

No. 20

Air India International Corporation, Bombay, Lockheed Constellation 749-A, VT-DEP, "Kashmir Princess", ditched following mid-air explosion in South China Sea, off Great Natuna Islands on 11 April 1955. Report by Ministry of Transport and Communications, Republic of Indonesia, released 25 May 1955.

Circumstances

The aircraft took off from Hong Kong for Djakarta at 0425 hours Greenwich Mean Time carrying 8 crew members and 11 passengers. The flight was uneventful until approximately five hours after take-off when a muffled explosion was heard in the aircraft, then cruising at 18 000 feet over the sea. Smoke started entering the cabin through the cold air ducts almost immediately and a localised fire was detected soon after on the starboard wing behind No. 3 engine nacelle. A rapid descent was commenced for ditching the aircraft and distress signals broadcast. In spite of fire fighting action, during which No. 3 engine was feathered, the fire spread very rapidly and caused hydraulic failure followed by electrical failure. During the final stages of the descent, executed under extremely difficult circumstances, dense smoke entered the cockpit reducing the visibility to almost nil. The aircraft impacted the water with the starboard wing tip, and the nose submerged almost instantaneously. Only three crew members survived the accident. The aircraft was destroyed.

Investigation and Evidence

The aircraft had crashed into the sea 235 miles northwest of Kuching. The wreckage was located by Indonesian fishermen on 12 April 1955 at an average depth of 35 feet of clear water, but it could not be seen from the surface. Salvage operations, which were hampered due to the presence of sharks, commenced on 25 April and lasted for ten days. The wreckage indicated that the aircraft had suffered considerable damage on impact with the sea, in addition to fire damage. Salt water corrosion was most noticeable on magnesium alloy engine parts; other parts were comparatively free.

The aircraft had been inspected by licensed aircraft maintenance engineers at Bombay on 8 April 1955 and had then taken off on the evening of 8 April to operate a scheduled flight to Singapore, returning to Bombay on 10 April after an uneventful flight. On arrival at Bombay, a terminal check was carried out,

together with rectification work for the defects reported during the previous flight. The aircraft then taxied out to the runway to operate a scheduled flight to Hong Kong via Calcutta and Bangkok, taking off on the afternoon of 10 April. At Bangkok a fresh crew took over the aircraft. The composition of the crew was then the same as that of the subsequent Hong Kong-Djakarta flight. The aircraft was at Hong Kong for 80 minutes during which the crew received their briefing, a transit check was carried out under the supervision of the aircraft maintenance engineer and the aircraft was loaded and re-fuelled. At 0425 hours Greenwich Mean Time the aircraft took off from Hong Kong for Djakarta and was routed to overfly the Natuna Islands for navigational check purposes.

After take-off, routine messages were exchanged by the aircraft with ground stations. The explosion occurred at approximately 0923 hours. Once a rapid descent and depressurization were commenced a bank of CO₂ bottles was discharged into the rear baggage compartment in accordance with the fire drill. By this time the navigator had noticed a fire on the starboard wing behind No. 3 engine nacelle which was spreading very rapidly and this was reported to the captain. The generators were switched off as a precaution against electrical fire but again switched on later. At this time the crew prepared for ditching. The fire spread rapidly and was approaching the fuselage. The aircraft maintenance engineer estimated that the wing would not hold on for long as metal was melting. The fire warning in No. 2/3 Zone of No. 3 engine then came on. No. 3 engine which was functioning normally was feathered and the remaining bank of CO₂ bottles was discharged in No. 2/3 zone. The starboard heater fire warning then came on but the extinguishers had been exhausted. A left hand turn was executed in an attempt to ditch near land. The navigator had in the meantime located the position of the aircraft and passed it to the co-pilot, who had to help the captain with the controls as the aircraft was getting uncontrollable due to the starboard wing dropping. At this stage hydraulic failure was reported, and the auxiliary boosters were switched on. Smoke then entered the crew

compartment. The aircraft maintenance engineer opened two port emergency exits in the cabin over the wing and one in the crew compartment. At this stage very thick black smoke entered the crew compartment which obscured forward visibility just prior to ditching. The co-pilot opened the sliding window on his side and had to peer at the instrument panel to check the airspeed indicator reading which was 140 knots when he last observed it.

In spite of all efforts to level off the aircraft for ditching, it continued in a shallow right hand turn and hit the water with the starboard wing. Flaps could not be used because of hydraulic failure.

It is clear that the explosion was followed by a combination of circumstances which embraced practically all emergencies that could have faced the crew - a serious fire that threatened to burn off the wing any minute, hydraulic failure, electrical failure, partial loss of control and dense smoke in the cockpit which restricted the visibility to almost nil during the most critical stages of the descent.

Fortunately the right wing which included the starboard wheel well was recovered. Positive confirmation is available of an explosion having taken place in this area.

In addition to the physical evidence of bulging skin and bent members, there was also deep pitting by shrapnel in the skin surrounding the explosion area, and on the 24 ST struts and steel tubes which were facing the explosion charge. Glancing dents have also been deeply defined in those strut faces which were parallel to the flight of shrapnel. The fuel tank wall was punctured inwards.

Finally parts of a twisted, burnt and corroded clockwork mechanism, which had no relation to any equipment of the aircraft, was found trapped in the very same area where an explosion took place.

The explosion caused by this device resulted in puncturing of the fuel tank, and fire, which developed intensely as it was fed by large quantities of high octane fuel. Heat from this fire travelled forward to No. 3 zone of No. 3 power plant, causing a fire warning from this zone. The discharge of CO₂ in this area caused

the warning to go off. This fire also burnt through the rear beam web, which had also opened up due to the explosion. Once the flames had spread to the trailing edge area behind the beam, they started consuming the cabin air ducting, cables and the fuel and hydraulic lines.

This explains the entry of streaks of smoke noticed by the aircraft maintenance engineer soon after the explosion, and the hydraulic failure experienced at a later stage. This hydraulic failure compelled the crew to switch on the auxiliary boosters for the rudder and elevator. The heavy drain of electrical energy required for the operation of the boosters, combined with the fact that the generators had also to be switched off at one stage as a precautionary measure against electrical fire, would undoubtedly exhaust the batteries. It seems most probable, however, that the complete electrical system went 'dead' as a result of the fire, and this explains why the co-pilot was unable to send out the position report during the final stages of the descent.

The crew also stated that just before the aircraft hit the water, dense black smoke filled the entire cabin and cockpit. It is estimated that it took at least 5 to 6 minutes for the aircraft to descend from 18 000 feet. During this period the flames had spread to the right side of the fuselage. The wreckage showed positive evidence of this area having burnt off in the air. The dense smoke which entered the aircraft was undoubtedly caused by the fire having entered the cabin after burning through the side of the fuselage.

The aforementioned facts combined together provide irrefutable evidence of an infernal machine having been placed by some party unknown in the starboard wheel well area, presumably to destroy the aircraft. The task of this person was rendered easier by the fact that access to this area is extremely easy through the openings in the bottom skin of the wheel well, when the aircraft is on the ground.

Probable Cause

The cause of this accident was an explosion of a timed infernal machine placed in the starboard wheel well of the aircraft. This explosion resulted in the puncturing of No. 3 fuel tank and an uncontrollable fire.