BOEING

Statistical Summary of Commercial Jet Airplane Accidents

Worldwide Operations | 1959–2015

2015

Contents

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Boeing Commercial Airplanes
P.O. Box 3707 M/C 0A-19
Seattle, Washington 98124-2207
USA
E-mail: statsum@boeing.com
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Introduction

The accident statistics presented in this summary are confined to worldwide commercial jet airplanes that are heavier than 60,000 pounds maximum gross weight. Within that set of airplanes, there are two groups excluded:

1) Airplanes manufactured in the Commonwealth of Independent States (CIS) or the former Union of Soviet Socialist Republics (USSR) are excluded because of the lack of operational data.
2) Commercial airplanes operated in military service. (However, if a military-owned commercial jet transport is used for civilian commercial service, those data will be included in this summary.)

The following airplanes are included in the statistics:

707/720	717	A300	BAe146	F-28	Concorde	L-1011	BAC 1-11	Comet 4
727	DC-8	A300-600	Avro RJ-70/-85/-100	F-70				Trident
737	DC-9	A310	CRJ-700/-900/-1000	F-100				Caravelle
747	DC-10/MD-10	A320/321/319/318	EMB-170/-175					Mercure
757	MD-11	A330	EMB-190/-195					CV-880/-990
767	MD-80/-90	A340						VC-10
777		A350						
787		A380						

Flight operations data for Boeing airplanes are developed internally from airline operator reports. Flight operations data for non-Boeing airplanes are compiled from www.ascendworldwide.com by Ascend. The source of jet airplane inventory data is Jet Information Services, Inc.

Accident data are obtained, when available, from government accident reports. Otherwise, information is from operators, manufacturers, various government and private information services, and press accounts.

Readers may note that cumulative accident totals from year to year may not exactly correlate with the expected change from the previous year's accidents. This is a result of periodic audits of the entire accident history for updates to the data.

Definitions related to development of statistics in this summary are primarily based on corresponding International Civil Aviation Organization (ICAO), U.S. National Transportation Safety Board (NTSB), and Flight Safety Foundation (FSF) terms, as explained in the next section.

Definitions

Airplane Accident

An occurrence associated with the operation of an airplane that takes place between the time any person boards the airplane with the intention of flight and such time as all such persons have disembarked, in which

- The airplane sustains substantial damage.
- The airplane is missing or is completely inaccessible.
  - An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.
- Death or serious injury results from
  - Being in the airplane.
  - Direct contact with the airplane or anything attached thereto.
  - Direct exposure to jet blast.

Excluded Events

- Fatal and nonfatal injuries from natural causes.
- Fatal and nonfatal self-inflicted injuries or injuries inflicted by other persons.
- Fatal and nonfatal injuries of stowaways hiding outside the areas normally available to the passengers and crew.
- Nonfatal injuries resulting from atmospheric turbulence, normal maneuvering, loose objects, boarding, disembarking, evacuation, and maintenance and servicing.
- Nonfatal injuries to persons not aboard the airplane.

The following occurrences are **not** considered airplane accidents: those that are the result of experimental test flights or the result of a hostile action, including sabotage, hijacking, terrorism, and military action.

Note: This is generally consistent with the ICAO and the NTSB definition of an accident (see the Referenced ICAO and NTSB Definitions section). The differences are:

1) The ICAO and NTSB references to “aircraft” were changed to “airplane” and references to propellers and rotors were eliminated.

2) This publication excludes events that result in nonfatal injuries from atmospheric turbulence, normal maneuvering, etc.; nonfatal injuries to persons not aboard the airplane; and any events that result from an experimental test flight or from hostile action, such as sabotage, hijacking, terrorism, and military action.

Note: Within this publication, the term “accident” is used interchangeably with “airplane accident.”

Definitions

Destroyed

The estimated or likely cost of repairs would have exceeded 50 percent of the new value of the airplane had it still been in production at the time of the accident.

Note: This definition is consistent with the FSF definition. NTSB defines “destroyed” as damaged due to impact, fire, or in-flight failures to an extent not economically repairable.

Fatal Injury

Any injury that results in death within 30 days of the accident.

Note 1: This is consistent with both the ICAO and the NTSB definitions.

Note 2: External fatalities include on-ground fatalities as well as fatalities on other aircraft involved.

Major Accident

An accident in which any of three conditions is met:

- The airplane was destroyed.
- There were multiple fatalities.
- There was one fatality and the airplane was substantially damaged.

Note: This definition is consistent with the NTSB definition. It also is generally consistent with FSF, except that the FSF definition specifies that fatalities include only occupants of the airplane. ICAO does not normally define the term “major accident.”

Serious Injury

An injury that is sustained by a person in an accident and that

- Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received.
- Results in a fracture of any bone (except simple fractures of fingers, toes, or nose).
- Causes severe hemorrhage, nerve, muscle, or tendon damage.
- Involves injury to any internal organ.
- Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.
- Involves verified exposure to infectious substances or injurious radiation.

Note: This is generally consistent with the ICAO definition. It is also consistent with the NTSB definition except for the last bullet item, which is not included in the NTSB definition.

Definitions

Substantial Damage

Damage or failure that adversely affects the structural strength, performance, or flight characteristics of the airplane, and that would normally require major repair or replacement of the affected component.

Substantial damage is **not** considered to be

- Engine failure or damage limited to an engine, if only one engine fails or is damaged.
- Bent fairings or cowlings.
- Dents in the skin.
- Small puncture holes in the skin.
- Damage to wheels.
- Damage to tires.
- Damage to flaps.
- Damage to engine accessories.
- Damage to brakes.
- Damage to wingtips.

Note 1: This definition is generally consistent with the NTSB definition of substantial damage except it (1) deletes reference to “small puncture holes in the fabric” and “ground damage to rotor or propeller blades,” and (2) deletes “damage to landing gear” from the list of items not considered to be substantial damage.

Note 2: ICAO does not define the term “substantial damage.” Still, the above definition is generally consistent with the ICAO definition of damage or structural failure contained within part (B) of the ICAO accident definition.

Note 3: Boeing does not consider damage to be substantial if repairs to an airplane enable it to be flown to a repair base within 48 hours of the event.

Boeing Terms

The terms on this page were created by Boeing for this publication and do not have corresponding equivalents in ICAO or NTSB.

Accident Rates

In general, this expression is a measure of accidents per million departures. Departures (or flight cycles) are used as the basis for calculating rates because there is a stronger statistical correlation between accidents and departures than there is between accidents and flight hours, or between accidents and the number of airplanes in service, or between accidents and passenger miles or freight miles. Airplane departures data are continually updated and revised as new information and estimating processes become available. These form the baseline for the measure of accident rates and, as a consequence, rates may vary between editions of this publication.

Airplane Collisions

Events involving two or more airplanes are counted as separate events, one for each airplane. For example, destruction of two airplanes in a collision is considered to be two separate accidents.

Fatal Accident

An accident that results in fatal injury.

Hull Loss

Airplane totally destroyed or damaged and not repaired. Hull loss also includes, but is not limited to, events in which

- The airplane is missing.
  - An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.
- The airplane is completely inaccessible.

Exclusions

Certain airplanes and events are excluded from consideration as accidents in this summary. This is a complete list of those exclusions.

Excluded Airplanes

Airplanes manufactured in the Commonwealth of Independent States (CIS) or the former Union of Soviet Socialist Republics (USSR) are excluded because of the lack of operational data. Commercial airplanes operated in military service are also excluded. (However, if a military-owned commercial jet transport is used for civilian commercial service, those data are included in this summary.)

