

**Aviation Safety Investigation Report
199102553**

Agusta A109A

11 September 1991

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

broke the tail boom. There was no evidence of any fault in the helicopter which might have contributed to the accident. There was also no evidence of a hard landing or any other pilot-related aspect which might have caused excessive loads to be placed on the decking during the landing sequence. The investigation therefore focused on the pontoon itself and a study was commissioned to examine the strength of the pontoon decking with respect to the helicopter types known to use the pontoon. The results of the evaluation of the pontoon decking were as follows 1. The condition of the decking timber was such that deterioration due to exposure to the elements was concluded not to have been a factor in the deck failure. 2. The failure of the decking when subjected to Agusta mainwheel loading was due to grossly excessive bending stress. The overload factor was calculated as 8.39 and readily explained the failure. The only pontoon design documentation which could be located concerned the general structure and dimensions of the pontoon and contained no details on deck strength considerations. No comment can be made, therefore, as to whether the wheel or skid loadings of the various helicopter types using the pontoon, and particularly those for the Agusta 109, were considered during the design of the pontoon.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. The strength of the pontoon decking was inadequate for Agusta 109 operations.
2. The pontoon decking failed due to excessive bending stress when subjected to loading through the right mainwheel of the helicopter.

Reccomendations:

The helicopter operator and the pontoon owner, along with the Civil Aviation Authority (CAA), were notified of the progress of the investigation. This included information contained in a preliminary report followed later by the complete testing details, technical analysis, and stress calculations concerning the pontoon decking. The analysis concluded that the strength of the decking was inadequate for all helicopter types which used the pontoon and steps were instituted by the operator and the pontoon owner for the deck to be strengthened.

1. A recommendation was made to the CAA on 13 September 1991 that the circumstances of the accident be brought to the attention of other organisations involved in operations on to helicopter landing sites with timber decking and that these organisations confirm the design specifications of those surfaces for the particular types of helicopter involved.
2. It is further recommended that the Civil Aviation Authority through surveillance, following the failure and subsequent repair of this pontoon, confirm that the pontoons and other helicopter landing sites which are being used by this operator, have the structural integrity to accommodate operations of the relevant helicopter types.