where aircraft parts are involved. However, this is the immediate cause of an occurrence, but not necessarily the root cause of the occurrence. Of those occurrences whose root causes have been clearly determined, the most common in the last five years are operational errors, inadequate maintenance and design issues in similar frequencies followed closely by human factors issues.

The number of occurrence causes under the “Not determined” category includes reported occurrences which were closed within the last five years with insufficient information on the occurrence causes. It also includes rare events that a cause could not be determined from the information available to the reporter. However, any additional information, received by the Agency on the causes of those occurrences, will be added to our database.

The “other” category includes suspected causes or causes that do not fall exactly into any of the other cause categories as depicted above.

Actions taken on processed and closed occurrences – Historical 2012-2016

► **Figure 8:** Number of occurrences processed and closed distributed by actions taken - Historical from 2012 to 2016



An occurrence can be closed when final actions are taken and above figure presents a historical view of actions taken on the closed occurrences. Above action categories are the standard action statements that are used in EASA's database to group actions taken.



Actions may not be unique and can take multiple values amongst those shown above. For example, an occurrence that an airworthiness directive was issued for may also be kept in a monitored state. Hence, the higher number of “Actions” versus the “Closed” occurrences in Figure 6 (16.373 vs. 15.153). Actions per occurrence are based on the information provided by the reporter(s), their risk assessment and corrective actions taken.

“Occurrences captured for information” (first column in chart) refer to accidents and serious incidents notified to EASA by State safety investigation authorities (SIA) or captured from media reports. These do not fall under the active reporting of EASA’s approved organisations and a different process is followed that might lead to actions that do not always fall under EASA’s remit or the SIA’s investigations are still in progress.

Occurrences that are “Closed according to the closed upon receipt criteria” refer to those that fall outside EASA’s remit and the competent authority and/or the DAH have been already informed by the reporter or EASA.

“No action required” refer to occurrences that were assessed by the DAH and EASA as not unsafe. It may also include rare events that a cause could not be determined due to insufficient information.

NOTE: As already mentioned at the beginning of this document, the data presented in this document should be viewed only as a statistical overview of occurrences reported to and processed by the Agency. No conclusions regarding aviation safety may be drawn from this data.



List of Acronyms

AD	Airworthiness Directive
ANSP	Air Navigation Service Provider
ATA	Air Transport Association
DAH	Design Approval Holder
EASA	European Aviation Safety Agency
ECCAIRS	European Co-ordination Centre for Accident and Incident Reporting Systems
EPAS	European Plan for Aviation Safety
ETSO	European Technical Standard Order
ICAO	International Civil Aviation Organization
IORS	Internal Occurrence Reporting System
N/A	Information Not Available or Not Applicable
SIA	Safety Investigation Authority
SIB	Safety Information Bulletin





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