Excluded Events

- Fatal and nonfatal injuries from natural causes.
- Fatal and nonfatal self-inflicted injuries or injuries inflicted by other persons.
- Fatal and nonfatal injuries of stowaways hiding outside the areas normally available to the passengers and crew.
- Nonfatal injuries resulting from atmospheric turbulence, normal maneuvering, loose objects, boarding, disembarking, evacuation, and maintenance and servicing.
- Nonfatal injuries to persons not aboard the airplane.
- Experimental test flights (however, maintenance test flights, ferry, positioning, training, and demonstration flights are not excluded).
- Sabotage, hijacking, terrorism, and military action.

Referenced ICAO and NTSB Definitions

International Civil Aviation Organization (ICAO) and National Transportation Safety Board (NTSB) definitions are included below for reference.

Accident

ICAO defines an "accident" as follows:

Accident. An occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

A) A person is fatally or seriously injured as a result of:

- Being in the aircraft, or
- Direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
- Direct exposure to jet blast,

  except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew, or

B) The aircraft sustains damage or structural failure which:

- Adversely affects the structural strength, performance, or flight characteristics of the aircraft, and
- Would normally require major repair or replacement of the affected component,

  except for engine failure or damage, when the damage is limited to a single engine (including its cowlings or accessories), to propellers, wingtips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome).

C) The aircraft is missing or is completely inaccessible.

NTSB defines an "aircraft accident" as follows:

Aircraft accident means an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. For purposes of this part, the definition of "aircraft accident" includes "unmanned aircraft accident," as defined in 49 CFR 830.2.

Referenced ICAO and NTSB Definitions

Serious Injury

ICAO defines “serious injury” as follows:

Serious Injury. An injury that is sustained by a person in an accident and which:

A) Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or

B) Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

C) Involves lacerations that cause severe hemorrhage, nerve, muscle, or tendon damage; or

D) Involves injury to any internal organ; or

E) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface; or

F) Involves verified exposure to infectious substances or injurious radiation.

NTSB defines “serious injury” as follows:

Serious injury means any injury that

1) Requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received;

2) Results in a fracture of any bone (except simple fractures of fingers, toes, or nose);

3) Causes severe hemorrhages, nerve, muscle, or tendon damage;

4) Involves any internal organ; or

5) Involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

Substantial Damage

NTSB defines “substantial damage” as follows:

Substantial damage means damage or failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure or damage limited to an engine if only one engine fails or is damaged, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, and damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered “substantial damage” for the purpose of this part.

ICAO does not define the term “substantial damage.”

2015 Airplane Accidents

All Accidents | Worldwide Commercial Jet Fleet

Event Date	Airline	Model (Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onboard Fatalities/ Occupants (External Fatalities)	Major Accident
10-Jan-15	Ethiopian Airlines	737-400 (18)	Sched Pax	Accra, Ghana	Landing	The airplane sustained damage during a hard landing. The airplane subsequently veered off the side of the runway where the landing gear and No. 2 engine separated. There were no injuries.	Destroyed	X			X
9-Feb-15	US Airways	ERJ 190 (7)	Sched Pax	Houston, USA	Landing	The airplane sustained damage when it landed without the nose landing gear extended. There were minor injuries sustained during the evacuation.	Substantial				
26-Feb-15	Cargojet Airways Ltd.	757-200 (28)	Sched Cargo	St. Johns, Canada	Taxi	The airplane sustained damage while taxiing on an ice-covered ramp when directional control was lost and the airplane slid into a building. There were no injuries.	Substantial				
4-Mar-15	Turkish Airlines	A330 (1)	Sched Pax	Kathmandu, Nepal	Landing	While landing in low-visibility conditions, the airplane performed a go-around. Damage was sustained during the second landing attempt when the airplane veered off the runway and the nose gear collapsed. There were minor injuries sustained during the evacuation.	Destroyed	X			X
5-Mar-15	Delta Air Lines	MD-88 (27)	Sched Pax	New York, USA	Landing	The airplane sustained damage while landing on an icy runway when it veered off the side of the runway and impacted an embankment. There were minor injuries sustained during the evacuation.	Substantial	X			
29-Mar-15	Air Canada	A320 (23)	Sched Pax	Halifax, Canada	Final Approach	The airplane sustained damage during final approach when it impacted power lines and terrain prior to the runway. There were minor injuries sustained during evacuation.	Destroyed	X			X
13-Apr-15	Jet Airways	737-800 (12)	Sched Pax	Khajuraho, India	Landing	The airplane sustained damage during landing when the left main landing gear collapsed. There were no injuries.	Substantial				
14-Apr-15	Asiana Airlines	A320 (8)	Sched Pax	Hiroshima, Japan	Landing	The airplane touched down short of the runway threshold after impacting airport infrastructure, subsequently reaching the runway, then veering off side onto soft ground. There were minor injuries sustained during the evacuation.	Destroyed	X			X
25-Apr-15	Turkish Airlines	A320 (8)	Sched Pax	Istanbul, Turkey	Landing	The airplane sustained damage when its engine and wing contacted the runway, followed by a hard touchdown. The crew performed a go-around. During the second landing attempt, the landing gear collapsed and the airplane veered off the runway. There were no injuries.	Destroyed	X			X
25-May-15	Aeroflot	737-800 (0)	Sched Pax	Moscow, Russia	Landing	The airplane sustained damage due to a tail strike during landing. There were no injuries.	Substantial				

2015 Airplane Accidents

All Accidents | Worldwide Commercial Jet Fleet

Event Date	Airline	Model (Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onboard Fatalities/ Occupants (External Fatalities)	Major Accident
15-Aug-15	American Airlines	A321 (3)	Sched Pax	Charlotte, USA	Final Approach	During approach, the airplane sustained damage when it impacted runway approach lights, followed by a subsequent tail strike. The crew performed a go-around and landed successfully. There were no injuries.	Substantial				
22-Aug-15	Garuda Indonesia	A330 (3)	Sched Pax	Jakarta, Indonesia	Cruise	While enroute, a flight attendant was injured by a failed wine chiller.	None		Serious		
28-Aug-15	Cardig Air	737-300 (29)	Sched Cargo	Wamena, Indonesia	Landing	During landing, the airplane touched down short of the runway. The left main landing gear collapsed prior to the airplane stopping on the runway. There were no injuries.	Substantial				
5-Sep-15	CEIBA Intercontinental	737-800 (2)	Sched Pax	Malabo, Equatorial Guinea	Cruise	The airplane sustained damage while in cruise when another airplane impacted its winglet. The second airplane, an HS-125, with seven occupants, has not been found.	Minor		Fatal	(7)	
8-Sep-15	British Airways	777-200 (17)	Sched Pax	Las Vegas, USA	Takeoff	The airplane sustained damage during rejected takeoff, when smoke and flames emitted from the No. 1 engine. There were minor injuries sustained during the evacuation.	Substantial				
6-Oct-15	Starbow	BAe 146-300 (27)	Sched Pax	Tamale, Ghana	Landing	The airplane sustained damage during landing when it overran the end of the runway and the nose landing gear collapsed. There were no injuries.	Substantial	X			
12-Oct-15	Tristar	A300 (35)	Charter Cargo	Mogadishu, Somalia	Initial Approach	The airplane sustained damage when it ran out of fuel and was forced to land in a field. Minor injuries were sustained by the crew.	Destroyed	X			X
23-Oct-15	Peruvian Airlines	737-300 (25)	Sched Pax	Cuzco, Peru	Landing	The airplane sustained damage during landing when the right main landing gear collapsed. There were no injuries.	Substantial	X			
26-Oct-15	Comair	737-400 (22)	Sched Pax	Johannesburg, South Africa	Landing	The airplane sustained damage during landing when the left main landing gear collapsed. There were no injuries.	Substantial	X			
29-Oct-15	Dynamic Aviation	767-200 (30)	Sched Pax	Ft. Lauderdale, USA	Taxi	The airplane sustained damage during taxi when fire was emitted from an engine. There were minor injuries sustained during the evacuation.	Substantial	X			
3-Nov-15	Shaheen Air International	737-400 (23)	Sched Pax	Lahore, Pakistan	Landing	The airplane sustained damage during landing when, after touchdown, the landing gear failed. There was a subsequent veer-off. There were minor injuries sustained during the evacuation.	Substantial	X			
6-Nov-15	Batik Air	737-900ER (2)	Sched Pax	Yogyakarta, Indonesia	Landing	The airplane sustained damage when it overran the end of the runway and the nose landing gear collapsed. There were no injuries.	Substantial				

