PART I

No. 1

Línea Aeropostal Venezolana, Super Constellation 1049-E, YV-C-AMS, caught fire and crashed 35 miles southeast of New York on 20 July 1956. Report released by the Directorate of Civil Aviation, Ministry of Communications, Venezuela

Circumstances

YV-C-AMS departed Idlewild International Airport, N.Y., on the evening of 19 July at 2306 hours with 10 crew and 64 passengers aboard. One hour and twenty minutes after take-off the pilot reported that propeller No. 2 was running wild and that he was returning to Idlewild. At the very beginning of the emergency the pilot reported severe vibration induced by the above-mentioned propeller; however, on reducing speed to 145 knots, the vibration became less noticeable. At 0050 hours the aircraft was declared in a state of emergency and a U.S. Coast Guard aircraft was sent to act as escort. At 0121 hours the latter sighted AMS and observed its altitude as 8 700 feet and speed as 145 knots. AMS was authorized to dump fuel at 0129 hours. The aircraft acknowledged receipt of the instruction and stated that New York was in sight, whereupon the radio failed and a few seconds later the aircraft burst into flames and made a sharp turn to the right. On completion of the turn, a quivering, incandescent mass broke off from the port side, whereupon the aircraft began a smooth climb with a tendency to veer to the left; at this point three more incandescent and quivering masses broke loose. On reaching the top of its climb, the aircraft broke up while in a vertical position, turned into a fireball and crashed into the sea at 0132 hours. Fuel spread over the distress area, causing a fire which lasted several minutes. There were no survivors.

Investigation and Evidence

The Commission checked the aircraft's maintenance records and found them satisfactory. It also inspected and investigate the Company's workshops in New York City and concluded that they met all the requirements prescribed by the Air Safety Division. A similar visit was made to workshops to which contracts were let by the Company - these maintenance shops are approved by the Civil Aeronautics Administration.

Witness No. 1, a captain of Eastern Air Lines flight No. 837, was one mile west of and above AMS at the time of the accident. His testimony was as follows:

*"AMS asked the Coast Guard of that area for authorization to dump fuel and I believe New York replied: "if you are over open seas you may dump fuel". AMS repeated his speed and altitude as 145 knots and 8 700 feet adding that he was going to dump fuel. Weather conditions were ideal, the moon was above me to the right which gave me an excellent view of AMS."

"A few seconds after the last radio contact I observed a long white streak, then a brief interval, followed by a track of mist which emanated bubblewise in a helicoidal movement from beneath the aircraft near the tail and extended more or less alongside the fuselage. From my position and in the reflection of the moon on AMS, the mist had a silvery appearance similar to that of the

* Note.- This is the ICAO translation into English of the Spanish text. The original English text is not on our files.

aircraft which continued in normal flight and seemed to descend. At this point I noticed that the navigation lights were on 'intermittent'; the anti-collision light was not switched on. A few seconds later, possibly three or four seconds after the fuel-dumping had begun, the aircraft became one large fireball; my view of AMS was excellent, as I was at a short distance above him."

The remainder of the captain's testimony consisted of a description of the manoeuvres carried out by AMS before touching water.

Witness No. 2 was a pilot of the U.S. Coast Guard aircraft No. 2.124.

His position at the time of the accident was half a mile south of and above AMS.

"On receiving the alert that the Venezuelan aircraft YV-C-AMS was returning to Idlewild Airport due to failure of propeller No. 2, we took off at 0102 hours in the direction of AMS. We established formal contact at 0125 hours and switched on our landing gear lights for identification purposes. AMS replied with its nose light and thereby proper identification was ensured. We took up position half a mile to the left, maintaining AMS in sight and on our radar screen. At 0129 hours authorization was requested from the Air Defence Radar to dump fuel and the reply was affirmative. At 0129 + 50 the AMS pilot transmitted his last communication, indicating that he was going to dump fuel. I did not see fuel jettisoned from the aircraft, as the latter was between us and the moon. Some 5 seconds after the last transmission from AMS I noticed flames on the aircraft's starboard side, approximately the length of the fuselage. I notified AMS that it was on fire but received no reply. Our speed was 146 knots and we were gradually descending. The fire broke out at 0130 hours and 50 seconds later the aircraft made contact with the water."

