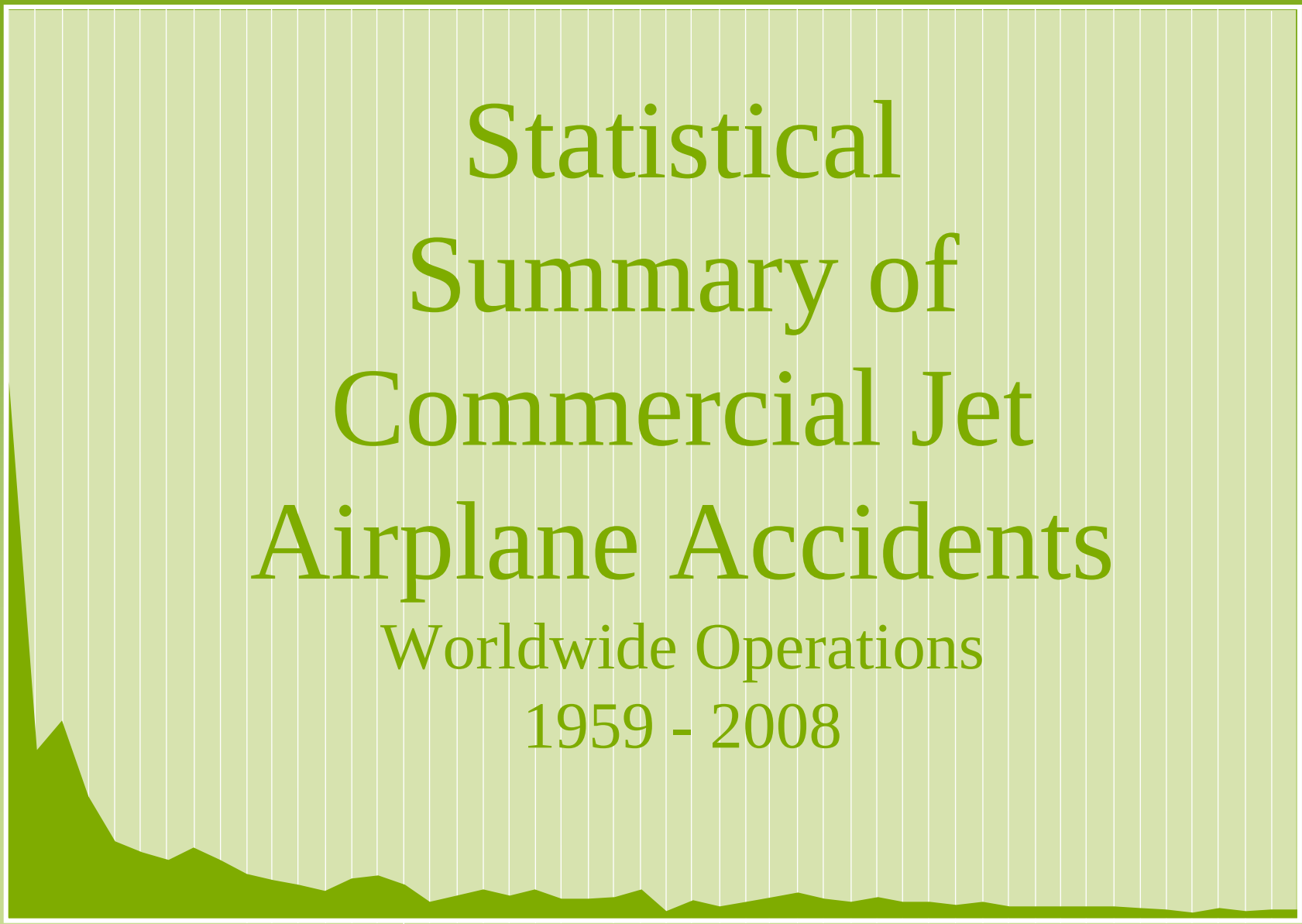
Statistical Summary of Commercial Jet Airplane Accidents

Worldwide Operations
1959 - 2008



1959

2008

Contents

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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 Union of Soviet Socialist Republics (USSR) are excluded because of the lack of operational data; and

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:

717	DC-8	A300	BAe 146	F-28	Concorde	L-1011	BAC 1-11	Comet 4
707/720	DC-9	A300-600	Avro RJ-70/-85/-100	F-70				Trident
727	DC-10/MD-10	A310	CRJ-700/-900	F-100				Caravelle
737	MD-11	A320/321/319/318	EMB-170/-175/-190					Mercure
747	MD-80/-90	A330						CV-880/-990
757		A340						VC-10
767		A380						
777								

Flight operations data for Boeing airplanes are developed internally from airline operator reports. Flight operations data for non-Boeing airplanes are developed from two external sources, Client Aviation System Enquiry (CASE) published by Ascend, and AirCraft Analytical System (ACAS), published by The Flight Group.

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.

Definitions related to development of statistics in this summary are primarily based on corresponding International Civil Aviation Organization (ICAO), 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:

- Death or serious injury results from:
  - Being in the airplane; or
  - Direct contact with the airplane or anything attached thereto; or
  - Direct exposure to jet blast;

  Excluding:
    - Fatal and nonfatal injuries from natural causes; and
    - Fatal and nonfatal self-inflicted injuries or injuries inflicted by other persons; and
    - Fatal and nonfatal injuries of stowaways hiding outside the areas normally available to the passengers and crew; and
    - Nonfatal injuries resulting from atmospheric turbulence, maneuvering, loose objects, boarding, disembarking, evacuation, and maintenance and servicing; and
    - Nonfatal injuries to persons not aboard the airplane; or
- The airplane sustains substantial damage; or
- The airplane is missing or is completely inaccessible.

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; and*

2) *This publication excludes events that result in nonfatal injuries from atmospheric turbulence, 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 (continued)

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. The 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: This is consistent with both the ICAO and the NTSB definition.

Major Accident: An accident in which any of three conditions is met:

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

Note: This definition is consistent with the NTSB definition. It is also generally consistent with FSF, except that FSF confines multiple fatalities to occupants. ICAO does not formally define the term major accident.

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

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

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

Definitions (continued)

Substantial Damage: Damage or failure which adversely affects the structural strength, performance, or flight characteristics of the airplane, and which 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 is generally consistent with the NTSB definition of substantial damage except: 1) It deletes reference to "puncture holes in the fabric" and "ground damage to rotor or propeller blades"; and 2) It 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 structural damage contained within part b) of the ICAO accident definition.

Boeing Terms

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

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, since 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; or
- The search for the wreckage has been terminated without it being located; or
- The airplane is completely inaccessible.

Note: Neither ICAO nor the NTSB has a definition for hull loss.

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 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, 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 events.);
- Sabotage, hijacking, terrorism, and military action.

Referenced ICAO and NTSB Definitions

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

Accident

ICAO defines an **accident** as follows:

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 until such time as all such persons have disembarked, 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 the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
c) The aircraft is missing or is completely inaccessible.

The 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.

Referenced ICAO and NTSB Definitions (continued)

Serious Injury

ICAO defines **serious injury** as follows:

An injury which 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 which 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.

The NTSB defines **serious injury** as follows:

Serious injury means any injury which:

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

The NTSB defines **substantial damage** as follows:

Damage or failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and that 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."

ICAO does not define the term **substantial damage**.

