

## June 26, 1959: plane crash

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Date: 26 June 1959 (c. 17:35) Location: Near Varese, Lombardy, Italy Operator: Trans World Airlines (TWA) (US) Aircraft type: Lockheed 1649A Starliner (N7313C)

Operating as Flight 891 and on a service originating at Athens, Greece, with an ultimate destination of Chicago, Illinois, US, the aircraft was at an approximate height of 11,000 ft (3,400 m) and climbing when an explosion shattered its right wing. The Starliner then plummeted into a field some 20 miles (30 km) northwest of Milan and burst into flames, the crash occurring about 15 minutes after it had taken off from that city's Malpensa Airport, bound for Paris, France. All 68

persons aboard (59 passengers and nine crew members) perished.

The late afternoon disaster occurred during a light rain and low overcast, with a ceiling of around 2,000 ft (600 m), and a visibility of approximately 2 miles (3 km). There was also thunderstorm activity in the area.

An investigative board examined several possible reasons for the tragedy, but discarded most of them, including metal fatigue, structural failure due to turbulence, and sabotage. Not completely ruled out, however, was that the maximum speed of the aircraft had been exceeded during an uncontrolled descent.

In the absence of concrete evidence, the theory considered most plausible was the ignition of gasoline vapours emanating from one or both of the No. 7 fuel tank vent pipes as a consequence of static electricity discharges, or streamer corona, which developed in these outlets. This would have led to the explosion of the vapours in that tank, followed by an excess of pressure or another explosion in the adjacent fuel tank, No. 6.

Tests proved such a scenario to be within the realm of possibility under certain atmospheric conditions, and only when the aircraft was ascending; in addition, the weather at the time of the accident was conducive to this phenomenon, with frequent electrical discharges. Static discharges could have occurred had the Starliner been struck anywhere by lightning, or had it flown through clouds that were electrically charged.

Following the explosion in the wing of *N7313C*, which took piace near its No. 3 nacelle, aerodynamic forces caused the separation of its tail assembly.

Research begun in the wake of this disaster on the potential threat to aircraft posed by electrical discharges was under way when lightning destroyed a commercial jet in 1963 (see separate entry, 8 December 1963).