More Accidents, Fewer Fatalities

Runway excursions were prominent in 2008 commercial jet accidents worldwide.

BY RICK DARBY

Runway excursions, the focus of the FSF Runway Safety Initiative and the Runway Excursion Risk Reduction Toolkit (p. 12), were prominent among worldwide commercial aviation accidents in 2008, according to the latest data from Boeing Commercial Airplanes. Initial approach, final approach and landing continued to be the most accident-prone phases of flight.

Boeing’s data include accidents involving commercial jet airplanes heavier than 60,000 lb (27,216 kg) maximum gross weight, and exclude types manufactured in the Russian Federation or the Soviet Union. Limited data are presented for the most recent year, 2008, but more extensive data are supplied for trailing periods beginning in 1999 and 1959. The second period covers roughly the entire commercial jet transport era.

There were 283 accidents involving passenger airplanes in the world commercial jet fleet in 1999–2008 (Table 1). That compared with 286 in 1998–2007 and 285 in 1997–2006. Fatal accidents — 76 in the most recent 10-year period — represented an improvement for this type of operation over 1998–2007, when there were 78. But they exceeded the 75 in 1997–2006.

There was little change in accident numbers in any category compared with the 1998–2007 period, but the number of on-board fatalities in all passenger operations decreased from 5,105 to 4,670, a 9 percent reduction. The improvement was more pronounced in charter operations, from 57 in 1998–2007 to four in 1999–2008, a 93 percent reduction. On-board cargo flight fatalities were down 12 percent, from 42 to 37.

The 2008 accident total for all types of operations was 53, compared with 2007’s 38, but last year’s accidents resulted in 356 on-board fatalities (Table 2, p. 50) versus 576 in 2007. In 2006, there were 28 accidents and 498 on-board fatalities.

Although the summary did not offer a breakdown of accidents by country of registry, a letter accompanying the publication said, “U.S. airlines had one on-board fatality in 2008, compared to their average of 44 on-board fatalities per year for the preceding 10-year period.”

Of the 53 accidents, 16 — 30 percent — were runway excursions. Three of the
### 2008 Airplane Accidents, Worldwide Jet Fleet

<table>
<thead>
<tr>
<th>Date</th>
<th>Airline</th>
<th>Model</th>
<th>Accident Location</th>
<th>Phase of Flight</th>
<th>Description</th>
<th>Damage</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Air France</td>
<td>A300-600</td>
<td>Paris</td>
<td>Landing</td>
<td>Veered off runway</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>British Airways</td>
<td>777-200</td>
<td>London</td>
<td>Final approach</td>
<td>Landed short</td>
<td>Destroyed</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Iran Air</td>
<td>F-100</td>
<td>Tehran, Iran</td>
<td>Takeoff</td>
<td>Struck ground</td>
<td>Destroyed</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Atlas Blue</td>
<td>737-400</td>
<td>Deauville, France</td>
<td>Takeoff</td>
<td>Overrun</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Aigle Azur</td>
<td>A321</td>
<td>Algiers, Algeria</td>
<td>Takeoff</td>
<td>Overrun</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>Blue Air</td>
<td>BAe 146</td>
<td>Bacau, Romania</td>
<td>Takeoff</td>
<td>Nose landing gear collapse</td>
<td>Substantial</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 (continued next page)
10 accidents with onboard fatalities, or 30 percent, were runway excursions. Six excursions were classified as major accidents, a category that partially overlaps the fatal accident category.3

Thirty-one accidents, 58 percent of the total, occurred in the initial approach, final approach or landing phase. The accidents included six fatal and six major accidents.

In the most recent 10-year period, fatal accidents accounted for 25 percent of the total (Figure 1). The fatal-accident proportion of all accidents was 36 percent for the 1959–2008 span. The number of fatal accidents without substantial airplane damage was 14 percent and 15 percent of the total of fatal accidents in the past 10 years and from 1959 onward, respectively.