2008 Airplane Accidents

All Accidents – Worldwide Commercial Jet Fleet

Event Date	Airline	Model (A/P Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onbd. Fatalities / Onbd. Occupants (Ext. Fatalities)	Major Accident
2-Jan-08	Iran Air	F-100 (17)	Sched Pax	Tehran, Iran	Takeoff	Shortly after lift-off, the airplane's left wing dropped. The airplane then rolled left, descended, and struck the ground. The MLG collapsed and the airplane came to rest on a military ramp. A fire broke out on the left wing causing extensive damage. There were no injuries.	Destroyed	X			X
3-Jan-08	Atlas Blue	737-400 (15)	Sched Pax	Deauville, France	Landing	The airplane overran the runway after landing, coming to rest in soft, muddy ground. There were no injuries.	Substantial				
8-Jan-08	Aigle Azur	A321 (9)	Charter Pax	Algiers, Algeria	Landing	The airplane sustained a tail strike during a hard, bounced landing. There were no injuries.	Substantial				
9-Jan-08	Blue Air	BAe 146 (20)	Sched Pax	Bacau, Romania	Landing	During landing flare, the airplane drifted left, touching down on the left side of the runway where it rolled through an area of built up, frozen snow. The NLG collapsed. There were no injuries.	Substantial				
15-Jan-08	Air France	A300-600 (8)	Sched Cargo	Paris, France	Landing	During landing roll, the airplane veered left off the runway at about 60 knots into soft ground. Both engines ingested dirt and stones. There were no injuries.	Substantial				
17-Jan-08	British Airways	777-200 (6)	Sched Pax	London, United Kingdom	Final Approach	While on a normal ILS approach, thrust on both engines went to just above flight idle, failing to respond to A/T or crew commands. The airplane landed hard and about 1000 feet short of the runway, failing the MLG. There was one serious injury that occurred during evacuation.	Destroyed	X	Serious		X
28-Jan-08	Merpati Nusantara Airlines	737-300 (20)	Sched Pax	Merauke, Indonesia	Landing	The airplane sustained extensive damage to the left engine cowl and engine-driven accessories when a cow was struck on landing roll. There were no injuries	Substantial				
1-Feb-08	Lloyd Aereo Boliviano	727-200 (27)	Charter Pax	(near) Trinidad, Bolivia	Final Approach	After diverting due to poor weather, the airplane's fuel was exhausted. The airplane landed in a field about two miles short of the diversion airport. There were no injuries.	Destroyed	X			X
2-Feb-08	Atlas Air	747-200 (26)	Charter Cargo	Lome, Togo	Climb	On takeoff rotation, improperly secured cargo (a section of oil drilling pipe) slid aft, punching a 10-inch diameter hole in the aft pressure bulkhead. The airplane turned back to a safe landing. There were no injuries.	Substantial	X			
7-Feb-08	Airlink QantasLink	717-200 (7)	Sched Pax	Darwin, Australia	Landing	The airplane sustained a hard landing. Inspection revealed extensive buckling of the aft lower fuselage skin. There were no injuries.	Substantial				
25-Feb-08	Aeromexico	777-200 (6)	Sched Pax	Mexico City, Mexico	Taxi	While taxiing from the gate for takeoff, the left wing struck a light pole. There were no injuries.	Substantial				

2008 Airplane Accidents

All Accidents – Worldwide Commercial Jet Fleet

Event Date	Airline	Model (A/P Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onbd. Fatalities / Onbd. Occupants (Ext. Fatalities)	Major Accident
1-Mar-08	Dragonair	747-400 (15)	Sched Cargo	Manchester, UK	Landing	While landing at night in strong gusting winds, the airplane dragged its Nos. 1, 2, and 4 engines. There were no injuries.	Substantial				
10-Mar-08	Adam Air	737-400 (18)	Sched Pax	Batam, Indonesia	Landing	After landing, the airplane's R MLG collapsed. The airplane veered right and departed the runway. There was one minor injury.	Substantial	X			
10-Mar-08	Saudi Arabian Airlines	777-200 (10)	Sched Pax	(near) Riyadh, Saudi Arabia	Final Approach	On final approach, after selecting the LG down, the R MLG retract actuator fuse pin failed, allowing the actuator reaction link to rotate up and through the upper fixed trailing edge panel. Control was maintained to an uneventful landing. There were no injuries.	Substantial				
14-Mar-08	Air Algerie	737-800 (2)	Sched Pax	Setif, Algeria	Landing	The airplane touched down hard, nosewheel first, causing extensive wrinkling of the forward fuselage. There were no injuries.	Substantial				
24-Mar-08	Aerosvit Airlines	737-200 (25)	Sched Pax	St. Petersburg, Russia	Taxi	The airplane struck a tug when taxiing after pushback, causing extensive skin and structure damage around the nose. There were no injuries.	Substantial				
25-Mar-08	Saudi Arabian Airlines	747-300 (24)	Sched Pax	Dhaka, Bangladesh	Landing	On landing roll, tower advised flight crew of engine fire. The crew landed, taxied clear of the runway, and discharged both fire bottles, but the fire was not extinguished. There were two minor injuries reported during the evacuation.	Substantial	X			
15-Apr-08	Hewa Bora Airways	DC-9 (30)	Sched Pax	Goma, Zaire	Takeoff	The airplane overran the runway after aborting the takeoff, crashing into a residential area. The airplane, and several residential buildings, were consumed by fire.	Destroyed	X	Fatal	3/94 (37)	X
22-Apr-08	Carpatair	BAe 146 (15)	Sched Pax	Bucharest, Romania	Landing	After landing, as the airplane slowed to taxi off the runway, it failed to make a turn and ran onto soft ground. The landing gear dug in and the R MLG collapsed. There were no injuries.	Substantial	X			
4-May-08	Airblue Limited	A321 (8)	Sched Pax	Quetta, Pakistan	Landing	The airplane sustained a heavy tail strike on landing. There were no injuries.	Substantial				
16-May-08	Asia Pacific Airlines	727-200 (30)	Charter Cargo	Pohnpei, Micronesia	Landing	The airplane departed the wet runway after landing, coming to rest just into the sea with its NLG collapsed. There were no injuries.	Substantial				
24-May-08	Air Ivoire	A321 (9)	Sched Pax	Cotonou, Benin	Landing	The airplane sustained a very hard landing and taxied to the gate. After 10 additional days of operation, a routine check discovered heavy damage that was clearly the result of the hard landing. There were no injuries.	Substantial				
25-May-08	Kalitta Air	747-200 (27)	Sched Cargo	Brussels, Belgium	Takeoff	On takeoff, after hearing a loud bang after V1, the crew aborted the takeoff. The airplane overran the runway and broke into three pieces. There were minor injuries reported.	Destroyed	X			X