Although the sea at the site of the accident was dragged, searched by divers and explored by sounding, no parts of the wrecked aircraft were located. Only those parts of the aircraft which were afloat at the time of impact were found.

Probable Cause

Although the accident was observed by witnesses, its cause cannot be determined with absolute certainty. However, it would be logical to assume that the vibration which resulted from loss of control of propeller No. 2 caused one of the inside wing attachments to loosen or break at some point between the fuel tank and the dump chute at the symmetrical point of vibration (behind engine No. 3).

Corrective Action

Airlines operating aircraft equipped with fuel-dumping devices were advised to check the system periodically under effective pressure.

The pilot will be left to decide whether or not he can land with excess weight.

Fire Aspects - Excerpt from NFPA Aviation Bulletin No. 190 dated July 1957

This accident was the worst airline fire tragedy of 1956.

Seventy-four persons, all the passengers and crew aboard, were killed when the Super G Constellation caught fire in flight while dumping gas preparatory to making an unscheduled landing at New York International Airport. The aircraft had previously lost its left inboard engine while en route to Caracas from New York and returned to New York when the pilot was unable to maintain altitude with the prop on the left inboard engine windmilling and unable to be feathered.

The Coast Guard dispatched one of its rescue amphibians to escort the limping plane back to New York. In order not to land the Super G at a weight in excess of 110 000 lbs (as specified in CAB safety regulations), the pilot decided to dump the excess fuel load. He notified the pilot of the Coast Guard plane (which had reached the Constellation) of their intention and the pilot of the rescue plane observed the operation. He noted that the Connie's running lights were still blinking (although these lights are normally switched off to eliminate the electrical spark hazard) as the fuel dumping began. From the Coast Guard plane, above and to the rear of the Constellation, blue flashes were first noted issuing from the transport soon after the fuel dumping began. This was followed by bursting flames. The big plane held steady for only a few seconds, swerved sharply to the right and then nosed down into the sea from its 8 000-foot altitude, exploding on contact with the water. Rescue planes and ships converged on the scene off the New Jersey coast but found no survivors.

No official report on the accident has been issued and it is doubtful that there will be any detailed explanation because of the complete loss of both crew and airplane with virtually no recovery of the wreckage. Newspaper articles have offered varied explanations (that the gasoline being dumped was ignited by an exhaust spark; that the Constellation had an engine fire before the pilot began dumping gas which ignited the fuel being dumped) and serious question was raised as to the wisdom of attempting gas dumping in flight with the thought that it creates more of a safety hazard than it is designed to solve.

The Lockheed Aircraft Corporation was much concerned about the accident and conducted an extensive series of tests to reinvestigate whether their fuel dumping equipment and procedures were completely safe. They first conducted a full-scale flight test program to determine whether the conditions about the airplane would be hazardous if the crew performed the fuel dumping with the airplane configuration other than that recommended in the operations manual (which calls for a clean configuration). These tests were run with gear down, wing flaps in approach position, windmilling propellers and others. No significant hazard was found to exist regardless of the configurations tested.

Lockheed next investigated what would happen if fuel being dumped did ignite. These tests were run in a test tunnel with a scale model wing and dump system. These tests proved that it was impossible to involve the wing in fire under any condition unless a fire was built and maintained within the wing itself.

Sifting all the available information, it is clear that any opinion as to the cause of this tragic accident is pure conjecture. As conjecture it does seem that something must have been wrong with the fuel dumping system itself which permitted fuel to leak or spill within the wing, its vapours being ignited by an electrical spark or engine exhaust heat.

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