Among nonfatal accidents, those involving substantial damage represented

Table 2

Accidents, by Injury and Damage, Worldwide Commercial Jet Fleet

<table>
<thead>
<tr>
<th>Date</th>
<th>Airline</th>
<th>Model</th>
<th>Accident Location</th>
<th>Phase of Flight</th>
<th>Description</th>
<th>Damage</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 27</td>
<td>Sriwijaya Air</td>
<td>737-200</td>
<td>Jambi, Indonesia</td>
<td>Landing</td>
<td>Overrun</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Aug. 30</td>
<td>CONVISA</td>
<td>737-200</td>
<td>Near Latacunga, Ecuador</td>
<td>Descent</td>
<td>Crashed in mountainous terrain</td>
<td>Destroyed 3</td>
<td></td>
</tr>
<tr>
<td>Sept. 1</td>
<td>Heavy Lift</td>
<td>737-200</td>
<td>New Fasher, Sudan</td>
<td>Landing</td>
<td>Hard landing</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Sept. 14</td>
<td>Aeroflot Nord</td>
<td>DC-8</td>
<td>Near Perm, Russia</td>
<td>Initial approach</td>
<td>Crashed in darkness and poor weather</td>
<td>Destroyed 88</td>
<td></td>
</tr>
<tr>
<td>Sept. 22</td>
<td>ICARO</td>
<td>F-28</td>
<td>Quito, Ecuador</td>
<td>Takeoff</td>
<td>Overrun</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Oct. 1</td>
<td>KD Avia</td>
<td>737-300</td>
<td>Kaliningrad, Russia</td>
<td>Landing</td>
<td>Gear-up landing</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Oct. 7</td>
<td>Qantas</td>
<td>A330</td>
<td>Near Learmonth, Australia</td>
<td>Cruise</td>
<td>Autoflight-commanded pitch-down</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Oct. 16</td>
<td>Rutaca Airlines</td>
<td>737-200</td>
<td>Caracas, Venezuela</td>
<td>Landing</td>
<td>Veered off</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Oct. 27</td>
<td>Cargo B Airlines</td>
<td>747-200</td>
<td>Brussels</td>
<td>Takeoff</td>
<td>Tail strike</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Nov. 10</td>
<td>Ryanair</td>
<td>737-800</td>
<td>Rome</td>
<td>Final approach</td>
<td>Multiple bird strikes</td>
<td>Destroyed</td>
<td></td>
</tr>
<tr>
<td>Nov. 27</td>
<td>XL Airways Germany</td>
<td>A320</td>
<td>Near Perpignan, France</td>
<td>Initial approach</td>
<td>Broke up and struck sea</td>
<td>Destroyed 7</td>
<td></td>
</tr>
<tr>
<td>Dec. 15</td>
<td>Mesa Airlines</td>
<td>CRJ-700</td>
<td>Chicago</td>
<td>Landing</td>
<td>Left main landing gear retracted</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Dec. 20</td>
<td>Continental Airlines</td>
<td>737-500</td>
<td>Denver</td>
<td>Takeoff</td>
<td>Veered off</td>
<td>Substantial</td>
<td></td>
</tr>
<tr>
<td>Dec. 26</td>
<td>American Airlines</td>
<td>MD-83</td>
<td>Los Angeles</td>
<td>Taxi</td>
<td>Collision with tug</td>
<td>Substantial</td>
<td></td>
</tr>
</tbody>
</table>

53 total accidents 356 (41) 17

Note: Airplanes manufactured in the Commonwealth of Independent States or the Soviet Union are excluded because of lack of operational data. Commercial airplanes used in military service are also excluded.

Source: Boeing Commercial Airplanes

Figure 1
49 percent in 1999–2008 and 57 percent in 1959–2008. Thirteen fatal accidents in the most recent 10-year period, 14 percent of the fatal-accident total, were not accompanied by substantial damage. Nine nonfatal accidents with serious injuries, but no substantial damage, represented 3 percent of the nonfatal-accident total for this period.

For the 10 years ending in 2008, the fatal accident rate for scheduled commercial passenger operations worldwide was 0.45 per million departures. All other operations — charter passenger and cargo, scheduled cargo, maintenance test, ferry, positioning, training and demonstration flights — had a fatal accident rate of 0.63 per million departures.

Tabulating fatal accidents by the U.S. Commercial Aviation Safety Team (CAST)/International Civil Aviation Organization (ICAO) taxonomy, “loss of control in flight” was the dominant category in 2008 and the trailing nine years (Figure 2). Loss of control accidents resulted in 1,926 on-board fatalities, more than double the 961 for “controlled flight into terrain” (CFIT). The difference widened since the 1998–2007 report, when the numbers were 1,984 and 1,137 respectively. The CFIT data for the 1998–2007 period were also an improvement on 1997–2006, when on-board CFIT fatalities totaled 1,655. It appears that industry efforts to reduce CFIT can claim a degree of success.

The number of on-board fatalities in the next-largest category for 1998–2007, “system/component failure or malfunction (non-powerplant),” was also reduced from 655 to 426 in the latest 10-year period.

**Notes**


2. An airplane accident is defined as “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; direct contact with the airplane or anything attached thereto; or direct exposure to jet blast; the airplane sustains substantial damage; or the airplane is missing or completely inacces- sible.” Occurrences involving test flights or resulting from hostile action such as sabotage or hijacking are excluded.

3. Boeing defines a major accident as one 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. Flight Safety Foundation supports the use of this term to designate the most severe accident category, in place of the traditional term hull loss, which the Foundation believes is more significant for insurance actuarial purposes than as a measure of risk.

**Substantial damage** is “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.”

4. The taxonomy is described at <www.intlaviationstandards.org>.