2008 Airplane Accidents

All Accidents – Worldwide Commercial Jet Fleet

Event Date	Airline	Model (A/P Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onbd. Fatalities / Onbd. Occupants (Ext. Fatalities)	Major Accident
30-May-08	TACA International Airlines	A320 (7)	Sched Pax	Tegucigalpa, Honduras	Landing	In poor weather, the airplane overran the runway, went down a steep embankment, and came to rest on a street.	Destroyed	X	Fatal	3/134 (2)	X
6-Jun-08	Aerocondor	737-200 (21)	Sched Pax	(near) Pucallpa, Peru	Climb	After takeoff, at about FL240/280 knots, the crew felt a severe vibration. Upon landing, after an air turnback, inspection discovered heavy damage to the LH horizontal stabilizer, elevator, and elevator tab. There were no injuries.	Substantial				
10-Jun-08	Sudan Airways	A310 (17)	Sched Pax	Khartoum, Sudan	Landing	The airplane overran the runway after landing, coming to rest on rough ground. During the evacuation, a fire broke out, consuming the airplane.	Destroyed	X	Fatal	33/214 (0)	X
14-Jun-08	Fed Ex	DC-10 (35)	Charter Cargo	(near) New York, USA	Descent	While holding at FL330, the airspeed could not be maintained. During descent to FL290, the airplane experienced stick shaker and an autoslat extension. After an uneventful landing, damage was found during an excessive maneuver inspection. There were no injuries.	Substantial				
18-Jun-08	Comair	737-200 (27)	Sched Pax	Durban, South Africa	Landing	While landing during severe weather, the airplane ground looped off the side of the runway onto soft ground. There were no injuries.	Substantial				
19-Jun-08	China Eastern Airlines	A319 (1)	Sched Pax	(near) Changsha, China	Cruise	During cruise, the flight crew received an aft cargo hold fire indication. They discharged the extinguishers but the indication remained. Flight diverted and landed uneventfully. Ground inspection found fire damage. There were no injuries.	Substantial				
28-Jun-08	ABX Air	767-200 (21)	Sched Cargo	San Francisco, USA	Parked	While the crew was preparing for engine start, a fire broke out aft of the flight deck. The fire burned through the crown of the airplane. One minor injury occurred as the crew exited through the flight deck windows.	Substantial	X			
2-Jul-08	Pakistan International Airlines	777-200 (1)	Sched Pax	(near) Milan, Italy	Descent	During descent, the airplane encountered severe hail which caused extensive damage. There were no injuries.	Substantial				
6-Jul-08	USA Jet Airlines	DC-9 (40)	Sched Cargo	Saltillo, Mexico	Final Approach	The airplane crashed in an industrial area just north of the airport. It broke up and burned.	Destroyed	X	Fatal	1/2 (0)	X
7-Jul-08	Kalitta Air	747-200 (27)	Sched Cargo	(near) Bogota, Colombia	Initial Climb	After losing one engine at rotation, and a second engine shortly thereafter, the crew attempted to return. Unable to remain airborne, the airplane was forced to land and impacted a farmhouse in the darkness.	Destroyed	X	Fatal	0/8 (2)	X

2008 Airplane Accidents

All Accidents – Worldwide Commercial Jet Fleet

Event Date	Airline	Model (A/P Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onbd. Fatalities / Onbd. Occupants (Ext. Fatalities)	Major Accident
14-Jul-08	Chanchangi Airlines	737-200 (25)	Sched Pax	Port Harcourt, Nigeria	Landing	On landing, the airplane overran a reportedly wet runway and ground looped. The NLG collapsed and at least one of the engines was damaged. One minor injury reported.	Substantial	X			
25-Jul-08	Qantas	747-400 (17)	Sched Pax	(near) Manilla, Philippines	Cruise	While in cruise, a loud bang was heard, and the airplane depressurized rapidly. Oxygen masks were deployed, an emergency descent was conducted, and the airplane diverted. Inspection discovered a large hole in the fuselage and a missing oxygen bottle opposite the hole. There were no injuries.	Substantial				
5-Aug-08	Lufthansa	A320 (17)	Sched Pax	Manchester, United Kingdom	Taxi	While holding for departure, the airplane was struck from behind by a taxiing airplane. The taxiing airplane sustained minor damage. There were no injuries.	Substantial				
15-Aug-08	Jet2	737-300 (21)	Sched Pax	(near) Bergamo, Italy	Final Approach	While on final approach, the airplane flew through a microburst hail storm. After an uneventful landing, extensive damage was found over the entire airframe. There were no injuries.	Substantial				
20-Aug-08	Spanair	MD-82 (14)	Sched Pax	Madrid, Spain	Takeoff	Shortly after takeoff, with flaps retracted, the airplane crashed in a ravine. The airplane was consumed by fire.	Destroyed	X	Fatal	154/172 (0)	X
24-Aug-08	ITEK AIR AirCompany	737-200 (28)	Sched Pax	(near) Bishkek, Kyrgyzstan	Final Approach	After turning back due to pressurization problems, the crew requested and received clearance for a left hand turn on approach. As the airplane turned, it descended and impacted the ground. The airplane was consumed by fire.	Destroyed	X	Fatal	64/90 (0)	X
27-Aug-08	Sriwijaya Air	737-200 (23)	Sched Pax	Jambi, Indonesia	Landing	After touchdown, the airplane overran the runway, coming to rest in a rice field. There were minor injuries reported among the occupants. Several injuries were reported on the ground.	Substantial	X	Serious		
30-Aug-08	CONVIASA S.A.	737-200 (30)	Ferry	(near) Latacunga, Ecuador	Descent	While on descent, in darkness, but in clear weather, the airplane crashed in mountainous terrain.	Destroyed	X	Fatal	3/3 (0)	X
1-Sep-08	HeavyLift International Airlines	DC-8 (38)	Charter Cargo	El Fasher, Sudan	Landing	The airplane damaged its L MLG after a hard landing. There were no injuries.	Substantial				
14-Sep-08	Aeroflot-Nord	737-500 (16)	Sched Pax	(near) Perm, Russia	Initial Approach	In pre-dawn darkness and poor weather, the crew overshot the first ILS landing attempt. The airplane then turned left, contrary to ATC instructions, and impacted the ground.	Destroyed	X	Fatal	88/88 (0)	X

2008 Airplane Accidents

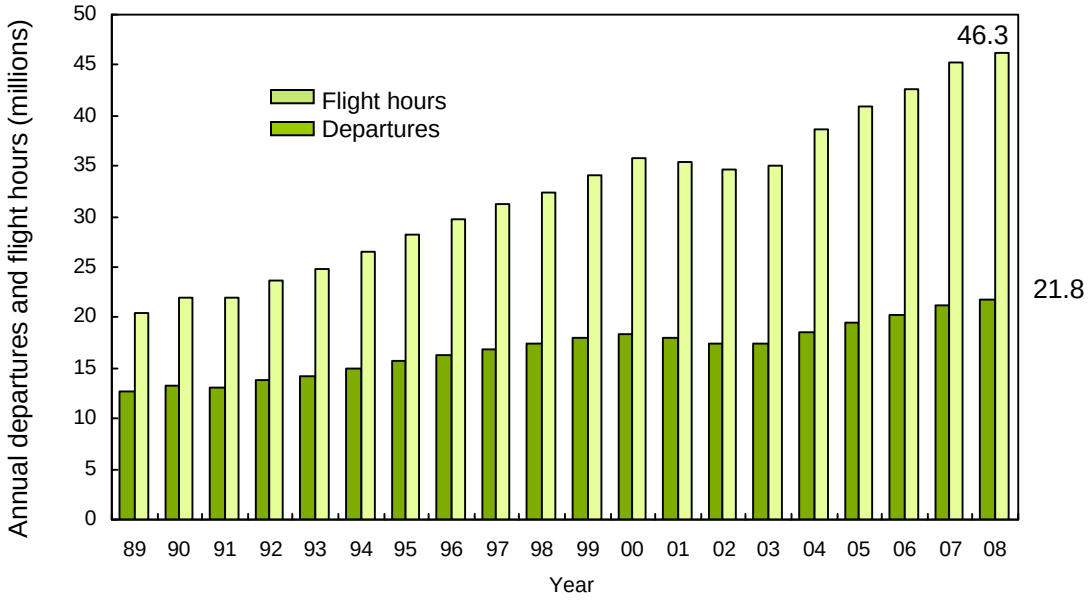
All Accidents – Worldwide Commercial Jet Fleet

