

JTSTB Digests

JTSTB (Japan Transport Safety Board) DIGESTS

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Digests of aircraft accident analysis

For Prevention of Accidents of Small Aircraft

~ Do you know flight data monitoring device (FDM)? ~

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1. Introduction

Although the number of aircraft accidents has slightly decreased as a whole, 162 accidents occurred in the past 10 years (January 2013 ~ December 2022). Out of them, 100 accidents were caused by small aeroplanes, helicopters, and gliders (excluding those similar to ultra light planes, etc., hereinafter referred to as “small aircraft”), accounting for over 60% of the total number of accidents. The number of accidents involving small aircraft, has decreased in recent years, but it still accounts for a high percentage. Moreover, there is no year in which an accident involving small aircraft did not occur.

Large aeroplanes such as airliners are usually obliged to be equipped with flight-data recorders (FDR) and cockpit voice recorders (CVR). Data obtained from these devices (hereinafter referred to as “flight recorders”) is utilized in accident investigations. However, since small aircraft are not obliged to be equipped with flight recorders except those used for air transport services, not many of them are equipped with them. On the other hand, a flight data monitoring device capable of recording



Figure 1: FDM

information such as the positions and altitudes of aircraft in flight and cockpit audio and image (hereinafter referred to as “FDM”, See Figure 1) has been developed recently, although it is small, light, and low price. FDM is expected to be utilized not only for accident investigations but also for the reduction in safety risks by operators.

The utilization of FDM by other countries as a safety measure has been discussed at the “Small Aircraft Safety Promotion Committee” held regularly by the Civil Aviation Bureau, Ministry of Land, Infrastructure, Transport and Tourism. As a result of conducting substantive investigations (collection and analysis of operational data and evaluation of equipment) for several years, FDM was found to contribute to the improvement of safety of small aeroplanes. Therefore, it was decided to facilitate its introduction.

The Digests present how information obtained from FDM contributes to safe operations of aircraft in terms of the improvement of skills of pilots including training and risk management by extracting near-miss incidents in daily operations. Moreover, the importance of objective information is explained by introducing what type of information is collected and how it is utilized when JTSB creates investigation reports based on accident investigation reports published in the past. Also, how enhancement of objective information can contribute to preventing accidents from recurring by installing FDM on many aircraft will be explained.

2. Data of recent aircraft accidents

1. Data of aircraft accidents

This figure shows the details of 162 accidents occurred in the past 10 years by year. The number of accidents involving small aircraft varies between 4~20 (See Figure 2).

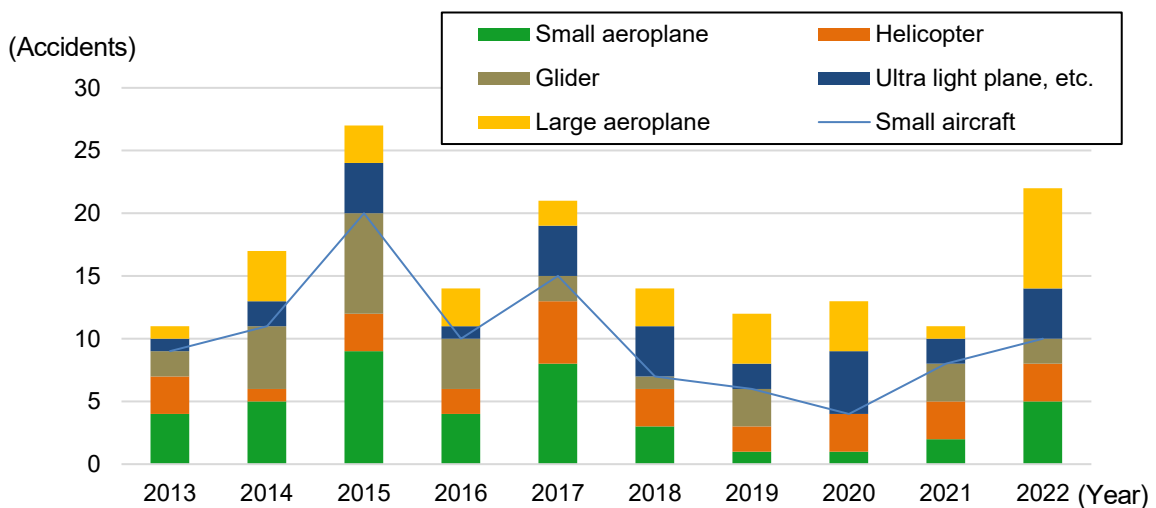


Figure 2: Number of aircraft accidents by year (2013~2022)