Swiss Accident Investigation Board SAIB 2012 Annual Report





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Swiss Accident Investigation Board SAIB

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1 Introduction



The 2012 Annual Report of the Swiss Accident Investigation Board (SAIB) is produced in accordance with the mandate of the Organisation Ordinance (OrgO-SAIB) as an activity report for the Federal Council, which approves it. It is intended to provide information on the organisation of the SAIB, its tasks and activities, as well as statistical material relating to accidents and hazards in commercial aviation and in the operation of trains, cable railways, buses and ships.

2 Management Summary



On 1 November 2011, the former Aircraft Accident Investigation Bureau (AAIB) and the Independent Railways and Ships Investigation Office were merged into a new organisational unit, the Swiss Accident Investigation Board (SAIB). The SAIB is a Commission which is administratively affiliated to the General Secretariat of the Federal Department of the Environment, Transport, Energy and Communications (GS-DETEC). It is responsible for the safety investigation of accidents, serious incidents and dangerous events in civil aviation and in federally licensed rail, bus or ship transport. The objective of this activity is to uncover safety deficits and to make a significant contribution to the prevention of hazardous situations and accidents through recommendations. In cooperation with other public authorities and all stakeholders in transport, safety standards will be maintained or improved.

The merging of the two investigative bodies for aviation and railways and ships respectively is intended to establish doctrinal unity in relation to investigative methodology and procedures. In addition, the new organisational form strengthens the independence of the investigating authority, allows systematic quality assurance and also possible exploitation of synergies, which overall creates the desired added value.

As a constantly evolving and learning organisation, the SAIB is currently undergoing an external evaluation procedure. After approximately one year, this is intended to further optimise the structures, methods and legal foundations. In 2012, a total of 652 reports concerning accidents and dangerous events were analysed by the SAIB and 78 investigations were opened and will be concluded with a published final report. Seventy-six investigations of accidents and serious incidents were concluded and a further 91 clarifications and summary investigations of events of lesser importance were carried out. In total, 55 safety recommendations were issued by the SAIB in 2012.

The reorganisation which has been initiated will be completed in the near future and in parallel the legal basis will be harmonised with European legislation.

3 Legal basis

- Convention on International Civil Aviation Organization ICAO, Annex 13: Aircraft Accident and Incident Investigation, 10th edition, July 2010
- EU Directive No. 996/2010 of the European Parliament and Council dated 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC. The Directive is binding on Switzerland, on the basis of the bilateral agreement on aviation between the Swiss Confederation and the European Community of 21 June 1999. Adoption as of 1 February 2012.
- Art. 25–26a Aviation Act of 21 December 1948
- Art. 15 Railways Act of 20 December 1957
- Ordinance on the Investigation of Accidents and Serious Incidents (VFU) of 23 November 1994
- Ordinance on the Reporting and Investigation of Accidents and Serious Incidents (VUU) in the Operation of Public Transport of 28 June 2000
- Ordinance on the Organisation of the Swiss Accident Investigation Board (OrgO-SAIB) of 23 March 2011

4 Mission

The Swiss Accident Investigation Board (SAIB) is the authority of the Swiss Confederation which investigates accidents and serious incidents in civil aviation, on railways and on ships.

The aim of this activity is not only to determine the direct causes of such events but also to establish the more deep-seated reasons and other risks associated with them. The sole objective of this form of safety investigation is to acquire insights by means of which accidents and incidents can be prevented and safety improved. However, the results of these investigations are not intended to clarify questions of blame and liability.

5 Organisation and tasks



5.1 Origins of the SAIB

The Swiss Accident Investigation Board has existed since 1 November 2011. It was constituted from the Aircraft Accident Investigation Bureau (AAIB) and the Investigation Board for Railways and Ships.

The merger of the two services concentrates expert knowledge in one location and guarantees doctrinal unity in the investigation of accidents and serious incidents. Through this reorganisation, the intention is to improve safety investigations and their preventive effect and to adapt them to the latest international findings. The new unit is headed by an extra-parliamentary commission. This appoints the staff of the Office, which carries out the actual investigations, and approves the final reports.

5.2 Organisation

The SAIB is administratively affiliated to the GS-DETEC and consists of

- the General Management (GM-SAIB)
- the Investigation Unit and
- the two Divisions "Aviation" (SAIB-AV) and "Rail and Navigation" (SAIB-RN).

