minutes after the aircraft came to a stop. Following the ground slide, the cabin filled with smoke; the lights went out as wiring separated, and very shortly fire entered the cabin. The safety belt sign had been on and the belts of the 89 passenger seats (19 double and 17 triple) were used and the seats remained in place. The cabin emergency exit impact lights did not go on because the first ground impact did not provide sufficient deceleration and the subsequent ground movement was comparatively smooth with stopping gradual. These impact lights derived their power from flashlight batteries and could not be operated manually.

Fire equipment and assistance were supplied promptly by personnel from the nearby city penal institution on Rikers Island. Those who had been able to leave the aircraft were conducted to shelter and given medical aid.

Crash Scene

Rikers Island is irregularly oval with its greatest dimension, from east and west, approximately one mile. Its southern shoreline is some 600 yards north of the northeast corner shoreline of La Guardia Field. The northwestern area of the island is occupied by New York City penal buildings. The DC-6A came to a stop and was destroyed by fire a short distance south of these buildings.

Flight 823 first struck small trees while on a heading of 285 deg. magnetic. The left wing tip struck the ground first; the right wing tip struck 150 ft. beyond. The aircraft, after striking the ground nearly level longitudinally, skidded approximately 1,500 ft. and came to a stop on a heading of 241 deg. The ground elevation differential between the initial impact point and the stopping place is less than 10 ft. It was determined that the angle of descent at impact was seven degrees. Groundspeed at impact, computed from propeller slash marks and engine rpm., was approximately 138 kt. Impact occurred approximately 60 sec. after start of the takeoff and after a left turn of approximately 119 deg. from the heading of runway 4.

The airplane struck the ground while descending in a slightly left wing low attitude. Numbers 1 and 2 engines separated from their nacelles and subsequently the entire left wing and outer right wing parted from the airplane as it skidded along the ground. There were many more pieces of the aircraft and its components strewn along the path of travel on the ground. Those near the point of initial impact showed no signs of fire damage. No pieces of the airplane were found back along the flight path beyond the point of initial impact of the airplane with the ground.

The main wreckage consisted of the fuselage, the right inboard wing, and the empennage. The fuselage belly had been flattened and torn away during the ground slide with the result that most of the fuselage floor came to rest in contact with the ground. Fire after this portion of the wreckage stopped, as evidenced by debris on the ground, completely burned out the right inboard wing and the fuselage from the cockpit windshield to the aft pressure bulkhead. The right inner wing, the fuselage nose section, and the aft pressure dome remained in their correct relative positions.

The tail section of the fuselage, with all tail surfaces still attached and bearing no gross distortion, came to rest centered approximately eight feet to the left of the main fuselage wreckage and canted approximately 28 deg. to the left of the main fuselage centerline, separation having occurred just aft of the main pressure bulkhead. The bottom skin of the fuselage tail section had been partially torn away by the ground slide and was on the ground stretched out to the left of its normal position with little to no fire damage. The tail anti-icing heater was found still attached to this stretched-out skin by the exhaust ducting and lying on the ground forward of the left stabilizer. No fire damage to the heater was found although it sustained severe impact damage. Ash from a burned-out landing flare was found on the ground below a burned-out area at the root end of the right stabilizer.

The basic structure of the horizontal tail surfaces remained intact although there were numerous holes punched through the skin from external forces, and the outside surface of the bottom skin bore numerous scratches at various angles up to 55 deg. running aft and to the left of the airplane's longitudinal axis.

The top and bottom skins of the left stabilizer had torn apart chordwise along the rivet lines at station 160 from the front spar to the rear spar, and between solid web ribs at stations 129 and 168 the skin was displaced outward. In this general area the skin had been pushed off the rivet heads of intermediate ribs by outward-acting forces and had separated from the spars partly by pulling out through the rivet holes and partly by tearing the skin at the rivet lines. The rib at station 168 was bulged in the outward direction. The web of the rear spar contains lightening holes and over the web is a sheet metal cover. This cover was pushed aft off its lower attachments and was partly torn off its upper attachments. Some of the previously mentioned diagonal scratches on the outer surface of the stabilizer bottom skin were continuous across the skin fracture at station 160. These scratches, which were continuous across the skin tear, ran aft and outboard at an average angle of approximately 48 deg. to the longitudinal axis of the airplane.

Fire Damage

Although there was considerable scorching by fire inside the left horizontal stabilizer, none was found inside the anti-icing hot air duct. The inboard portions of the round hot air duct in the leading edge were flattened by pressures inside the stabilizer greater than those outside the hot air duct. Blackening by fire could be seen at many places inside the left horizontal stabilizer around holes which had been punched in the skin.

Investigation of the four powerplants gave conclusive indication that engine or propeller failures did not contribute to the accident. This is substantiated by the flight crew members who testified that no powerplant difficulty was experienced.

Extensive damage precluded functional tests of the engines and also complete examination of their accessories. Consequently, the possibility of minor malfunctioning cannot be positively excluded; however, no such conditions were reported by the flight crew. Some passenger testimony and a few of their statements indicate an engine fire on the left side. These were considered and discarded because examination of Nos. 1 and 2 engines (left side location) revealed no fire damage prior to or after impact.

Under the agreement between Northeast Airlines and Flying Tiger Line, lessor of the subject aircraft, the latter would perform all major checks on the aircraft. These were intended to maintain the airplane in an airworthy condition except for day-to-day preflight maintenance and servicing which Northeast Airlines performed. The agreement did not limit Northeast to preflight maintenance and the last No. 9 check was conducted in Miami, Florida, by NEA personnel. Flying Tiger Line had a maintenance foreman stationed at Miami, Florida, available as adviser to Northeast maintenance personnel regarding maintenance of the aircraft. The previous Nos. 7 and 8 checks had been performed by Flying Tiger personnel at their New York International Airport (Idlewild) base.

The records reflected that the prescribed major checks and component changes had been accomplished within their allotted times. Entries in the aircraft log of malfunctioning items were signed off either as corrected or deferred. (Deferring corrective action is a common practice when the airworthiness of the airplane for the particular trip or trips to be involved is not compromised.)

Inverter Checks

The records of a No. 8 check by Flying Tiger Line at New York International Airport on Jan. 16, 1957, reflected that the inverter frequency had been checked. However, investigation revealed that the necessary equipment to accomplish this check was not available and that the individual who signed off this item did not know what was required to make this check. The testimony of the CAA Air Carrier Safety Agent (Maintenance) assigned to Northeast indicated he was at the Flying Tiger base for about four hours while the No. 8 check was being accomplished.

The nature of this accident directed attention to direction indicating instruments, particularly the C-2 compass. The aircraft log sheets showed several entries of C-2 compass malfunction, the last of which was on Jan. 23, Boston to Miami. Corrective action in this instance was "Changed amplifier." There were no subsequent entries regarding this instrument. Testimony of the crew was that this instrument functioned normally during the flight from Miami to New York preceding the accident. The only irregularity noted by the crew on the preceding flight was that No. 1 engine exceeded the normal takeoff rpm. by about 100 rpm. and it was controlled with no difficulty by use of the appropriate toggle switch.

At the time of takeoff No. 1 ADF was tuned to Paterson, New Jersey, and No. 2 ADF was tuned to the La Guardia range. Both of these ground facilities were found to be operating within their normal limits after the accident. The lights of runway 4 were fully operative and lighted during takeoff.

One of the possibilities explored in de-