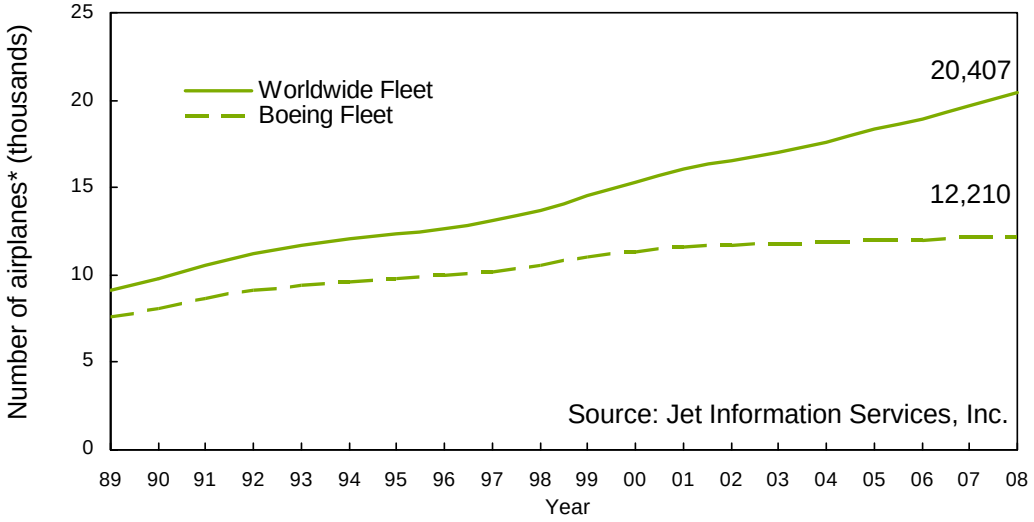
Event Date	Airline	Model (A/P Age in Years)	Type of Operation	Accident Location	Phase of Flight	Event Description	Damage Category	Hull Loss	Injury Category	Onbd. Fatalities / Onbd. Occupants (Ext. Fatalities)	Major Accident
22-Sep-08	ICARO SA	F-28 (23)	Sched Pax	Quito, Ecuador	Takeoff	After an aborted takeoff, the airplane overran the runway, went down a slope, and through a brick wall. There were no injuries.	Destroyed	X			X
1-Oct-08	KD Avia	737-300 (20)	Sched Pax	Kaliningrad, Russia	Landing	The airplane landed with all landing gear retracted. The airplane came to rest on the runway. There were no injuries.	Substantial	X			
7-Oct-08	Qantas	A330 (4)	Sched Pax	(near) Learmonth, Australia	Cruise	While in cruise, the airplane experienced an abrupt, autoflight-commanded pitch down maneuver. Numerous passengers and cabin crew were injured when they struck the ceiling. The airplane diverted to an uneventful landing.			Serious		
16-Oct-08	Rutaca Airlines	737-200 (25)	Sched Pax	Caracas, Venezuela	Landing	After touchdown, in heavy rain, the crew elected to steer the airplane off the left side of the runway rather than overrun. The airplane came to rest in soft ground, damaging the NLG. There were no injuries.	Substantial	X			
27-Oct-08	Cargo B Airlines	747-200 (20)	Sched Cargo	Brussels, Belgium	Takeoff	The airplane sustained extensive damage to the rear fuselage after a heavy tail strike on takeoff. The airplane returned to an uneventful landing. There were no injuries.	Substantial				
10-Nov-08	Ryanair	737-800 (<1)	Sched Pax	Rome, Italy	Final Approach	On final approach, the airplane suffered multiple birdstrikes to the radome, wings, and both engines. It landed hard, collapsed the L MLG, and came to rest on the runway. Several minor injuries occurred during the emergency evacuation.	Destroyed	X			X
27-Nov-08	XL Airways Germany	A320 (3)	Maint Test	(near) Perpignan, France	Initial Approach	After a post-maintenance test flight, the airplane was on approach to land when it suddenly descended into the sea at high speed and broke up.	Destroyed	X	Fatal	7/7 (0)	X
15-Dec-08	Mesa Airlines	CRJ-700 (5)	Sched Pax	Chicago, USA	Landing	The airplane landed with its L MLG retracted and came to a stop on the runway, resting on its left wing. There were no injuries.	Substantial				
20-Dec-08	Continental Airlines	737-500 (14)	Sched Pax	Denver, USA	Takeoff	The airplane departed the left side of the runway during takeoff, crossing a taxiway and a service road before coming to rest. The fuselage broke open aft of the wing and a fuel-fed fire erupted on the right side. Several injuries occurred during the evacuation.	Destroyed	X	Serious		X
26-Dec-08	American Airlines	MD-83 (11)	Sched Pax	Los Angeles, USA	Taxi	After pushback from gate, as the tow tug started to move the aircraft forward, the aircraft began to accelerate. The tug driver applied the brakes but the aircraft was not stopped, the tow vehicle jack-knifed, impacting the aircraft's forward fuselage resulting in extensive damage. There were no injuries.	Substantial				
53	Total Accidents							26		356 Onboard (41) External	17

BOEING

Departures, Flight Hours, and Jet Airplanes in Service*

Worldwide Operations 1989 Through 2008





- 541.9 million departures since 1959 (421.7 million on Boeing airplanes)
- 947.2 million flight hours since 1959 (742.3 million on Boeing airplanes)
- There were 37 (16 Boeing) significant types built by 16 original manufacturers that contributed to the hours, departures, and fleet numbers. There are currently four manufacturers of large commercial Western-built jet airplanes.