2015 Airplane Accidents

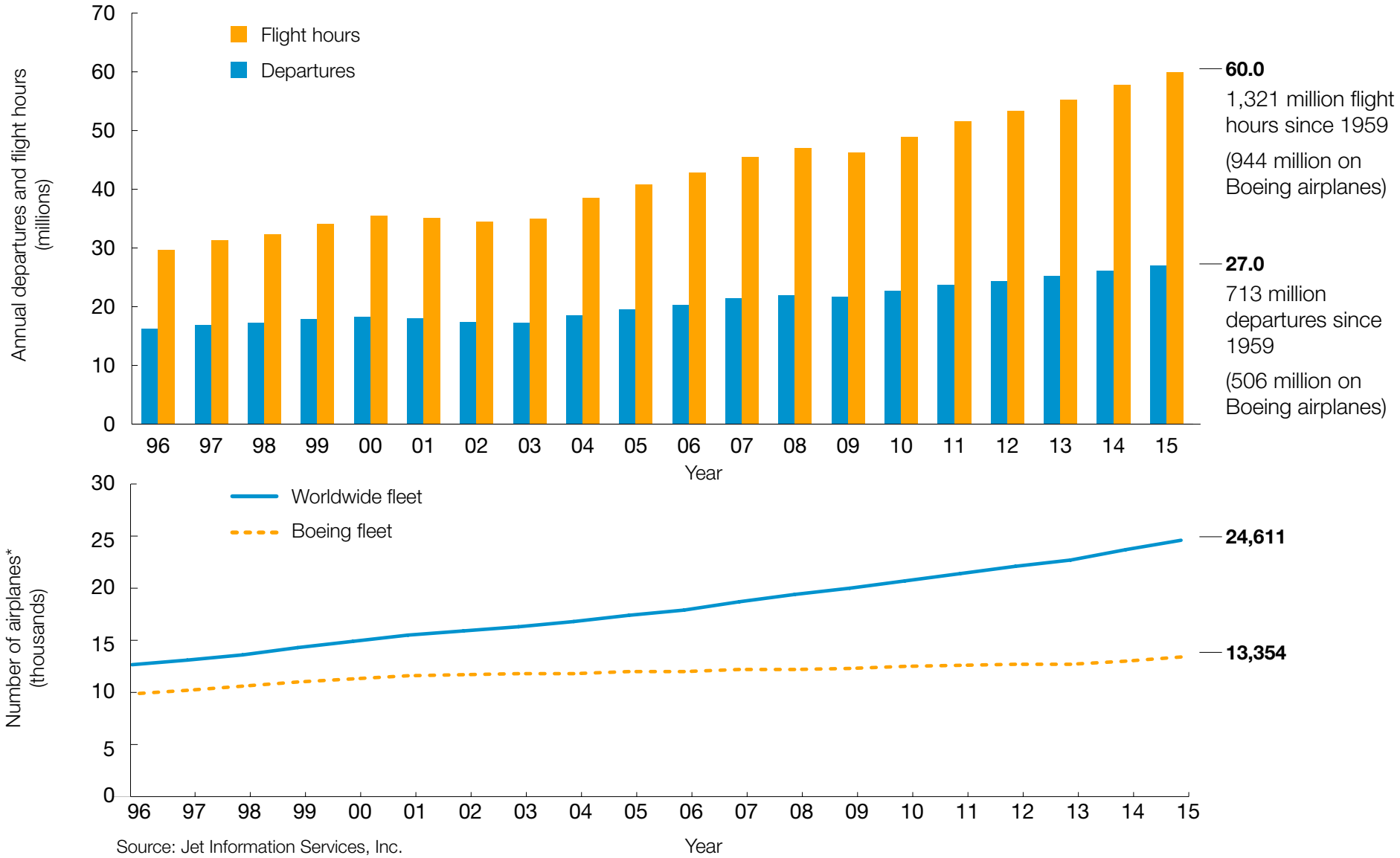
All Accidents | Worldwide Commercial Jet Fleet

Event Date	Airline	Model (Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onboard Fatalities/ Occupants (External Fatalities)	Major Accident
22-Nov-15	Avia Traffic Company LLC	737-300 (25)	Sched Pax	Osh, Kyrgyzstan	Landing	The airplane sustained damage during a hard landing, subsequent landing gear collapse, and runway veer-off.	Substantial	X	Serious		
26-Nov-15	Magnicharters	737-300 (27)	Sched Pax	Mexico City, Mexico	Landing	The airplane sustained damage during landing when the left main landing gear collapsed. There were no injuries.	Substantial	X			
16-Dec-15	Air India	A319 (7)	Sched Pax	Mumbai, India	Load/ Unload	While preparing for departure, during engine start, an engineer was ingested into an engine.	Minor		Fatal	(1)	
21-Dec-15	KalStar Aviation	ERJ 195 (9)	Sched Pax	Kupang, Indonesia	Landing	The airplane sustained damage during landing when it overran the end of the runway and the landing gear collapsed. There were no injuries.	Substantial				
24-Dec-15	Services Air	A310 (30)	Sched Cargo	Mbuji-Mayi, Democratic Republic of the Congo	Landing	The airplane sustained damage during landing when it overran the end of the runway and impacted residential buildings.	Substantial	X	Fatal	0/5 (8)	X
24-Dec-15	Mahan Air	A310 (24)	Sched Pax	Istanbul, Turkey	Taxi	The airplane sustained damage after landing, when it failed to stop at the stand and impacted a barrier. The nose landing gear collapsed. There were no injuries.	Substantial				
28	**Total Accidents**							**15**		**0 Onboard (16 External)**	**7**

Note: At the time this statistical summary was compiled, missing Malaysia Airlines Flight 370 did not meet the criteria for being categorized as an airplane accident, per the definition of this publication. The search for the wreckage is still underway, and therefore Flight 370 is not included in the summary's accident statistics.

Departures, Flight Hours, and Jet Airplanes in Service*

Worldwide Operations | 1996 through 2015



Source: Jet Information Services, Inc.

* Certified jet airplanes greater than 60,000 pounds maximum gross weight, including those in temporary non-flying status and those in use by non-airline operators. Excluded are commercial airplanes operated in military service and CIS/USSR-manufactured airplanes.