5.3 Tasks

The **General Management** of the SAIB was appointed by a decision of the Federal Council on 12 October 2011. It is the supreme organ of the SAIB. As such, its tasks include in particular the organisation of the SAIB and the definition of the objectives and focus of the activities of the investigative body. The management also



ensures an effective quality assurance system, monitors the Office, approves the final reports and produces an annual report.

The **Director of the Investigation Unit** is responsible for the management, planning and coordination of all SAIB activities, for human resources management and for the auditing and organisation of quality assurance. In collaboration with the General Management and the heads of the divisions, he draws up the budget and monitors the SAIB's financial processes.

On the one hand the SAIB investigates accidents and serious incidents in civil aviation with the aim of promoting aviation safety. The target audience consists of aviation professionals and the interested public. The final reports are explicitly not addressed to judicial and administrative authorities. The **Aviation Division** is based at the Payerne military aerodrome and maintains branches at the international airports of Zurich and Geneva.

The SAIB also investigates accidents involving fatalities, serious injuries and substantial material damage on railways, ships, tramways and cable railways. The investigation consists of an independent assessment of the technical, operational and human circumstances and causes which led to the event. It serves to prevent further accidents and serious incidents. The **Rail and Navigation Division** has its headquarters in Berne and another base in Schlieren.

The **Heads of the Divisions** ensure that the investigations are carried out in accordance with the statutory and international regulations and meet the required quality standards.

6 Personnel



The General Management and the Office Manager: André Piller, Yvonne Muri, Werner Bösch and Daniel Knecht (left to right)

The General Management

The General Management includes the President and two members of the management.

André Piller, lic. jur., 1948, in office since November 2011 (President). Former coroner in Canton Fribourg; former President of the Federal Air Accident Commission.

Werner Bösch, dipl. chem. ETH, 1949, in office since November 2011 (member). Former Swissair airline pilot and head of basic pilot training; former manager of the Flight Operations Division in the Federal Office of Civil Aviation FOCA as deputy director and member of the Office directorate. **Yvonne Muri,** lic.rer.pol., 1968, in office since June 2012 (member). Currently managing director of Muri-Consulting GmbH, former HR manager of various companies, including SBB passenger traffic.

The Investigation Unit

The **Director of the Investigation Unit** Daniel W. Knecht, dipl. SC. nat. ETH, 1965, joined the former Aircraft Accident Investigation Bureau in 1999 as an investigator after training as a military and civilian pilot. Deputy Director of the Bureau from 2010. The Aviation and Rail and Navigation Divisions are each headed by **Heads of Division**, who manage the investigators. The Aviation Division (SAIB-AV) is managed by Olivier de Sybourg and the Rail and Navigation Division (SAIB-RN) by Walter Kobelt.

In both divisions **investigators** are responsible for conducting the individual investigations. If necessary, external **investigators** and **experts** can be called in for investigation activities.

The full-time professional personnel of the **Aviation Division** did not change in 2012 and consisted of five investigators plus two female employees and one employee of the secretariat. One investigator completed advanced training in aviation safety and investigation methodology at the College of Aeronautics at Cranfield University.

The SAIB-AV Division was also able to call upon a pool of 81 experts, who can be used if necessary as investigators for specialised tasks.

In the **Rail and Navigation Division** the **number** of full-time employees also remained constant. They consist of three investigators and one secretariat employee. In addition, it was possible to employee a trainee for a few months. The Head of Division completed the first part of a training course in investigation methodology at the College of Aeronautics at Cranfield University.

The SAIB-RN Division had 13 part-time employees who were employed as investigators and experts.

7 2012 objectives

For 2012, its first year of operation, the SAIB pursued the following objectives, which were able to be achieved:

Organisational structure

Initially, the emphasis was on the organisation of the new management and the new business office, consisting of the Aviation and Rail and Navigation Divisions. During this phase, the ongoing investigations continued seamlessly and new incident investigations were initiated. One important step for the SAIB was the appointment of the Office Manager, who was able to take up his post on 1 October 2012. The organisational structure was established with the administrative support of the DETEC, the General Secretariat of which provided the General Management and the Office with the necessary support, in particular in relation to IT, finance and human resources.

Establishing the processes

The Federal Council message relating to the establishment of the SAIB underscores the concept of *doctrinal unity* in the two divisions. There are a number of different processes at the administrative level, as well as in the investigations and in the preparation of accident reports, which have to be harmonised or unified.