* 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

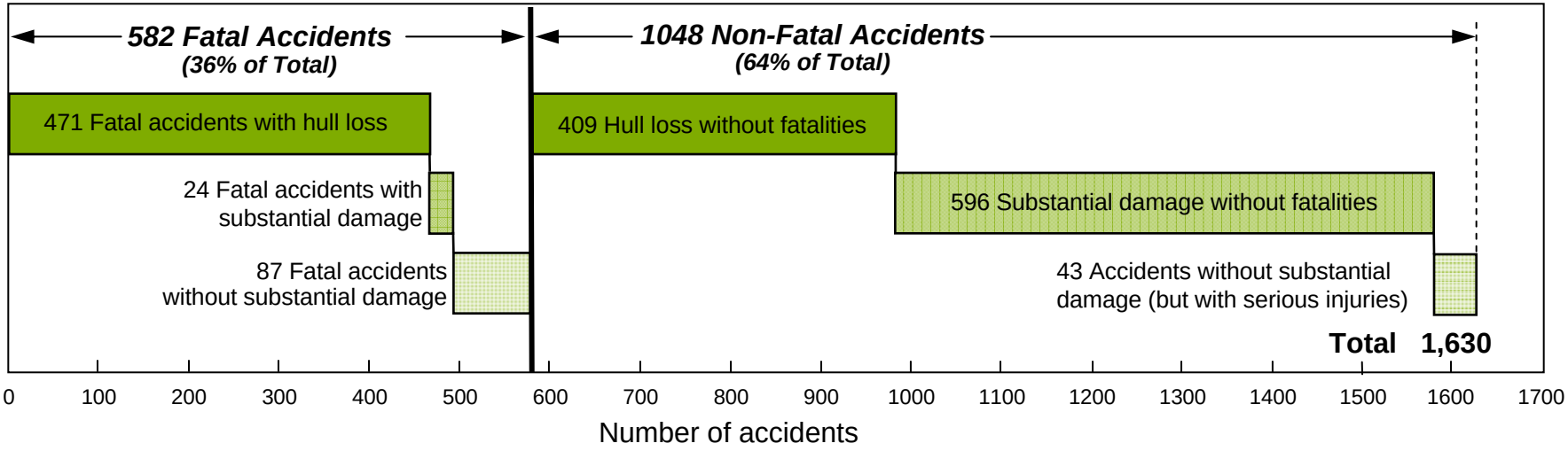
Type of operation	All Accidents		Fatal Accidents		Onboard Fatalities (External Fatalities)*		Hull Loss Accidents	
	1959-2008	1999-2008	1959-2008	1999-2008	1959-2008	1999-2008	1959-2008	1999-2008
Passenger	1,287	283	471	76	27,443 (776)	4,670 (175)	652	146
– *Scheduled*	*1,184*	*265*	*426*	*73*	*23,330*	*4,666*	*587*	*137*
– *Charter*	*103*	*18*	*45*	*3*	*4,113*	*4*	*65*	*9*
Cargo	231	79	69	13	238 (329)	37 (78)	158	55
Maintenance test, ferry, positioning, training, and demonstration	112	8	42	2	196 (66)	10 (0)	70	6
Totals	1,630	370	582	91	27,877 (1,171)	4,717 (253)	880	207
U.S. and Canadian Operators	513	73	174	14	6,154 (448)	366 (83)	214	32
Rest of the World	1,117	297	408	77	21,723 (723)	4,351 (170)	666	175
Totals	1,630	370	582	91	27,877 (1,171)	4,717 (253)	880	207