Accident Summary by Type of Operation

Worldwide Commercial Jet Fleet

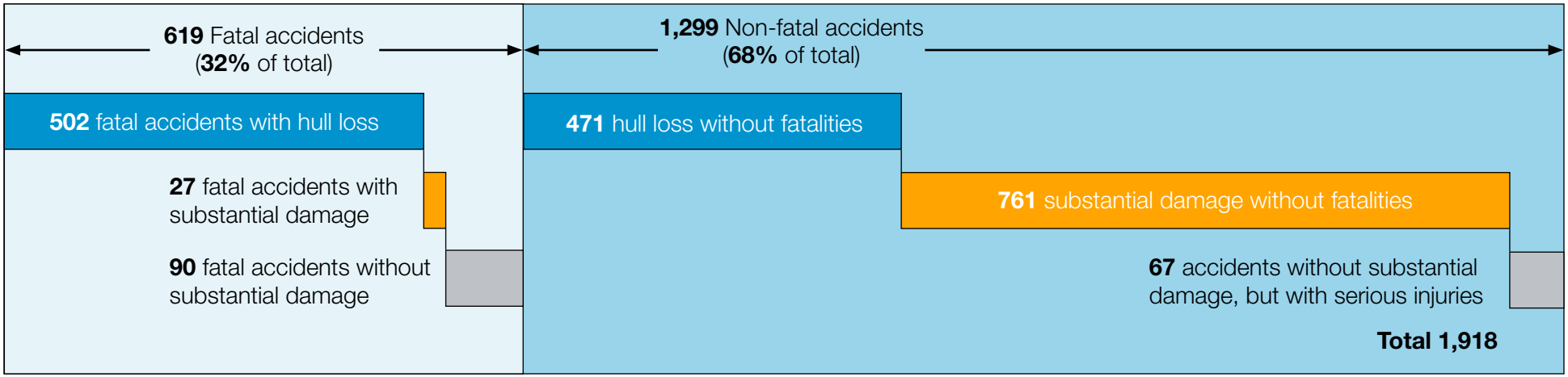
Type of Operation	All Accidents		Fatal Accidents		Onboard Fatalities (External Fatalities)*		Hull Loss Accidents	
	1959–2015	2006–2015	1959–2015	2006–2015	1959–2015	2006–2015	1959–2015	2006–2015
Passenger	1,525	312	495	48	29,165 (800)	3,133 (82)	717	115
■ *Scheduled*	*1,404*	*288*	*449*	*45*	*25,039*	*3,117*	*647*	*108*
■ *Charter*	*121*	*24*	*46*	*3*	*4,126*	*16*	*70*	*7*
Cargo	269	63	80	14	273 (350)	41 (23)	180	37
Maintenance test, ferry, positioning, training, and demonstration	124	11	44	3	208 (66)	17 (0)	76	7
Totals	**1,918**	**386**	**619**	**65**	**29,646 (1,216)**	**3,191 (105)**	**973**	**159**
U.S. and Canadian operators	571	69	182	11	6,202 (381)	26 (6)	230	25
Rest of the world	1,347	317	437	54	23,444 (835)	3,165 (99)	743	134
Totals	**1,918**	**386**	**619**	**65**	**29,646 (1,216)**	**3,191 (105)**	**973**	**159**

*External fatalities include on-ground fatalities as well as fatalities on other aircraft involved.