Positioning of the SAIB

The challenging task involves bringing closer together the two existing Divisions, Aviation and Rail and Navigation, which among other things requires the harmonisation of procedures within the two Divisions. The implementation of the subsequent changes from the reorganisation is quite far-reaching. In general, however, the latter have been positively welcomed both within the SAIB and externally. To promote the perception of the SAIB in its new organisational form and to coordinate its activities with the tasks of all the transport entities involved, significant importance is being attached to extending existing relations with other authorities and businesses. This includes, for example, regular exchanges with the Federal Office of Civil Aviation, the Federal Office of Transport, the Civil Aviation Safety Officer (CASO) and with skyguide, SBB Passenger Transport and SBB Infrastructure, as well as with various airline companies. Also, professional contact is being maintained with the Office of the Attorney General and the cantonal public prosecutor's offices in order to coordinate the various areas of responsibility. The two Divisions of the Office are in constant contact with safety investigation authorities abroad and exchanges with the European authorities are also being extended at management level.

8 Investigative activity



Aviation Division

In 2012, 47 reports of accidents or damage to aircraft were received by the Aviation Division and 232 incidents were reported. These events were assessed according to the provisions of the OIASI; in the case of an unintentional convergence of two aircraft in particular, additional technical resources were employed to assess the risk. On the basis of these clarifications, 19 investigations of accidents and 17 investigations of serious incidents were initiated, including ten airproxes with a high or significant risk of collision, and 29 events were summarily investigated. During the same period, 38 investigations were concluded and the corresponding final report published (cf. Annex 1). As part of the activities of the Aviation Division, 25 safety recommendations were issued.

Although no definitive comment can be made with regard to the year 2012, the following points stand out:

- After three accidents involving gliders, the pilots and gliders could be found and recovered only after considerable delay; in two of these accidents the pilot and glider remained missing for several weeks.
- In all ten serious incidents involving hazardous convergences or near-misses, general aviation aircraft were involved; for the time being no conclusion can be drawn.



Rail and Navigation Division

In 2012 the Rail and Navigation Division received a total of 373 notifications of accidents or hazards. Three hundred of these events were on the railways, 19 on buses, 12 on cable railways, 2 on ships and 40 on trams. Forty-two investigations of accidents and hazardous situations which will lead to a final report were initiated. Sixty-three other events were analysed and the investigation was concluded with a memorandum. During the reporting year, the Rail and Navigation Division issued 30 safety recommendations and 38 investigations were concluded and the final report published (cf. Annex 1).

9 Outlook for 2013



Assessment of the new structure

The structure of the SAIB has proved in principle to be satisfactory. The requirements set out by the OrgO-SAIB have been implemented appropriately and have proved themselves within the framework of a standardised method of working. From the report of an evaluation by an external body it is also apparent that the chosen legal form of an extra-parliamentary commission is appropriate, as far as management is concerned, to meet the requirements for the independence of safety investigations. The harmonisation of processes which has been started with a view to *doctrinal unity* undoubtedly offers potential for increasing efficiency and the exploitation of synergies.

In accordance with the OrgO-SAIB, the Divisions conduct the actual investigative activity as they did before the establishment of the SAIB. The evaluation of the situation applicable when the management began its work put the focus first and foremost on quality assurance. The points still open from the SAIB Organisation Ordinance regarding the regulation of procedures are regulated in internal directives. The current organisation establishes the foundations for independent working and for systematic quality control. The focus of work in 2013 therefore lies in the Legislation following areas:

Organisation

- Consolidation of the current organisation and positioning of the SAIB;
- Assessment and implementation of the findings from the evaluation of the SAIB;
- Completion and introduction of the organisational regulations, taking into account the statutory provisions of the Confederation (e.g. internal audit systems);
- Development and implementation of an integral management system which covers all SAIB processes.

- Implementation of EC 996/2010 in cooperation with the relevant authorities and transport entities;
- Processing the revision of the SAIB Organisation Ordinance, VFU and VUU;
- Preparation of the revision of Aviation Act II.

