FAA Docket Management System
U.S. Department of Transportation
1200 New Jersey Avenue, S.E.
Washington DC 20591

To Whom It May Concern
NorthStar Trekking L.L.C. henceforth NorthStar, hereby submits the following request for an amendment to and renewal of the exemption granted to NorthStar under exemption number 11197.
By letter dated March 4th 2015 the FAA granted NorthStar exemption number 11197. At the time of petition NorthStar operated a fleet entirely comprised of AS350B2 helicopters which are powered by the Turbomeca Arriel 1D1 turbine engine. NorthStar has recently (01/08/2016) added an AS350B3e helicopter powered by the Turbomeca Arriel 2D engine to its fleet.
Condition number 5 of the exemption granted to NorthStar states "Any changes in engine type or helicopter make and model being operated by NorthStar Trekking will require the preparation of a detailed analysis demonstrating the probability of engine failure does not exceed the 10^{-6} acceptable risk and designated minimum altitudes, routes, and designated emergency landing areas are suitable for the new helicopter.".
The only pertinent difference between the AS350B2 and the AS350B3e is the addition of the Arriel 2D engine. All other characteristics relating to this exemption and stated in the original petition remain the same (refer to attached flight manual exerpt). Turbomeca, the manufacturer or the Arriel 2D engine asserts a mean time between in flight shutdowns of 3×10^{-6}(refer to attached letter dated May 20, 2016). This makes the mean time between engine failures in flight greater than 300,000 hours. Using the accepted formula from our original petition one can calculate the risk exposure that a NorthStar passenger would experience an un-commanded engine shutdown while over water on one of NorthStar's tour routes (300,000 X 60 = 18,000,000 minutes / 2 minutes = 9,000,000 minutes or 9×10^{-6}). This far exceeds the FAA's required safety margin of 10^{-6} and therefore NorthStar believes that an amendment of our exemption should be granted allowing the AS350B3e as well as the AS350B2.
With the expiration of exemption 11197 coming in March of 2017 NorthStar would also like to request a renewal of our exemption. NorthStar and the other operators in the Juneau area have experienced a much safer environment as a result of exemption 11197 and there have been absolutely no negative impacts.
If further information is required please feel free to contact me at the following.
Thank you

Jason Kulbeth
Director of Operations
NorthStar Trekking (cell (907)723-0631) (email jason@northstartrekking.com)

5.10 GLIDE DISTANCE IN AUTOROTATION

The distance flown in autorotation is:

0.54 NM per 1000 ft at IAS kt = 65 kt and NR ≅ 410 rpm

1000 m (distance) per 300 m (height) at IAS km/h = 120 km/h and NR ≅ 410 rpm

5.11 NOISE LEVEL

Noise characteristics as defined by the conditions of Chapter 11 of ICAO Annex 16 and Appendix J of FAR Part 36 are as follows:

Flight Phase	Noise Level as per ICAO Annex 16 and FAR Part 36 (dB SEL)	ICAO / FAR limits (dB SEL)
Flyover at $0.9V_H$ * With V_H=135 kt (250 km/h) TAS	84.4	86.5

(*) V_H = Maximum speed in level flight at power not exceeding maximum continuous power, for sea level pressure and 25°C ambient conditions at MTOW.

SAFRAN
Turbomeca USA

TECHNICAL MEMO

TMUSA4148052015TM

To:	NorthStar Trekking	**From:**	Mike Whiteman
Attn:	Director of Operations	**Date:**	May 20, 2016
Ref:	In Flight Shut Down Rate	**Pages:**	1
Re:	Mean Time Between Failures (MTBF)	**cc:**	Bob Snow

Subject: Arriel 2D In Flight Shut Down Rate

Sir:

The Arriel 2D un-commanded IFSD rate is as follows;

- During the engine design, we predict (in the safety analysis done for the engine certification) the engine un-commanded IFSD rate, is assessed for 2D at 3.10-6 failure / engine flight hours (this means 3 failure for 1 million of hours, that's to say a Mean Time Between Failure of more than 300 000 hours),

- The in service experience is followed through airworthiness following (IFSD annual rate assessed for EASA, and for CAT POL (rate of sudden major loss of power (loss higher than 30% of power)

The Arriel engine fleet data with the MTBUR removal information for the Arriel 2 single engine variants for the year are calculated over a 12 month period and are based on the amount of hours flown during that 12 months period divided by the reported engine removals. This information is updated every six months.

The individual Arriel 2D fleet flight data for the last 12 month period (June 2014 to June 2015) are a total accumulated flight time/engine removals based on a total flight hours of 163 000 hours

- MTBR: 3300 hours
- MTBUR: 5900 hours
- MTBF: 11000 hours

The Arriel 2 single fleet flight data for the last 12 month period (June 2014 to June 2015) are a total accumulated flight time/engine removals for the Arriel 2 single engine aircraft based on a total flight hours of 630 000 hours

- MTBR: 1600 hours
- MTBUR: 3400 hours
- MTBF: 6500 hours

These numbers include all Arriel 2 single engines (Arriel 2B, 2B1, 2B1A, 2D) combined. The information provided is to show the Arriel 2D information relative to the global fleet has a higher availability.

Please contact your Field Representative or me directly, should you require any further information.

Mike Whiteman

SAFRAN
Turbomeca USA

Mike Whiteman
Corporate Service Engineer DVO/T/O - NA

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