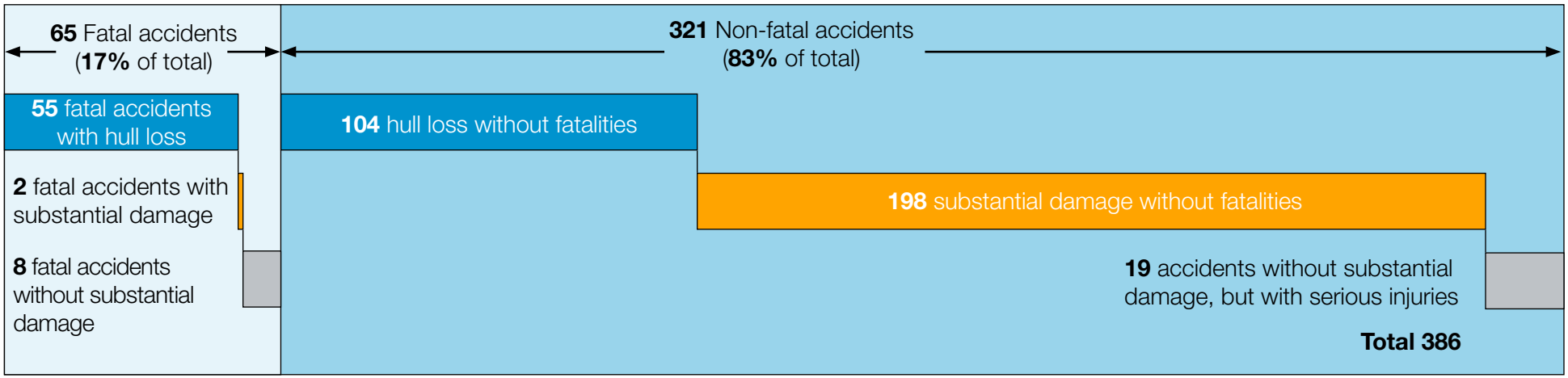
Accident Summary by Injury and Damage

All Accidents | Worldwide Commercial Jet Fleet

Number of Accidents | 1959 through 2015

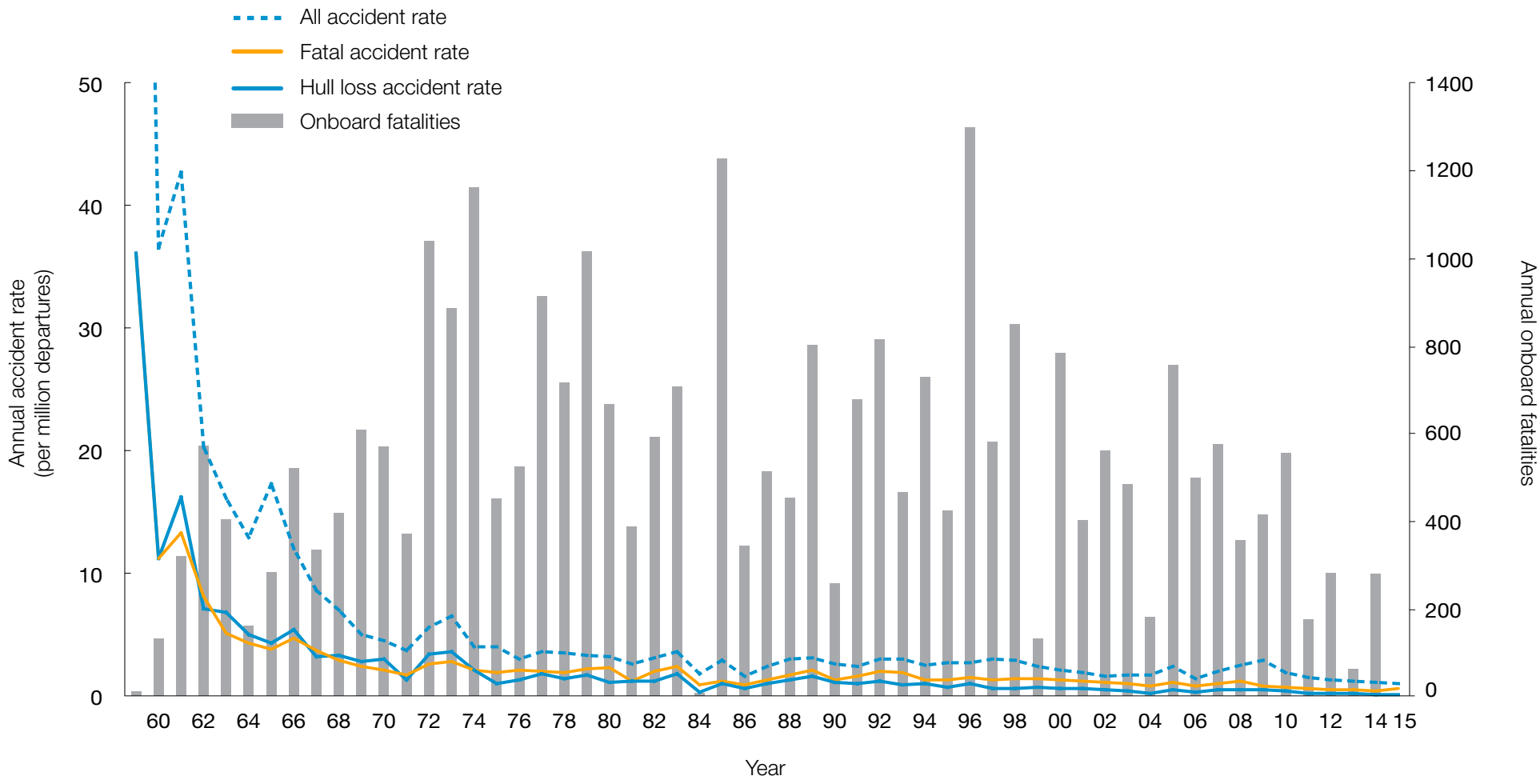


Number of Accidents | 2006 through 2015



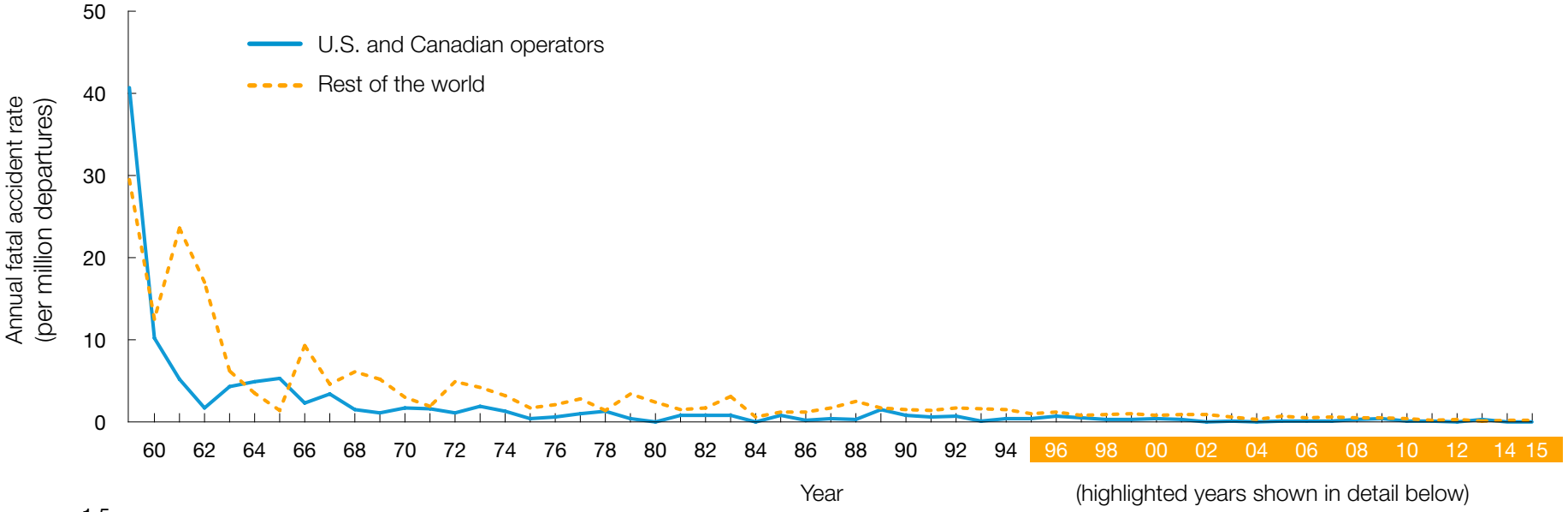
Accident Rates and Onboard Fatalities by Year

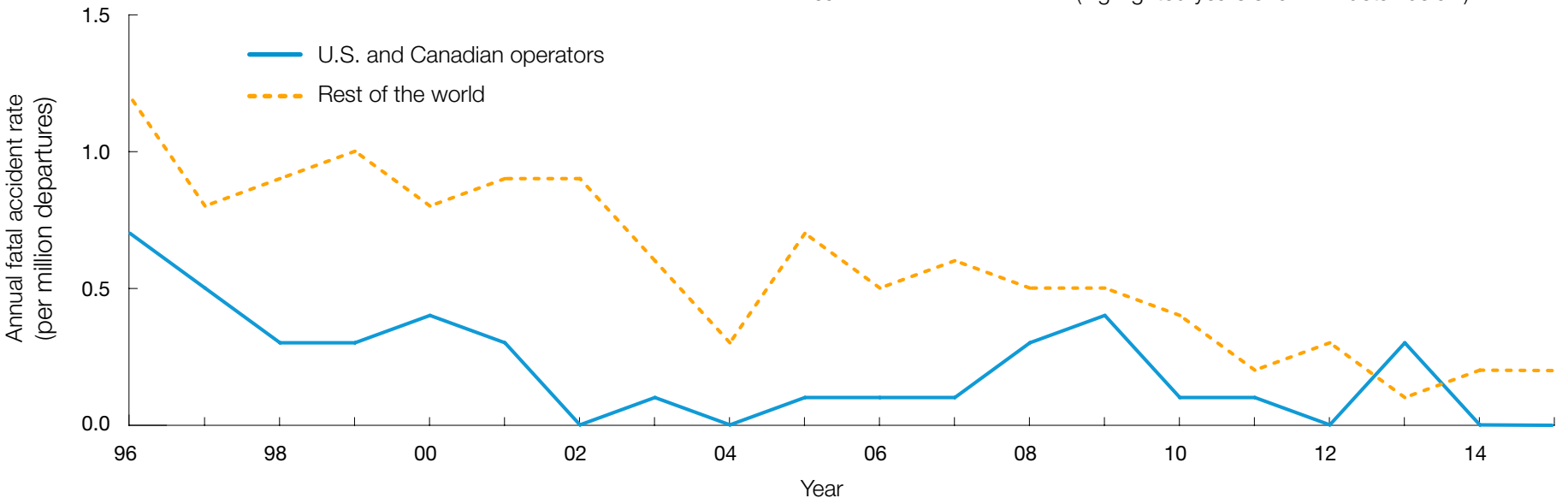
Worldwide Commercial Jet Fleet | 1959 through 2015