Annexes



Annexes

- Annex 1: List of the final reports of the Aviation Division of the Swiss Accident Investigation Board published in the year 2012
- Annex 2: List of the final reports of the Rail and Navigation Division of the Swiss Accident Investigation Board published in the year 2012
- Annex 3: Statistical data, Aviation Division
- Annex 4: Statistical data, Rail and Navigation Division

List of the final reports of the Aviation Division of the Swiss Accident Investigation Board published in the year 2012

Number	Registration	Date	Place
2034	Airprox LTE7544	16.09.2007	Genève
2037	Airprox BEC016	08.02.2007	Genève
2059	НВ-КВМ	23.07.2008	Münster/VS
2072	HB-XQA	11.10.2004	Grandvillard/FR
2081	HB-ZGK	18.03.2008	Schwarzenberg/LU
2122	HB-XWJ	23.06.2008	Samedan
2123	HB-1982/HB-DCU	02.04.2011	Hausen am Albis/ZH
2124	HB-XYI	19.11.2009	Underbärgetal, Gemeinde Burgdorf/BE
2125	HB-ZJG	25.08.2010	Giirebad, Gemeinde Pfyn/TG
2126	HB-YMQ	24.06.2010	Schaffhausen-Schmerlat/SH
2127	HB-XQJ	02.09.2009	Fully/VS
2128	Airprox M-KENF/EMIR12	31.08.2010	SOSAL
2129	HB-3253	22.04.2011	Mollis/GL
2130	HB-CFS	06.06.2009	Beromünster/LU
2131	HB-1842	23.06.2010	Lieu-dit Les Rochat, Provence/VD
2132	HB-CWI	19.05.2010	Baulmes/VD
2133	HB-WAK/HB-1624	19.06.2007	Courtelary/BE
2134	D-AHLR	07.06.2009	South of Aosta (Italy)
2135	HB-XVY	20.07.2007	Gusswerk (Österreich)
2136	Airprox SWR1326/SWR202W	15.03.2011	Zürich
2137	HB-ZGR	09.04.2009	Bern
2138	HB-XII	08.07.2009	Dufourspitze, Gemeinde Zermatt/VS
2139	HB-XZN	21.08.2009	Weienbrunnen, Gemeinde Hämikon/LU
2140	D-IAYL	19.12.2010	Bever/GR
2141	HB-GDS	11.02.2011	Forcletta, commune d'Anniviers/VS
2142	HB-ZEH	02.10.2007	Illgau/SZ
2143	HB-PPG	24.03.2009	Bellechasse/FR
2144	HB-3181	06.04.2011	Ressiga/TI
2146	N467BD	22.10.2008	Zürich
2147	НВ-КНА	02.07.2006	Airolo/TI
2149	HB-YEC	19.06.2011	Hermenches/VD
2150	N747AW	08.03.2011	Lausanne/VD
2151	OO-GEE	12.02.2011	Lausanne/VD
2152	HB-ZRX	25.04.2011	Dättlikon/ZH
2153	HB-XWM	24.11.2009	Wilderswil/BE
2154	D-2197	01.08.2011	Gsteig/BE
2155	HB-2403	23.08.2011	Pfäffikon/ZH
2158	HB-IXP	20.07.2011	Zürich

List of the final reports of the Rail and Navigation Division of the Swiss Accident Investigation Board published in the year 2012

Regno	Type of trans- portation	Kind of accident	Date	Place
11090801	Railway	Derailment	08.09.2011	Rochers de Naye
11031101	Tram	Accident involving persons	11.03.2011	Oberentfelden
11062802	Railway	Derailment	28.06.2011	Basel RB
11112502	Railway	Derailment	25.11.2011	Romanshorn
11121601	Railway	Derailment	16.12.2011	Tramelan
11070102	Railway	Collision on unmanned crossing	01.07.2011	Winteregg (BLM)
11080501	Railway	Accident at work	05.08.2011	Immensee
11101101	Railway	Collision on unmanned crossing	11.10.2011	Ulisbach
11102402	Railway	Derailment	24.10.2011	Sion
08020303	Railway	Collision on unmanned crossing	03.02.2008	Sammelplatz / Gais
10120102	Railway	Collision	01.12.2010	Biel
11101501	Railway	Near accident / endangerment	15.10.2011	Altdorf
11092201	Railway	Derailment	22.09.2011	Rangierbahnhof Limmattal RBL
11103102	Railway	Shunting accident	31.10.2011	Frenkendorf
11061502	Railway	Accident involving persons	15.06.2011	Vevey
10121702	Railway	Derailment	17.12.2010	Zofingen
12012401	Railway	Accident involving persons	24.01.2012	Baar
11102601	Railway	Accident involving persons	26.10.2011	Morges
12030802	Railway	Collision on manned crossing	08.03.2012	Affeltrangen
11082201	Railway	High-voltage accident	22.08.2011	Finhaut
11051701	Railway	Fire	17.05.2011	Ambri-Piotta
11020501	Railway	Collision	05.02.2011	Chiasso
11121701	Ship	Collision	17.12.2011	Arth
11112401	Railway	Near accident / endangerment	24.11.2011	Thun
11052601	Ship	Ship accident	26.05.2011	Spiez
11102202	Railway	Accident involving persons	22.10.2011	Thalwil
11073001	Railway	Accident involving persons	30.07.2011	Zürich HB
11112203	Railway	Collision	22.11.2011	Rueun
12032301	Railway	Derailment	23.03.2012	Chiasso
11091101	Railway	Accident involving persons	11.09.2011	Maienfeld
11110202	Tram	Derailment	02.11.2011	Münchenstein
12031304	Railway	Derailment	13.03.2012	Basel Kleinhüningen Hafen
12050601	Railway	Accident at work	06.05.2012	Kloten
11122601	Railway	Shunting accident	26.12.2011	Aarberg
12041301	Railway	Collision on unmanned crossing	13.04.2012	Liestal
11121502	Railway	Shunting accident	15.12.2011	Münchenstein
12060101	Railway	Collision	01.06.2012	Genève
12052402	Railway	Collision	24.05.2012	Zweilütschinen

