BULLETIN

AIRCRAFT ACCIDENT INVESTIGATION BOARD/NORWAY
(TRANSLATED FROM NORWEGIAN)

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BUL 01/96
Date January 5, 1996

Aircraft	
-type and reg.	Maule, MX7-180; OH-MAJ
-year of man.:	1989
-engine(s):	Lycoming 180 Hk/133 kW
Date and time:	12. may 1995 kl 1714
Location:	Kristiansand Airport Kjevik, Norway, on Runway 04
Type of occurrence:	Aircraft accident, ground loop
Type of flight:	Private
Weather cond.:	Wind 100°/12 kt, visibility 10+ km, clouds scattered at 2 500 ft, temperature +8°C, dewpoint -1°C, QNH 1010 hPa
Flight cond.:	VMC in daylight
Flight plan:	VFR
No. of persons onb.:	2 (Pilot-in-Command and 1 passenger)
Injuries to persons:	None
Aircraft damage:	Undercarriage, Propeller and wing/wingtip
Other damage:	None
Pilot in Command	
-age:	47 years
-licence:	Private Pilot's licence
-fl. experience:	920 hours total, whereof 260 hours on gliders/motor gliders. He has a total of 130 hours on a/c with tail wheel, 11 hours on the actual aircraft type.
Information sources:	Accident form 382, report from ATC Kjevik and an additional report from the P-i-C, forwarded through ACC Finland.

All times given in this report are local times if not otherwise stated.

SUMMARY

The flight arrived from Mariehamn in Åland and was cleared to land on RWY 04. The aircraft touched down about 400 m in from the threshold. According to the ATC controller in Kjevik TWR the aircraft almost immediately began an uncontrolled turn towards the right. This turn ended in a ground loop during which the left undercarriage leg collapsed and bent under the fuselage. The left wing tip and the propeller made contact with the

ground. The aircraft came to rest after a ground roll of approximately 150 m, a little over to the east side of the runway center line and with a heading 90° to the runway direction.

The Meteorological Office at Kjevik made a surway of the wind conditions at the time of the accident. It includes also the observations 30 minutes before and 30 minutes after the accident. The average wind, measured over a ten minute period, was for all three observations 100°/12 kt and varied in direction between 060° - 150°. The wind graph for this period shows a few maximum indications of 18 kt. For the time period around the landing, the graph shows a few indications just below 10 kt, and a direction of 080° - 090°.

The Pilot's Operating Handbook (POH) has information about cross wind landings, in its section III, Normal Procedures:

> "F. Crosswind landings and takeoffs:
> Maximum demonstrated crosswind component is 14 mph and flap extension should be limited to 0° (one notch) with such crosswind."
>
> (14 mph corresponds to 12 kt.)

The Pilot-in-Command has in his supplementary report, and in telephone correspondance with the Finnish CAA (forwarded to AAIB/Norway), stated that he landed with a normal flaps setting for landing, full flaps, and speed accordingly. He further informed that the approach was with a crab angle which he cancelled and then banked the up wind wing low just before flare and touchdown. The aircraft was landed threepoint and he made the rollout on all three wheels throughout, with the engine throttled back to idle. In the beginning of the rollout, he said, little downwind rudder was needed to keep straight ahead. But approximately half way he needed more rudder and also wheel brakes in an effort to keep straight ahead. In his opinion, an increased wind gust caused the aircraft to turn abruptly into the wind and make a ground loop. The left landing gear leg gave way, in under the fuselage and the left wing tip and the propeller came in contact with the ground. In this additional report, the Pilot-in-Command also implicated that the gear collapse could have been caused by a fatigue fracture in the left undercarriage. However, signs of a fatigue fracture have not been detected in the fractures of the landing gear during inspections carried out by the repair shop.

COMMENTS FROM THE ACCIDENT BOARD

The AAIB/Norway considers that this accident showed a not unusual sequence of events. The aircraft was landed in a configuration not recommended by the manufacturer in the POH. The speed was as for the actual flaps setting, full flaps. This, together with the engine at idle power during the ground roll, gave less rudder effect than at a higher speed and some propeller slipstream. With a short rollout distance of only 150 m before the ground loop, it is also probable that the ground loop could have been initiated at landing or very shortly thereafter, even if the P-i-C later remembered it differently.

The P-i-C had only 11 hours experience on aircraft type. Even with 130 hours total time on tail wheel aircraft, it is a question on which type of undercarriage he was most familiar. Also the aircraft type's low demonstrated crosswind component should be regarded as a warning to be cautious and to follow strictly the advice given in the POH.

Conclusion: The P-i-C landed the aircraft in crosswind conditions the Pilot-in-Command did not master and in a configuration (flapssetting) not recommended. (Cause factor).