U.S. and Canadian Operators Accident Rates by Year

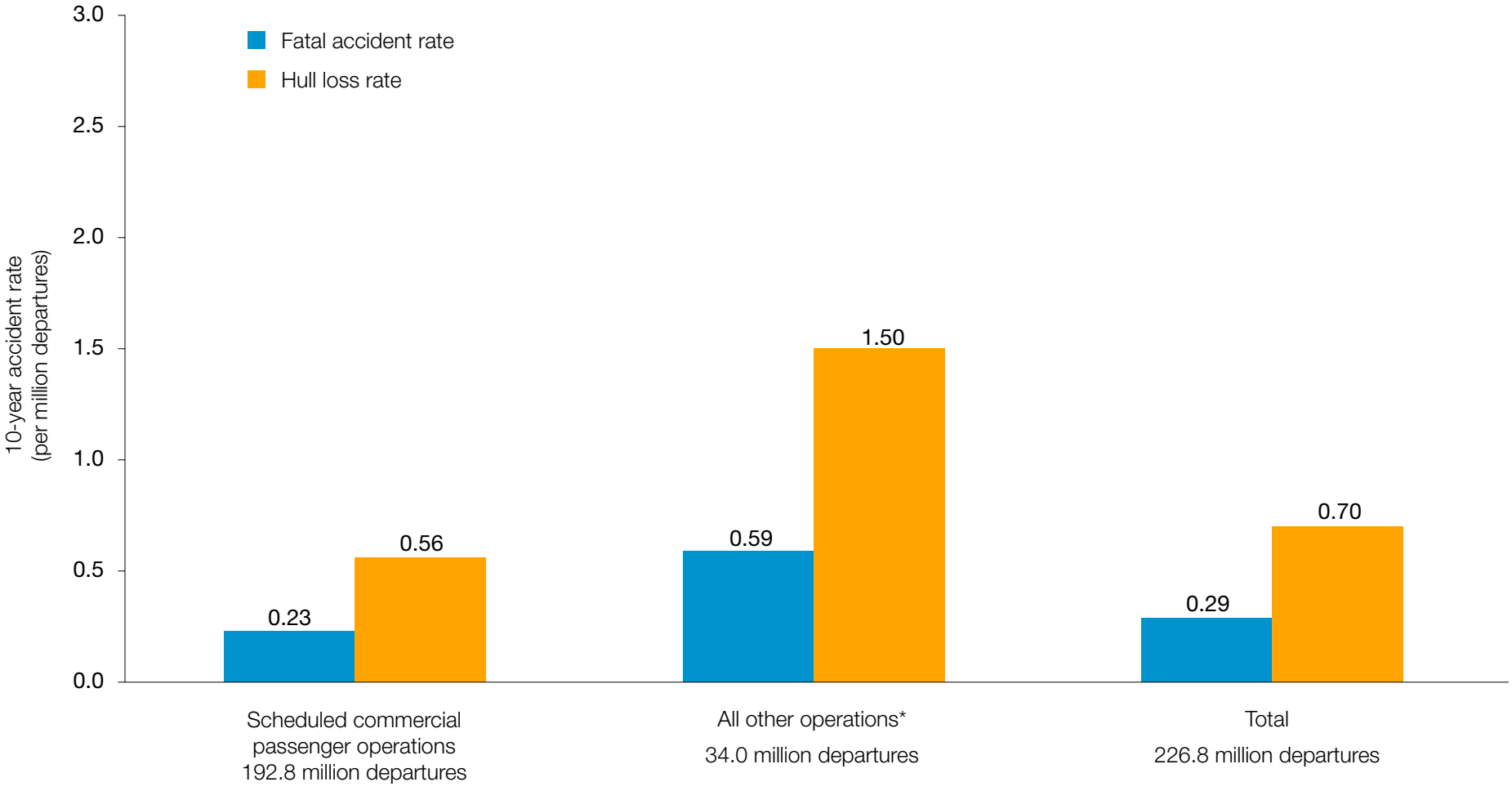
Fatal Accidents | Worldwide Commercial Jet Fleet | 1959 through 2015





10-Year Accident Rates by Type of Operation

Fatal and Hull Loss Accidents | Worldwide Commercial Jet Fleet | 2006 through 2015

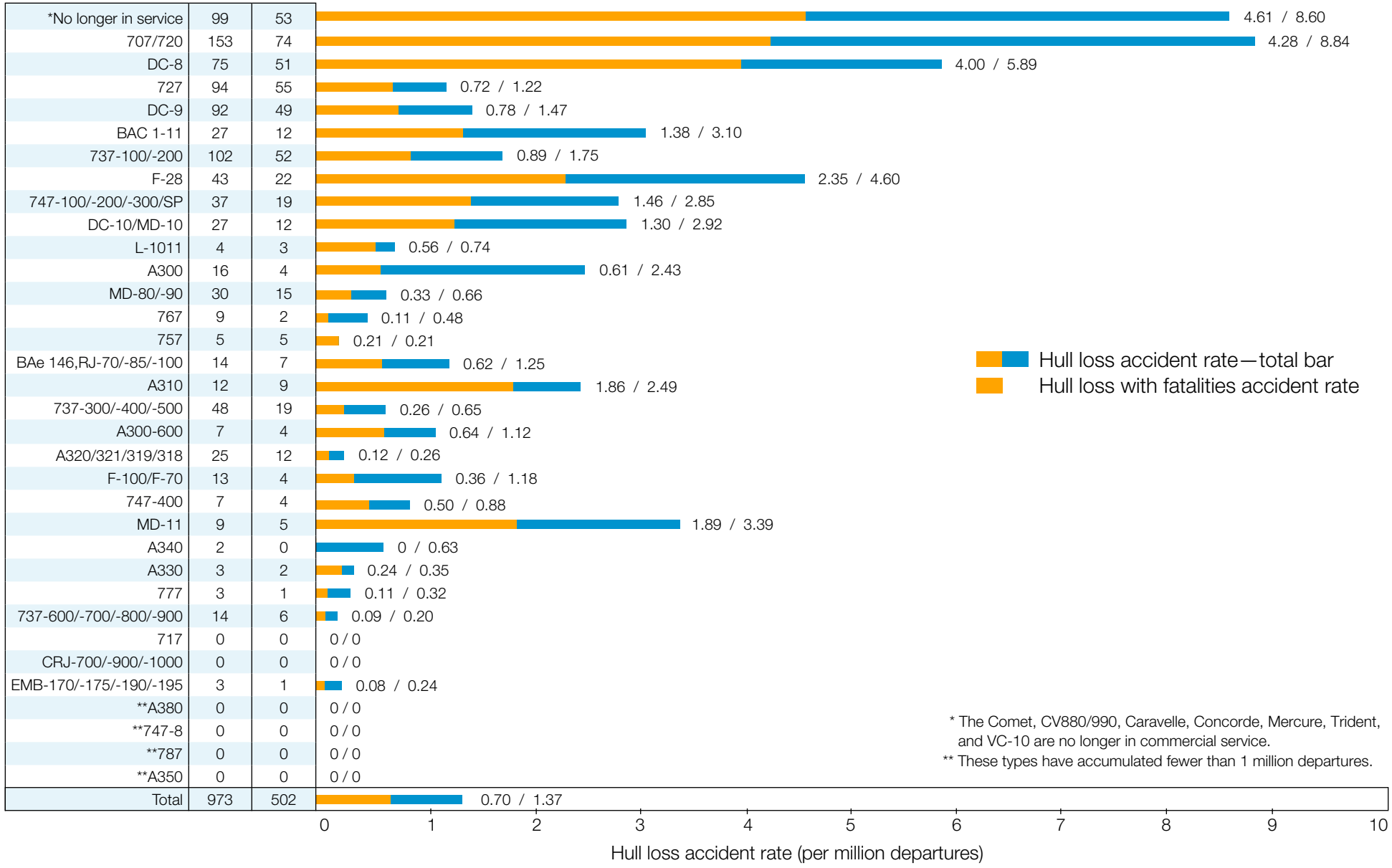


*Charter passenger, charter cargo, scheduled cargo, maintenance test, ferry, positioning, training, and demonstration flights