Statistical data, Aviation Division

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1. Preliminary remarks

By clarifying the circumstances and causes, the aircraft accident investigation aims to lay the foundations for preventing similar such accidents and serious incidents.

The legal assessment of accident causes is no concern of the investigation or the investigation report.

The following annual statistics include all investigated accidents and serious incidents involving Swiss-registered civil aircraft in Switzerland and abroad, as well as foreign-registered aircraft in Switzerland.

Accidents involving parachuting, hang gliding, kites, paragliding, tethered balloons, unmanned balloons and model aircraft are not subject to the investigation regime.

2. Definitions

Here you will find a few terms which are used in relation with aircraft accidents:

Aircraft accident

An occurrence associated with the operation of an aircraft, as long as a person is aboard the aircraft with the intention of flight:

- a) in which a person in or outside the aircraft is seriously or fatally injured; or
- b) in which the aircraft sustains damage which substantially affects structural strength, performance or flight characteristics and which normally requires major repair or the replacement of the affected component; or
- c) in which the aircraft is missing or the wreckage is inaccessible.

The following events are not considered as aircraft accidents:

Casualties and injuries not directly associated with the operation of an aircraft; casualties and injuries to persons who without authorisation have entered areas not designated for access by crews and passengers; moreover engine failures and damage limited to only one engine, its accessories or to the propeller blades; damage to fairings; slight deformation of or puncture holes in the aircraft skin; damage to the wing or rotor blade tips, antennas, tires or brakes.

Serious injury

An injury which is sustained by a person in an accident and which:

- a) within 7 days requires hospitalization for more than 48 hours;
- b) involves a fracture of any bone except simple fractures of fingers, toes or the nose;
- c) involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage;
- d) results in damage to any internal organ;
- e) involves second or third degree burns or any burns affecting more than 5 percent of the body surface;
- f) is the result of verified exposure to infectious substances or injurious radiation.

Fatal injury

Serious injury leading to death within thirty days after the aircraft accident.

Large aircraft

An aircraft which has a maximum allowable take-off mass of at least 5700 kg, is classified of business or permanent residence is located. in the airworthiness category Standard, subcategory transport, or has more than 10 seats for passengers and crew.

State of Registry

The State on whose register the aircraft is entered.

State of manufacture

The State or the States having certified the airworthiness of the prototype (type).

State of the operator

The State in which the operator's principal place

3. Tables and figures

3.1 Aircraft accidents and serious incidents involving Swiss-registered aircraft, inventory of the aircraft and list the deceased

Year	Number of reg- istered aircraft	Flight hours ¹⁾	Flight person- nel Li- cences ¹⁾	Number of ac- cidents investi- gated	Number of ac- cidents with sum- mary investi- gations	Total num- ber of acci- dents	Num- ber of serious incidents (incl. Airprox)	Air- prox inves- tigated 2)	Total number of ac- cidents and serious inci- dents	Number of de- ceased
2001	4067	758 470	18 686	28	18	46	14	13	60	50
2002	4030	844 389	17 754	24	26	50	12	13	62	16
2003	3972	873 540	16 936	38	32	70	18	19	88	24
2004	3893	749 535	16 382	29	34	63	10	14	73	14
2005	3841	768 643	15 501	22	37	59	12	9	71	15
2006	3822	715 572	15 368	27	31	58	10	7	68	10
2007	3813	766 557	15 076	23	20	43	4	6	47	12
2008	3765	784 548	14 691	28	19	47	5	6	52	11
2009	3685	842 017	14 973	26	17	43	4	3	47	5
2010	3705	793 592	15 313	21	16	37	8	4	45	8
2011	3709	873 548	12 855 ³⁾	21	24	46	13	8	59	13
2012	3657	875 708	12 840	22	20	42	23	10	65	22