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

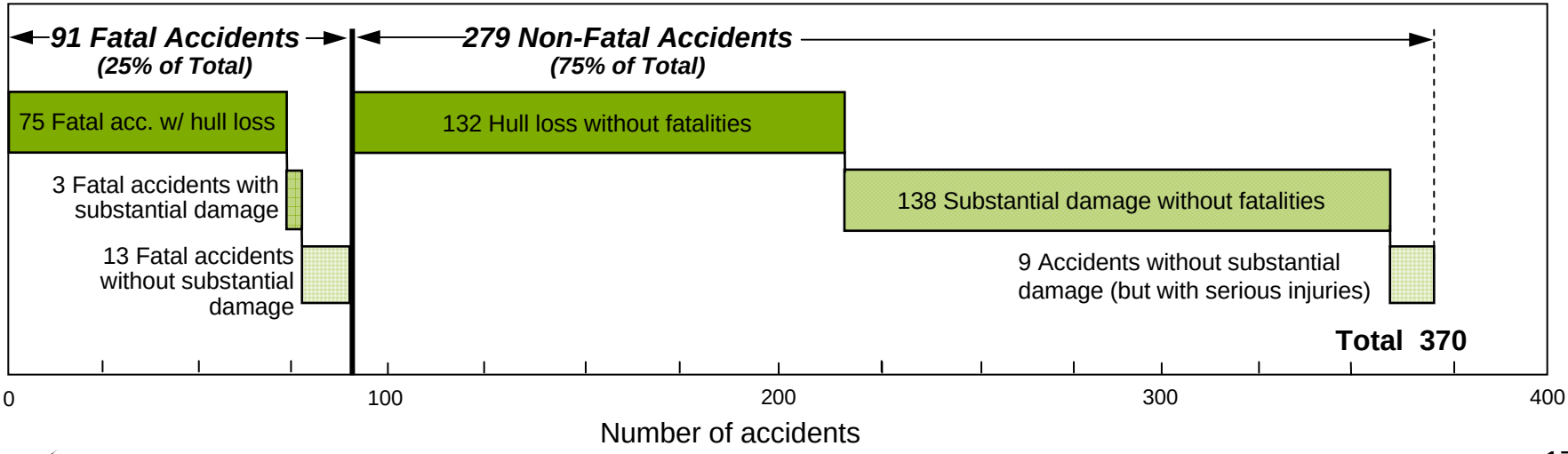
Accident Summary by Injury and Damage

All Accidents – Worldwide Commercial Jet Fleet

1959 Through 2008

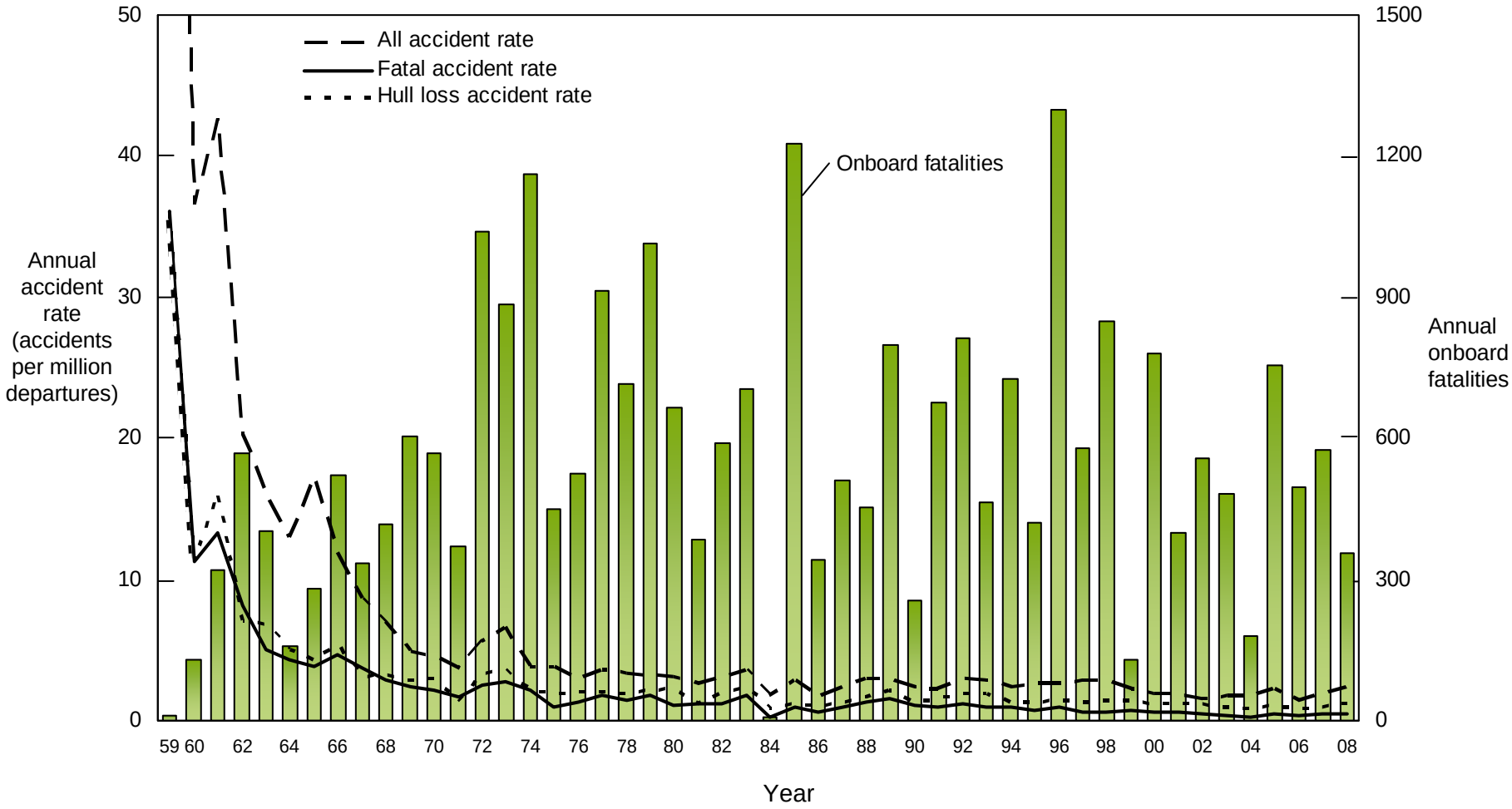


1999 Through 2008



Accident Rates and Onboard Fatalities by Year

Worldwide Commercial Jet Fleet – 1959 Through 2008



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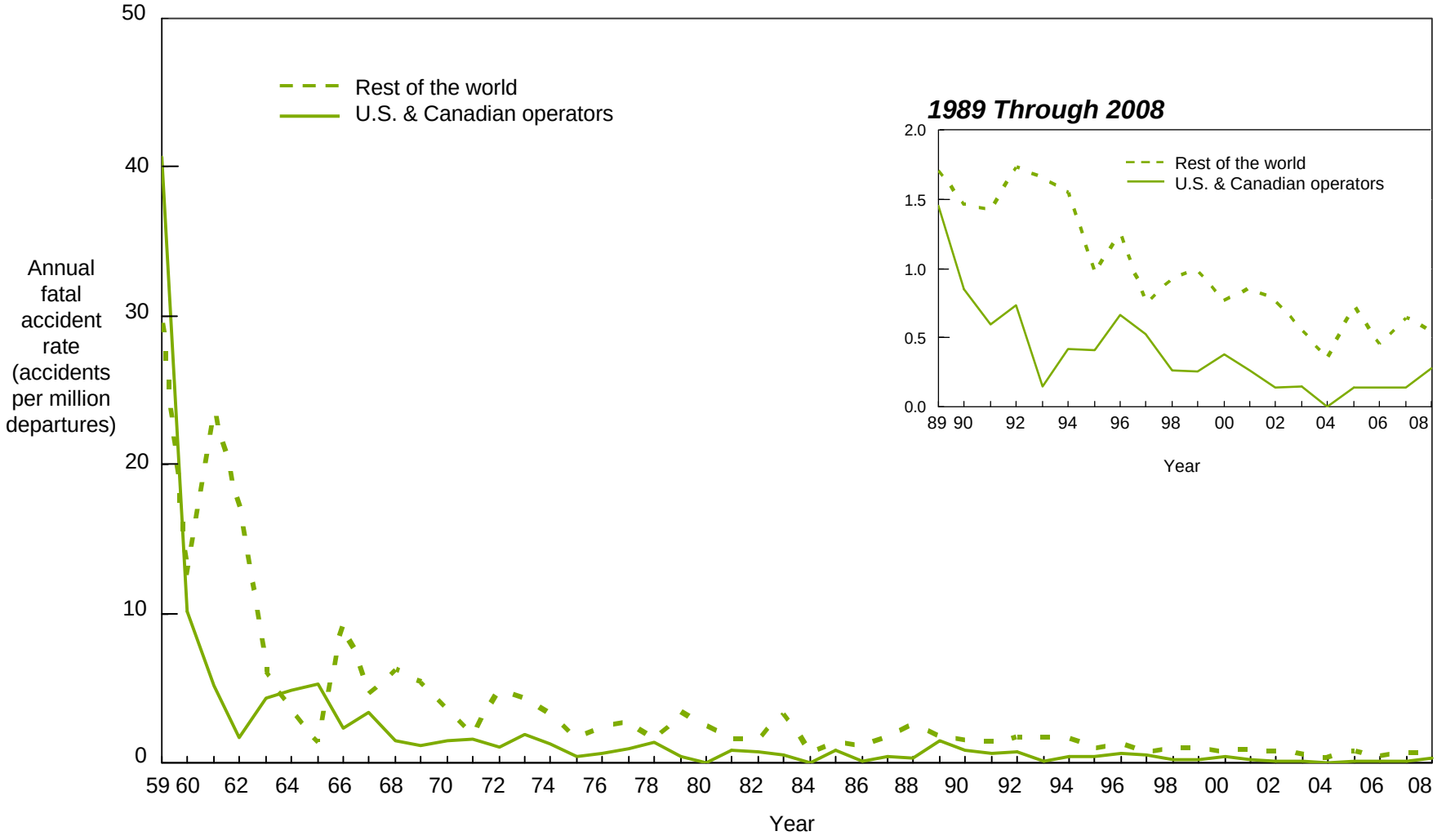
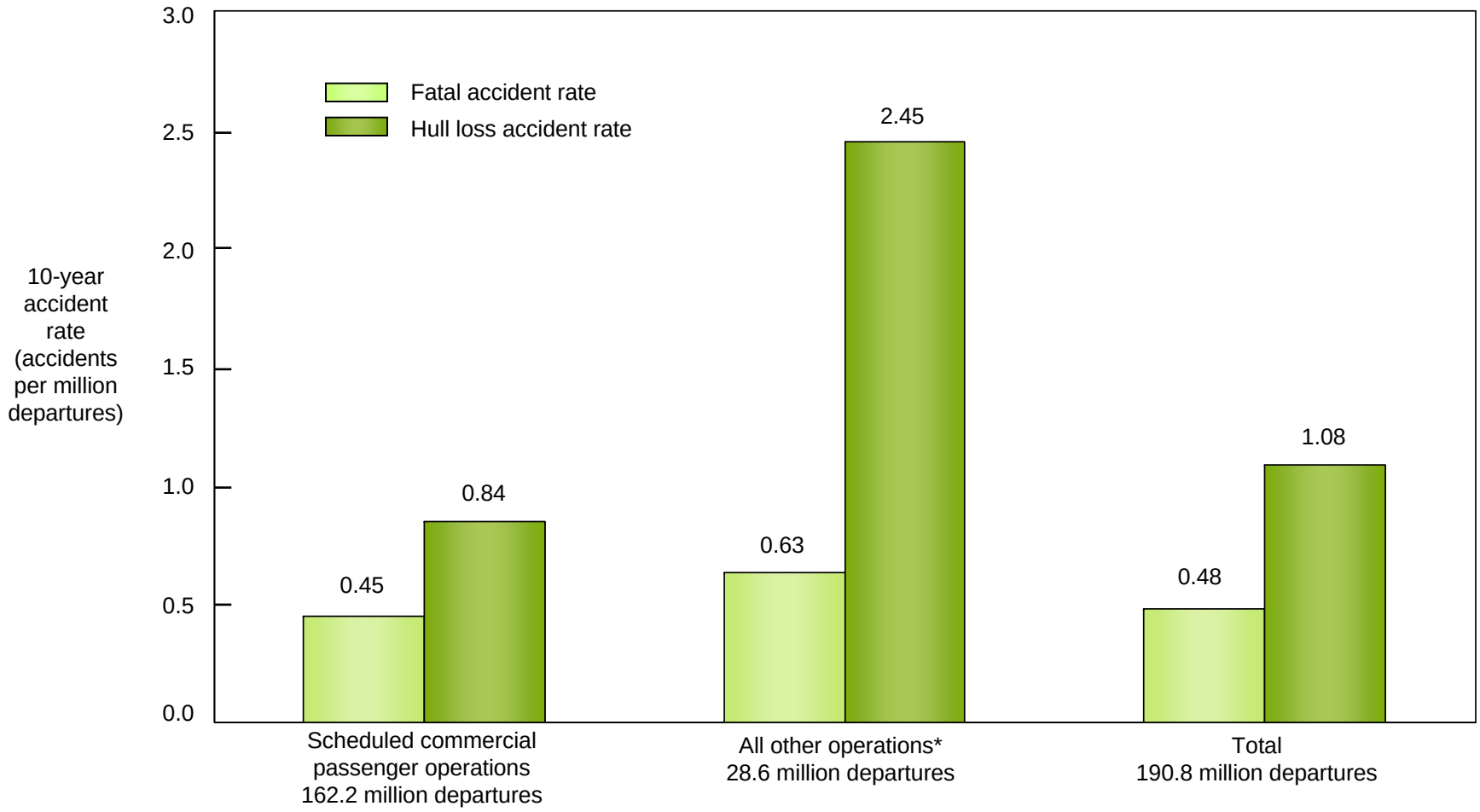
U.S. and Canadian Operators Accident Rates by Year