Accident Rates by Airplane Type

Hull Loss Accidents | Worldwide Commercial Jet Fleet | 1959 through 2015

Sorted by year of introduction	Hull losses	Hull losses w/fatalities	
*No longer in service	99	53	4.61 / 8.60
707/720	153	74	4.28 / 8.84
DC-8	75	51	4.00 / 5.89
727	94	55	0.72 / 1.22
DC-9	92	49	0.78 / 1.47
BAC 1-11	27	12	1.38 / 3.10
737-100/-200	102	52	0.89 / 1.75
F-28	43	22	2.35 / 4.60
747-100/-200/-300/SP	37	19	1.46 / 2.85
DC-10/MD-10	27	12	1.30 / 2.92
L-1011	4	3	0.56 / 0.74
A300	16	4	0.61 / 2.43
MD-80/-90	30	15	0.33 / 0.66
767	9	2	0.11 / 0.48
757	5	5	0.21 / 0.21
BAe 146,RJ-70/-85/-100	14	7	0.62 / 1.25
A310	12	9	1.86 / 2.49
737-300/-400/-500	48	19	0.26 / 0.65
A300-600	7	4	0.64 / 1.12
A320/321/319/318	25	12	0.12 / 0.26
F-100/F-70	13	4	0.36 / 1.18
747-400	7	4	0.50 / 0.88
MD-11	9	5	1.89 / 3.39
A340	2	0	0 / 0.63
A330	3	2	0.24 / 0.35
777	3	1	0.11 / 0.32
737-600/-700/-800/-900	14	6	0.09 / 0.20
717	0	0	0 / 0
CRJ-700/-900/-1000	0	0	0 / 0
EMB-170/-175/-190/-195	3	1	0.08 / 0.24
**A380	0	0	0 / 0
**747-8	0	0	0 / 0
**787	0	0	0 / 0
**A350	0	0	0 / 0
Total	973	502	0.70 / 1.37



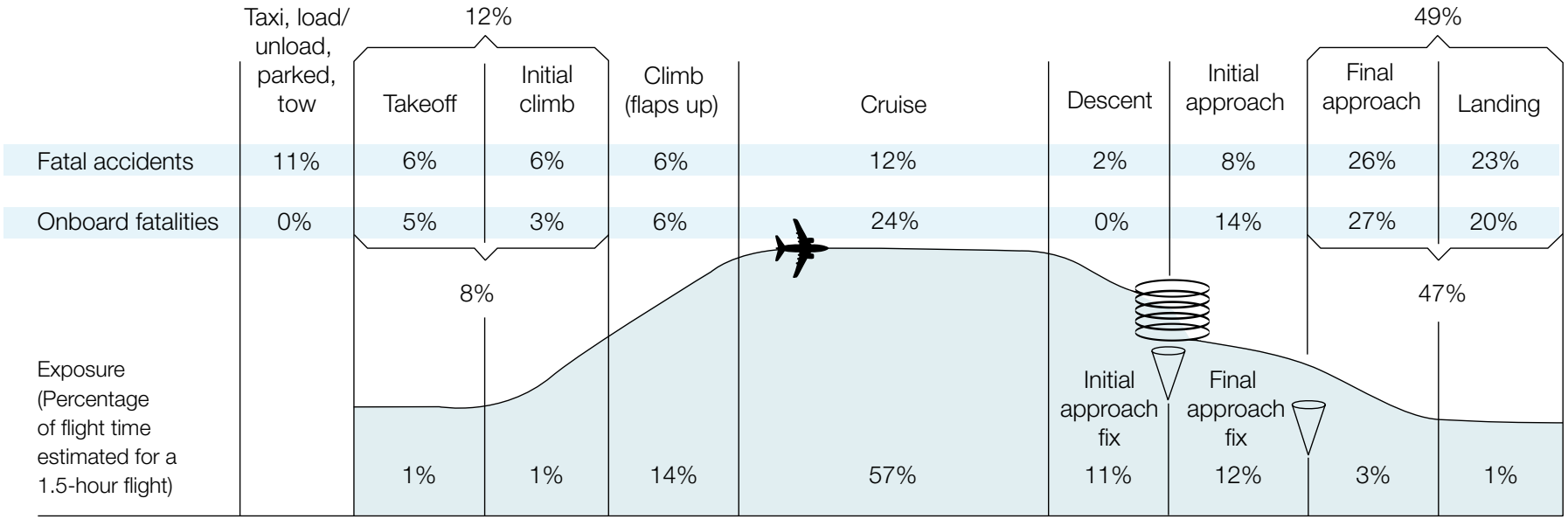
* The Comet, CV880/990, Caravelle, Concorde, Mercure, Trident, and VC-10 are no longer in commercial service.

** These types have accumulated fewer than 1 million departures.

Fatal Accidents and Onboard Fatalities by Phase of Flight

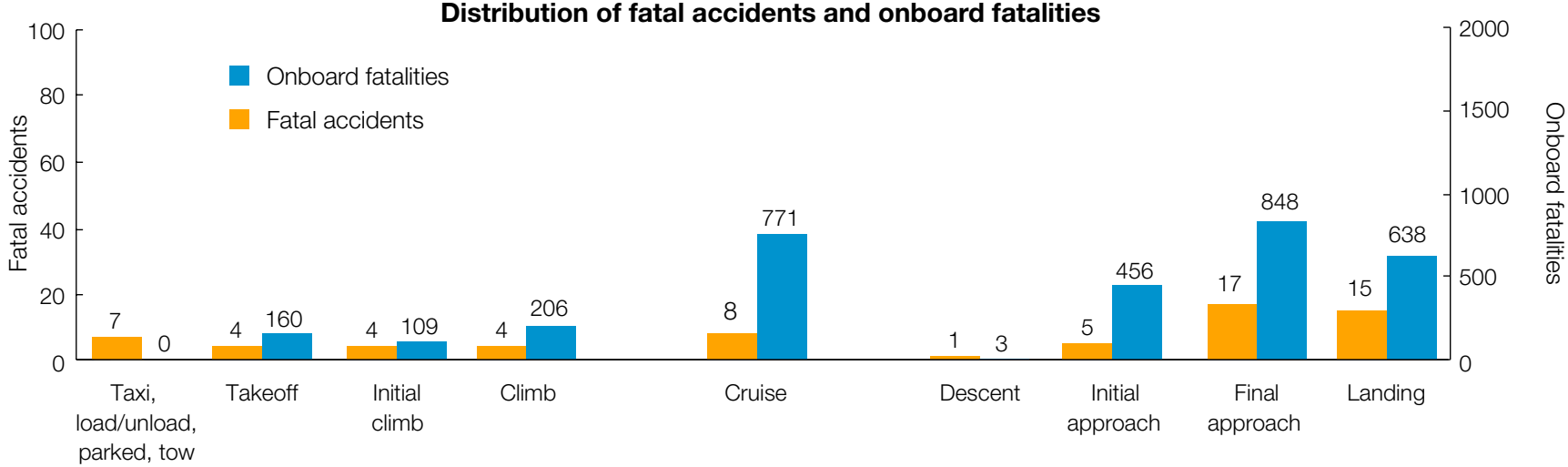
Fatal Accidents | Worldwide Commercial Jet Fleet | 2006 through 2015

Percentage of fatal accidents and onboard fatalities



Note: Percentages may not sum to 100% due to numerical rounding.