¹⁾ Reference: Federal Office of Civil Aviation (FOCA)

²⁾ Incl. Airprox involving foreign-registered aircraft

³⁾ Based on the Air Navigation Act, no more student pilot licences are issued since 01.04.2011

Year	Number of reg- istered aircraft ¹⁾	Flight hours ¹⁾	Number of ac- cidents investi- gated	Number of accidents with summary investiga- tions	Total number of ac- cidents	Num- ber of serious incidents (incl. Airprox)	Airprox investi- gated ²⁾	Total number of acci- dents and serious incidents	Number of de- ceased
2001	306	425 641	7	0	7	14	13	21	26
2002	304	490 555	3	0	3	12	13	15	0
2003	257	504 998	3	0	3	18	19	21	0
2004	248	435 820	1	0	1	10	14	11	0
2005	241	445 228	0	0	0	12	9	12	0
2006	248	434 050	1	0	1	8	7	9	0
2007	260	393 368	3	0	3	0	5	3	1
2008	285	385 686	1	0	1	3	5	4	0
2009	293	394 055	0	0	0	4	3	4	0
2010	303	419 323	0	0	0	6	3	6	0
2011	299	458 225	0	0	0	9	8	9	0
2012	294	475 786	0	0	0	11	7	11	0

3.1.1 Swiss-registered aircraft with MTOM > 5700 kg

¹⁾ Reference: Federal Office of Civil Aviation (FOCA)

²⁾ Incl. Airprox involving foreign-registered aircraft

Year	Number of reg- istered aircraft ¹⁾	Flight hours ¹⁾	Number of ac- cidents investi- gated	Number of accidents with summary investiga- tions	Total num- ber of acci- dents	Num- ber of serious incidents (incl. Airprox)	Airprox investi- gated ²⁾	Total number of acci- dents and serious incidents	Number of de- ceased
2001	3761	332 829	21	18	39	0	0	39	24
2002	3726	353 834	21	26	47	0	0	47	16
2003	3715	368 542	35	32	67	0	0	67	24
2004	3645	313 715	28	34	62	0	0	62	14
2005	3600	323 415	22	37	59	0	0	59	15
2006	3574	281 522	26	31	57	2	0	59	10
2007	3553	373 189	20	20	40	4	1	44	11
2008	3480	398 862	27	19	46	2	1	48	11
2009	3392	447 962	26	17	43	0	0	43	5
2010	3402	374 269	21	16	37	2	1	39	8
2011	3410	415 323	22	24	46	3	0	49	13
2012	3363	399 922	22	20	42	12	3	54	22

3.1.2 Swiss-registered aircraft with MTOM \leq 5700 kg

¹⁾ Reference: Federal Office of Civil Aviation (FOCA)

²⁾ Incl. Airprox involving foreign-registered aircraft



3.2 Accident data and persons involved in accidents – reporting period 2011/ 2012

3.2.1 Accidents and serious incidents involving Swiss-registered aircraft in Switzerland and abroad, and foreign-registered aircraft in Switzerland according to their category, including and excluding injuries to persons

	Acci in	dents Ivolvii	and s ng Sw airc	eriou iss-re raft	s incid gister	lents ed	Accidents and serious incidents involving Swiss-registered aircraft						Accidents and serious incidents involving foreign-registered aircraft							
		ir	n Swit	zerlar	nd		abroad							ir	n Swit	zerlar	nd			
	Total		al Persons injured		Persons not injured		То	Total		Persons injured		Persons not injured		Total		Persons injured		Persons not injured		
	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011		
Total	56	52	11	12	45	40	9	6	4	2	5	4	7	11	2	2	5	9		
Aircraft with MTOM ≤ 2250 kg	28	24	3	2	25	22	4	1	2	0	2	1	2	4	1	1	1	3		
Aircraft with MTOM 2250– 5700 kg	0	3	0	2	0	1	1	0	1	0	0	0	0	3	0	0	0	3		
Aircraft with MTOM > 5700 kg	8	7	0	0	8	7	2	2	0	0	2	2	2	3	0	0	2	3		
Helicopter	9	8	4	3	5	5	0	2	0	2	0	0	0	0	0	0	0	0		
Motor gliders and gliders	10	8	4	4	6	4	2	1	1	0	1	1	3	1	1	1	2	0		
Balloons and airships	1	2	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0		

