

No.37

Garuda Indonesian Airways N. V., Douglas DC-3C aircraft, damaged on landing at Djambi Airport, Paalmerah, Indonesia, on 25 November 1954, Republic of Indonesia Ministry of Transport and Communications, Aircraft Accident Report VI/54

Circumstances

The aircraft was on a scheduled domestic flight Djakarta-Djambi, with a stop at Palembang, carrying 19 passengers and three crew (pilot, engineer and radio operator). The flight proceeded normally up to the landing at Djambi Airport Paalmerah, during which the aircraft ran off the end of the runway and, after passing the over-run, came to a stop in muddy terrain beyond the aerodrome area.

The aircraft sustained substantial damage; one passenger received an injury of minor nature.

Investigation and Evidence

The aircraft when approaching Djambi airfield received a weather report at 0751 GMT as follows: Wind N/E 6; visibility 25 miles, overcast; cloud base 4/8-1 500 feet, QNH 29.74; rain in sight W and N/E. At 0757 another weather report was received by the aircraft; wind WSW 10-15, visibility West 500 yds, to E 3 miles, overcast with rain, clouds 6/8-300 feet; QNH 29.70; runway slippery. At 0805 GMT the aircraft passed 600 feet overhead of the runway which was seen from the cockpit and the landing procedure was started on Runway 13. When the final approach was started the altitude was about 400 feet; visibility 1-1/2 - 2 miles. The throttles were closed at about 300 feet and full flaps applied. The approach path of the aircraft was too high and as full flap extension was only given when closing the throttles shortly before or just over the runway threshold, the aircraft touched well down the runway. There was the possibility that there existed a tailwind component which promoted delay of touch-down.

Although the actual touch-down point could not be established, study of marks on the ground and evidence in statements indicate that the touch-down might have occurred between 600 and 700 metres beyond the runway threshold. The aircraft attitude was tail-up during a major part of the landing run, the backwheel coming into contact with the ground only after 1080 metres beyond the runway threshold.

The captain stated that slight braking was applied initially but that on the last hardened part of the runway, where a new gravel surface was being made, braking was strong. The aircraft finally ran off the overrun into lower situated soft terrain and the undercarriage collapsed.

It was established that the captain was not familiar with the serviceability of the runway in use. On the date of the accident, notification with respect to the runway length and usability was as follows:

First 656 feet not usable for landing	(NOTAM 726)
End of R/W under water during heavy rains	{ " 1036)
First 328 feet closed	{ " 1383)
First 656 feet L.H. shoulder closed	{ " 1412)
Work in progress on L.H. shoulder	{ " 1478)

Accordingly the effective runway length under normal conditions available for landing was:

on Runway 31: 900 m - 2953 feet,
 " " 13: 1 000 m - 3 281 feet - during heavy rains these values would be reduced, the last part of runway 31 being under water.

Note: On the first 328 feet of runway 31, closed due to work in progress, reconstruction works had, at the moment of the accident, proceeded so far that new gravel surface had been almost completed, final stage of rolling-in being in progress. So actual runway length available for landing on runway 13 was: 1 100 m - 3 609 feet. Notification with respect to runway surface condition generally recommended extreme caution in all aircraft movements on this aerodrome, and stressed slippery condition during and after rain, and in the Operator's Operations Manual mention is made of soft patches after heavy rains.

The runway length required for landing appropriate to the aircraft's weight at landing (26,604 lbs.) was estimated to be 965 metres - 3 170 feet (Zero wind; full flaps, hard level runway surface; approach speed at 50 feet height $1.2 V_{SO}$ i.e. 83 mph, normal braking after wheels touch the ground - landing length equals 70% of total runway required).

It was estimated that runway length for landing with a 6 knots tailwind component would amount to 1 060 metres - 3 470 feet.

Probable Cause

The probable cause of this accident was poor technique on the part of the captain, in landing the aircraft too far down the slippery runway at an excessive speed.

Contributory cause of this accident was error of judgment on the part of the captain, in that he failed to execute a missed-approach procedure.

It was recommended that data concerning the serviceability of runways at any time be covered in one NOTAM only. In such a NOTAM should always be included the actual serviceable runway length for landing and/or take-off, with indication of applicable runway direction.

It was recommended that standard practices in relation to weather broadcasts be strictly followed.

It was recommended that ground radio stations keep records of all correspondence.