



Safety Information Bulletin

CAAS SIB No.	2015-19
Issued	02 December 2015
Subject	Risk of tail-strike due to rotation on take-off at erroneous V_R
Ref. Publications	1) ATSB Transport Safety Report AO-2014-162
Applicability	All Singapore Air Operator Certificate (AOC) Holders
Description	CAAS draws the attention of AOC holders to the potential risk of tail-strike due to rotation on take-off at erroneous V_R . This SIB is intended to raise awareness and discuss the reasons for tail-strikes during take-off.

In recent years, there were several reported incidents of tail-strikes during take-off. Tail-strike occurrence is directly related to pitch attitude versus aircraft geometry and main landing gear status. They can occur during take-off for several reasons, such as, aggressive rotation technique, gusty weather conditions, cross winds and human factors related to employing lower than required V_R speeds for take-off.

- 1) On rotation for take-off, tail clearance depends on a combination of Configuration, Thrust-to-Weight ratio and Speed.
- 2) Employing a lower than required V_R results in premature rotation which may lead to an increase in pitch attitude to lift-off causing a reduced tail clearance.
- 3) Operationally, two main causes have been cited for pilots using lower than required V_R :
 - a) The calculated V_R is not correct for the actual aircraft weight, where, for example, V_R was computed using the ZFW in place of the TOW.
 - b) There is a mistake in the displayed V_R due to pilot input error whilst typing in the V_R derived from the EFB into the FMS.

Recommendation(s) Singapore AOC holders are highly encouraged to use the reference publications and the following recommendations:

- 1) Both flight crew members should crosscheck the V_R to verify that the inserted value is the appropriate value for the aircraft weight and configuration. A review of take-off data should be part of the take-off briefing and this should be confirmed during taxi for take-off.
- 2) Double-check data with the load sheet. Inaccurate (low) ZFW or TOW entries have caused tail strikes.
- 3) Tail-strike prevention should be part of recurrent training programs with TEM principles adopted to ensure the correct V_R is employed for take-off.

Singapore AOC holders are also encouraged to contact their respective Principal Operations Inspectors (POIs) to share any additional information regarding this issue.

Contact(s) For further information, contact respective POIs or CAAS A/FO Division Infocenter at 6595 6764 or CAAS_AFO_Infocenter@caas.gov.sg