	Number	of registered aircraft ¹⁾ (01.01.2013)	Total number of accidents / serious incidents			
	2012	2011	2012	2011		
Aircraft with MTOM \leq 2250 kg	1461	1419	32	25		
Aircraft with MTOM 2250–5700 kg	167	214	1	3		
Aircraft with MTOM > 5700 kg	294	299	10	9		
Helicopter	326	334	9	10		
Motor gliders and gliders	1022	1054	12	9		
Balloons and airships	387	389	1	2		
Total	3657	3709	65	58		

3.2.2 Aircraft inventory and accidents / serious incidents involving Swiss-registered aircraft

¹⁾ Reference: Federal Office of Civil Aviation (FOCA)

	2012	2011
Aircraft with MTOM \leq 2 250 kg	49%	43 %
Aircraft with MTOM 2 250–5 700 kg	2 %	5 %
Aircraft with MTOM > 5 700 kg	15 %	16 %
Helicopter	14 %	17 %
Motor gliders and gliders	18 %	16 %
Balloons and airships	2 %	3 %

3.2.3 Accidents and serious incidents involving Swiss-registered aircraft according to category of aircraft



	Ground and rolling/ Hovering flight		Starting and climb		Cruising		Descent and approach		Landing		Total	
	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011
Aircraft with MTOM ≤ 2250 kg	3	0	6	2	4	6	6	3	15	18	34	29
Aircraft with MTOM 2250–5700 kg	0	0	0	2	1	1	0	1	0	2	1	6
Aircraft with MTOM > 5700 kg	0	1	6	3	3	4	2	4	1	0	12	12
Helicopter	2	2	2	1	2	3	3	1	0	3	9	10
Motor gliders and gliders	0	0	3	4	6	1	0	1	6	4	15	10
Balloons and airships	0	0	1	2	0	0	0	0	0	0	1	2
Total	5	3	18	14	16	15	11	10	22	27	72	69

3.2.4 Flight phase (accidents and serious incidents involving Swiss-registered aircraft in Switzerland and abroad, and foreign-registered aircraft in Switzerland)



	A	Accidents and serious incidents involving Swiss-registered aircraft in Switzerland												
	Total		Aircraft with MTOM ≤ 2250 kg		Aircraft with MTOM 2250– 5700 kg		Aircraft with MTOM > 5700 kg		Helicopter		Motor gliders and gliders		Balloons and airships	
	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011
Accidents/ Serious incidents	56	52	28	24	0	3	8	7	9	8	10	8	1	2
Deceased	15	10	7	2	0	6	0	0	4	0	4	1	0	1
Crew	9	5	2	2	0	2	0	0	3	0	4	1	0	0
Passengers	6	5	5	0	0	4	0	0	1	0	0	0	0	1
Third persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persons seriously injured	3	10	1	0	0	0	0	0	2	6	0	4	0	0
Crew	2	3	1	0	0	0	0	0	1	0	0	3	0	0
Passengers	1	5	0	0	0	0	0	0	1	4	0	1	0	0
Third persons	0	2	0	0	0	0	0	0	0	2	0	0	0	0

3.2.5 Persons involved in accidents according to their function for accidents and serious incidents involving Swiss-registered aircraft in Switzerland and abroad, and foreign-registered aircraft in Switzerland

