



Federal Aviation Administration

Memorandum

Date: APR 28 2011

To: Manager, Management Services and Services Division, AVP-400

From: *Kim Smith*
Kim Smith, Manager, Rotorcraft Directorate,
Aircraft Certification Service, ASW-100

Subject: FAA Safety Recommendations (SR) 11.035 and .036;
AVP-400 Memo of 2/22/11

This is our response to the subject SRs made by the Transportation Safety Board of Canada recommending updating the design requirements for the Category A main gearbox (MGB) for transport rotorcraft.

FAA SR 11.035: The Federal Aviation Administration, Transport Canada, and the European Aviation Safety Agency remove the "extremely remote" provision from the rule requiring 30 minutes of safe operation following the loss of MGB lubricant for all newly constructed Category A transport helicopters and, after a phase-in period, for all existing ones.

FAA response: Currently, 14 CFR 29.927(c) (effective Amendment 29-26) requires that the MGB must be tested to run satisfactorily for at least 30 minutes with a loss of lubricating oil, unless a lubrication failure resulting in a loss of lubrication is determined to be "extremely remote."

All transport Category A helicopters certified to 14 CFR 29.927(c) (effective Amendment 29-26), including the Sikorsky Model S-92A, have met the 30-minute "loss of lubrication" requirement. The Model S-92A MGB used an oil cooler bypass valve to meet this requirement by eliminating the most likely sources of leakage, which are the cooler and external lines and fittings. Events that have occurred during the operational use of the Model S-92A, such as the MGB oil filter bowl failure associated with the S-92 Cougar accident, have shown that certain failures not considered during certification testing are more likely than "extremely remote." The service history therefore does not support the method of compliance that was originally accepted by the FAA at the time of the Model S-92A type certification. Because of this very tragic and regrettable experience, the FAA will propose a rule change to either clarify or eliminate the "extremely remote" provision in this regulation. In the interim, the FAA will revise the guidance material associated with the rule to prevent confusion and to achieve a more robust and standardized method of compliance with the loss of lubrication requirements.

The FAA does not believe it is practical or necessary to require that all existing and newly-manufactured transport Category A helicopters be equipped with MGBs that meet the 30-minute "loss of lubrication" requirement under 14 CFR 29.927(c), Amendment 29-26. The cumulative flight hours on these helicopters are well into the millions, and their service history supports that they are operating at a satisfactory level of safety. Furthermore, modifying these helicopters to be equipped with new MGBs would have a significant economic impact on the aviation community, and the costs would outweigh any improvements in safety.

Recommendation 11.036: The FAA assess the adequacy of the 30 minute MGB run dry requirement for Category A transport helicopters.

FAA response: In conjunction with the proposed rule (14 CFR 29.927(c)) change to remove or clarify the term "extremely remote," the FAA will assess the adequacy of the 30-minute loss of lubrication requirement.