Fatal Accidents – Worldwide Commercial Jet Fleet – 1959 Through 2008



10-Year Accident Rates by Type of Operation

Fatal and Hull Loss Accidents – Worldwide Commercial Jet Fleet – 1999 Through 2008



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

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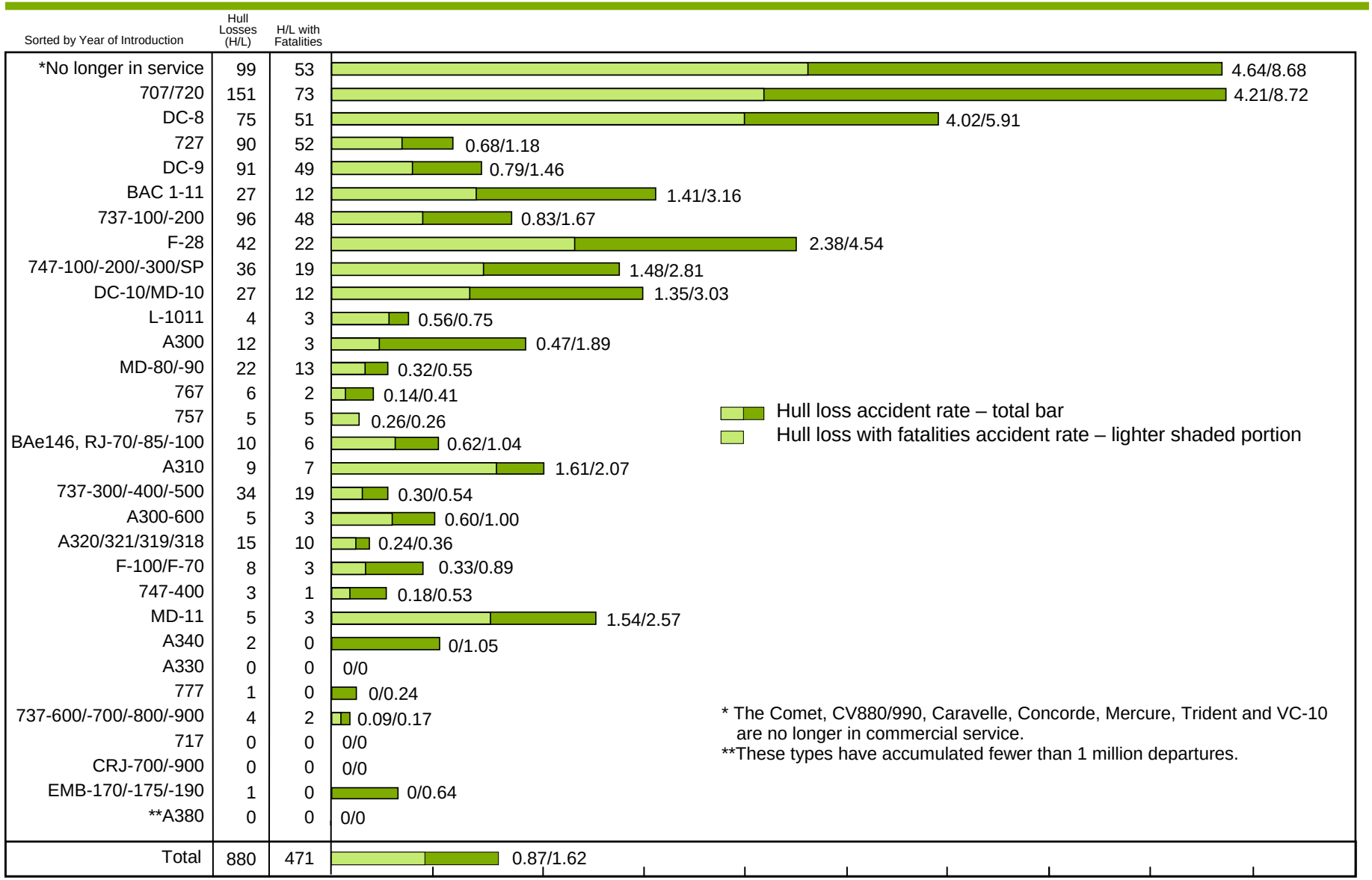
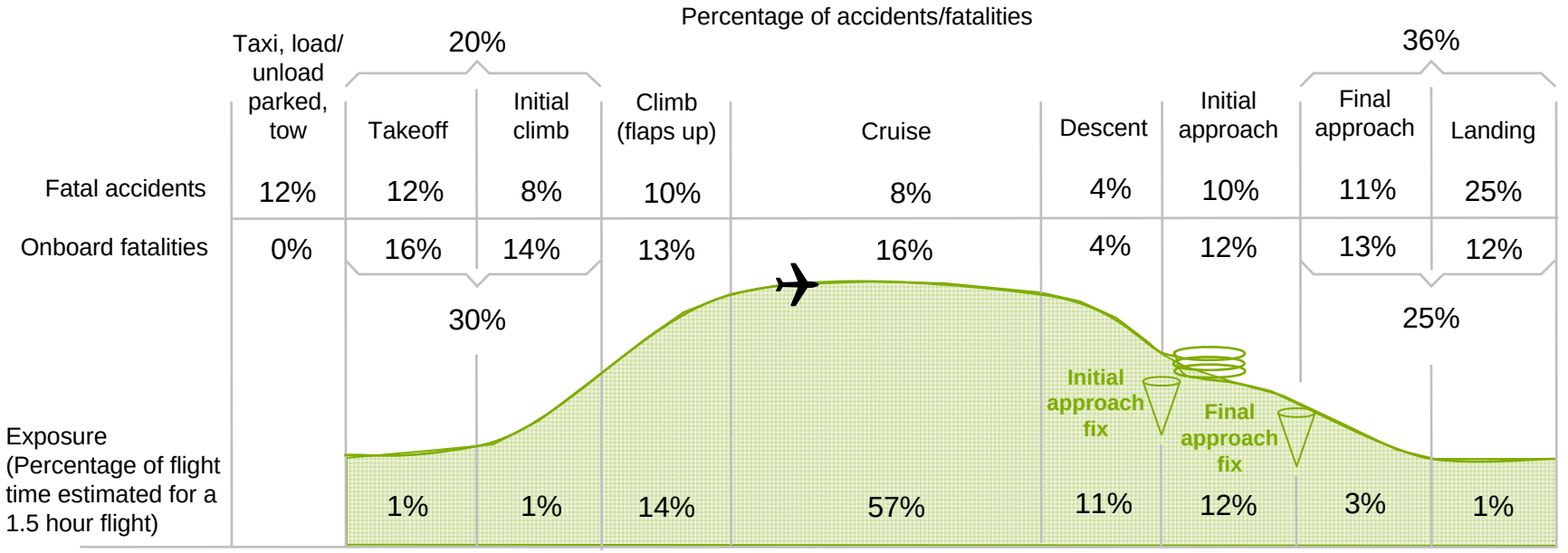
Accident Rates by Airplane Type