Distribution of fatal accidents and onboard fatalities



CAST/ICAO Common Taxonomy Team (CICTT) Aviation Occurrence Categories

The International Civil Aviation Organization (ICAO) and the Commercial Aviation Safety Team (CAST), which includes government officials and aviation industry leaders, have jointly chartered the CAST/ICAO Common Taxonomy Team (CICTT). CICTT includes experts from several air carriers, aircraft manufacturers, engine manufacturers, pilot associations, regulatory authorities, transportation safety boards, ICAO, and members from Canada, the European Union, France, Italy, the Netherlands, the United Kingdom, and the United States. CICTT is co-chaired by one representative each from ICAO and CAST.

The team is charged with developing common taxonomies and definitions for aviation accident and incident reporting systems. Common taxonomies and definitions establish a standard industry language, thereby improving the quality of information and communication. With this common language, the aviation community's capacity to focus on common safety issues is greatly enhanced.

The CICTT Aviation Occurrence Taxonomy is designed to permit the assignment of multiple categories as necessary to describe the accident or incident. Since 2001, the Safety Indicator Steering Group (SISG) has met annually to assign CICTT occurrence categories to the prior year's accidents.

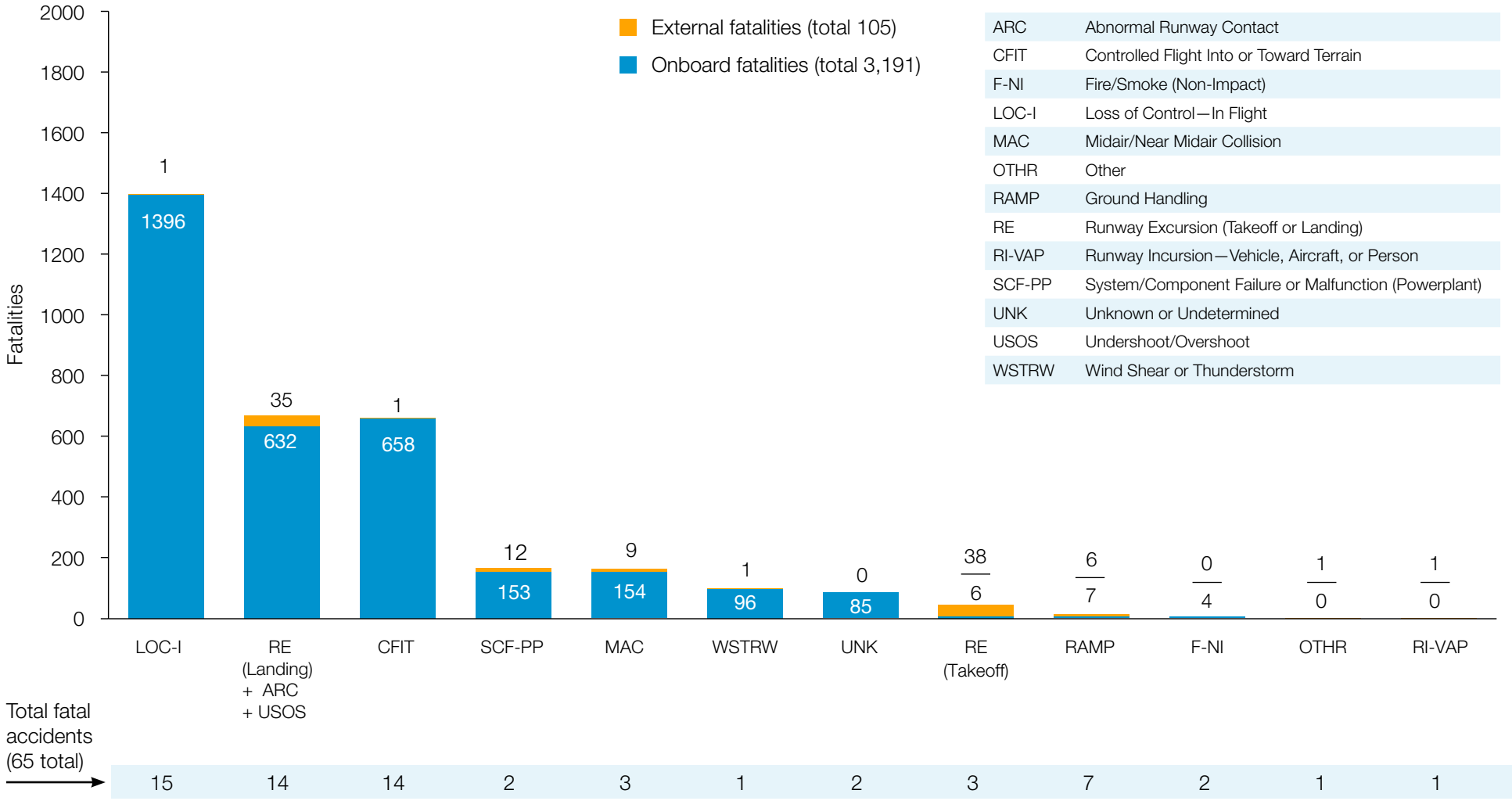
In a separate activity, the CAST assigned each fatal accident to a single principal category. Those accident assignments and a brief description of the categories are reported in the following chart.

The CAST use of principal categories has been instrumental in focusing industry and government efforts and resources on accident prevention. Charts using principal categories are used by CAST to identify changes to historic risk and to help to determine if the safety enhancements put in place are effective.

For a complete description of the categories, go to www.intlaviationstandards.org.

Fatalities by CICTT Aviation Occurrence Categories

Fatal Accidents | Worldwide Commercial Jet Fleet | 2006 through 2015



ARC	Abnormal Runway Contact
CFIT	Controlled Flight Into or Toward Terrain
F-NI	Fire/Smoke (Non-Impact)
LOC-I	Loss of Control—In Flight
MAC	Midair/Near Midair Collision
OTHR	Other
RAMP	Ground Handling
RE	Runway Excursion (Takeoff or Landing)
RI-VAP	Runway Incursion—Vehicle, Aircraft, or Person
SCF-PP	System/Component Failure or Malfunction (Powerplant)
UNK	Unknown or Undetermined
USOS	Undershoot/Overshoot
WSTRW	Wind Shear or Thunderstorm

Total fatal accidents (65 total) →	LOC-I	RE (Landing) + ARC + USOS	CFIT	SCF-PP	MAC	WSTRW	UNK	RE (Takeoff)	RAMP	F-NI	OTHR	RI-VAP
	15	14	14	2	3	1	2	3	7	2	1	1

Note: Principal categories as assigned by CAST.

For a complete description of CAST/ICAO Common Taxonomy Team (CICTT) Aviation Occurrence Categories, go to www.intlaviationstandards.org.

Notes

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Boeing Commercial Airplanes
P.O. Box 3707
Seattle, WA 98124-2207
www.boeing.com

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