		Accidents and serious incidents involving Swiss-registered aircraft abroad												
	Total		Aircraft with MTOM ≤ 2250 kg		Aircraft with MTOM 2250– 5700 kg		Aircraft with MTOM 2250– 5700 kg		Helicopter		Motor gliders and gliders		Balloons and air- ships	
	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011
Accidents/ Serious incidents	9	6	4	1	1	0	2	2	0	2	2	1	0	0
Deceased	7	3	2	0	4	0	0	0	0	3	1	0	0	0
Crew	3	1	1	0	1	0	0	0	0	1	1	0	0	0
Passengers	4	2	1	0	3	0	0	0	0	2	0	0	0	0
Third persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persons seriously injured	3	2	3	0	0	0	0	0	0	2	0	0	0	0
Crew	1	1	1	0	0	0	0	0	0	1	0	0	0	0
Passengers	2	1	2	0	0	0	0	0	0	1	0	0	0	0
Third persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Ac	Accidents and serious incidents involving foreign-registered aircraft in Switzerlan												and
	Total		Aircraft with MTOM ≤ 2250 kg		Aircraft with MTOM 2250– 5700 kg		Aircraft with MTOM > 5700 kg		Helicopter		Motor gliders and gliders		Balloons and air- ships	
	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011
Accidents/ Serious incidents	7	11	2	4	0	3	2	3	0	0	3	1	0	0
Deceased	1	3	0	2	0	0	0	0	0	0	1	1	0	0
Crew	1	2	0	1	0	0	0	0	0	0	1	1	0	0
Passengers	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Third persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Persons seriously injured	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Crew	1	0	1	0	0	0	0	0	0	0	0	0	0	0
Passengers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Third persons	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Statistical data, Rail and Navigation Division

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1. Tables

1.1 Accidents involving persons and accidents at work

		2009			2010			2011			2012		
Number of reports / call-outs		319			344			324			373		
Investigations initiated		58			76			58			42		
Accidents involving persons Railways total (not including cableways)	74			62			59			67			
Persons injured	+	S	L	+	S	L	+	S	L	+	S	L	
in a train / tram	-	-	-	1	48	16	-	-	1	-	1	1	
while boarding / alighting	2	4	6	-	5	1	1	6	5	-	_	6	
in stations	9	13	8	10	8	7	7	12	8	9	10	10	
outside stations	17	10	6	18	9	3	8	12	2	15	11	4	
other				4	6	30	-	-	2	_	-	-	
Suicides* or attempted suicides* reported to SAIB		37*			68*			43*			59*		
Accidents at work		5			8			10			15		

Key to statistics below:

- **†** = Fatalities
- S = Severe casualties

L = Minor injuries

*) Suicides included in our statistics were initially reported to us as accidents involving persons.

1.2 Collisions and derailments

		2009			2010			2011		2012			
Collisions total		18			40			39			42		
train-train / tram-tram		2			8/4			10/2			7/0		
with machinery (digger, crane etc.)		3			2			2		3			
with buffers		1		4			4			3			
with parked vehicles		3		5			3			6			
with road vehicles		9		17			14			20			
with other things							4				3		
Collisions on level crossings total	27				33		24				16		
Persons injured on	+	s	L	t	s	L	+	s	L	+	s	L	
manned crossings	3	7	6	2	3	10	1	4	6	1	1	6	
unmanned crossings	4	1	1	_	4	3	2	3	2	-	3	2	
Derailments total		35			30			37			39		
passenger train journeys		4			5			4			6		
goods train journeys		4			2			3			2		
shunting		23		19			22			19			
maintenance vehicles		3		2			3			8			
trams		1			2			5			4		

Key to statistics below:

† = Fatalities

S = Severe casualties

L = Minor injuries

*) Suicides included in our statistics were initially reported to us as accidents involving persons.

	2009	2010	2011	2012
Near accidents / endangerment	59	43	45	44
Shunting accidents	7	9	6	1
Fires total	8	11	11	20
railway vehicles	5	8	8	9
scheduled buses	3	3	3	10
cableways	-	-	_	1
Various	37	26	41	47
sabotage / vandalism	10	2	4	2
accidents involving dangerous goods	3	4	3	2
high-voltage accidents	3	3	6	7
other	21	17	28	36

1.3 Near accidents, shunting accidents and fire

1.4 Ship accidents, events involving cableways

	2009		2010			2011		2012		
Ships total	0		0			2		1		
Accidents involving persons Cableways total	5		10			0			3	
Persons injured in	<i>6</i>	+	S	L	+	S	L	+	S	L
cable cars	(included under Other	_	1	-	_	-	-	-	-	-
chairlifts	cableway	_	6	2	-	-	_	-	1	2
draglifts	incidents)	_	1	3	_	-	-	-	—	-
Other cableway incidents (not including accidents at work)	7		4			1			9	
crash of cabin / chair	2		1			-			-	
deropement	-		1		_			2		
rope failures	1		_		_					
other	4		2			1				

Key to statistics below:

† = Fatalities

S = Severe casualties

L = Minor injuries

*) Suicides included in our statistics were initially reported to us as accidents involving persons.





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