Hull Loss Accidents – Worldwide Commercial Jet Fleet – 1959 Through 2008

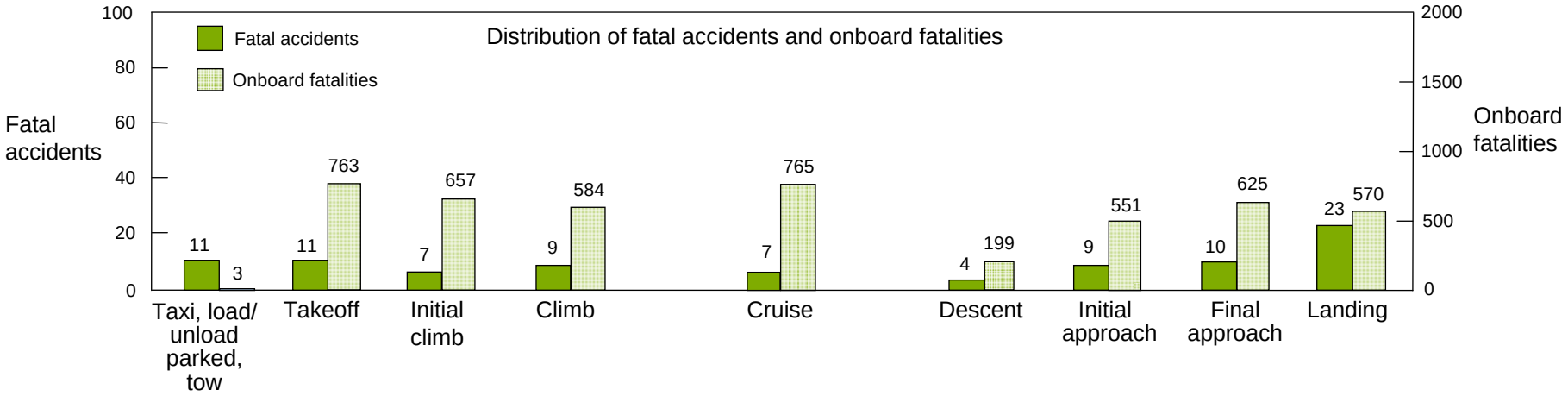


Fatal Accidents and Onboard Fatalities by Phase of Flight

Worldwide Commercial Jet Fleet – 1999 Through 2008



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



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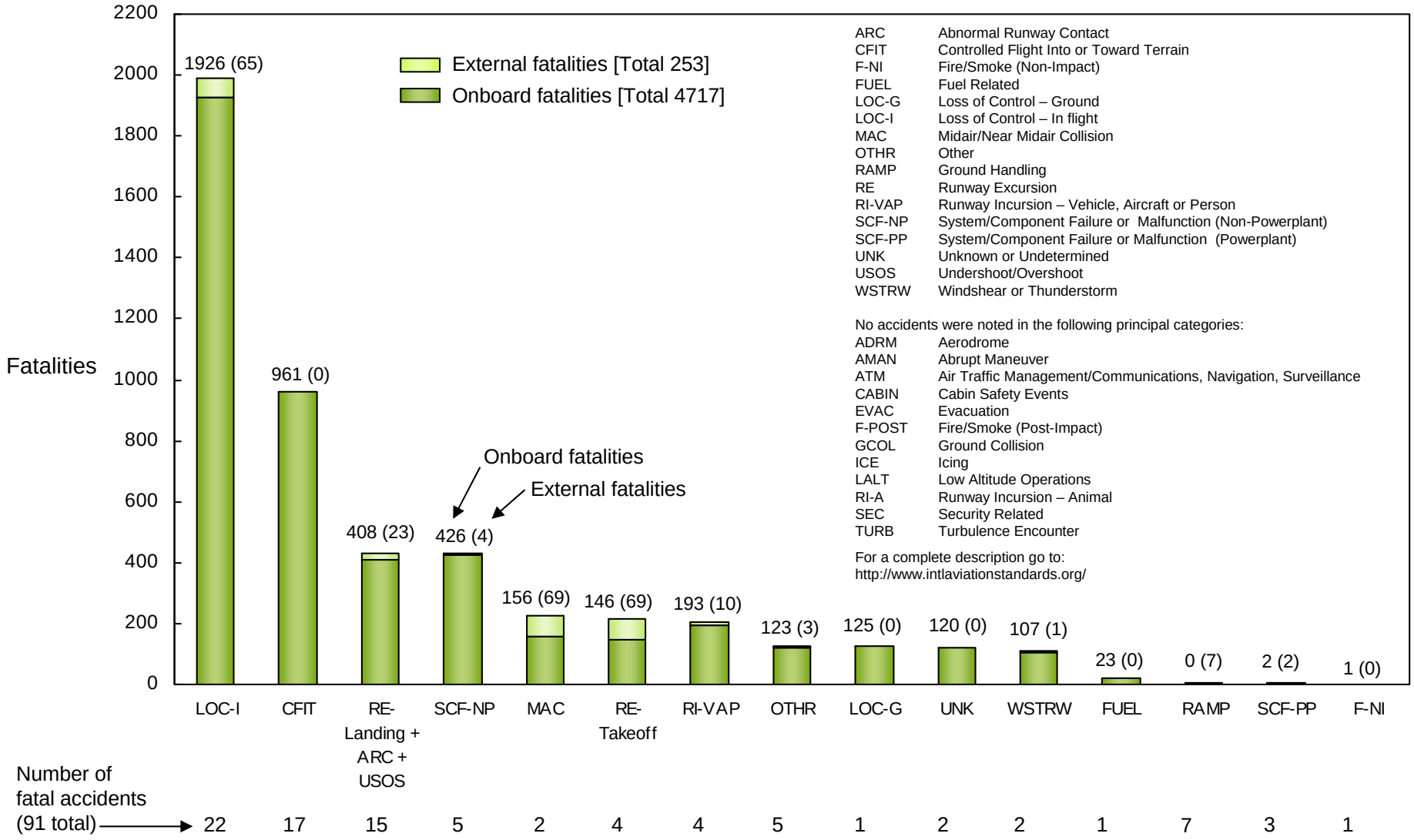
Fatalities by CAST/ICAO Common Taxonomy Team (CICTT) Aviation Occurrence Categories

Fatal Accidents – Worldwide Commercial Jet Fleet – 1999 Through 2008



Note: Principal categories as assigned by CAST.

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 a representative 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 accident to a single principal category. Those accident assignments and a brief description of the categories are reported in the preceding chart.

The CAST use of principal categories has been instrumental in focusing industry and government efforts and resources on accident prevention. Pareto 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: http://www.intlaviationstandards.org/

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