



U.S. Department
of Transportation
**Federal Aviation
Administration**

Aviation Safety

Technical Innovation Policy Branch
800 Independence Ave SW
Washington, DC 20591

May 25, 2023

VIA EMAIL

Stefan Löbel
Airbus Operations GmbH
Postfach 95 01 09, 21111 Hamburg, Deutschland
Hausanschrift: Kreetslag 10, 21129 Hamburg, Deutschland

Dear Stefan Löbel:

We have received your petition letter dated January 25, 2023, in which you requested, on behalf of Airbus Operations GmbH (Airbus), seeking an amendment to exemption no. 13048B from the requirements of § 25.841(a)(2)(i) and (ii) and 25.841(a)(3) of title 14, Code of Federal Regulations (14 CFR). The requested relief, if granted, would allow relief for Airbus Model A321XLR series airplanes, during a decompression caused by those types of failures of the engines, from the requirement that airplane cabin-pressure altitude not exceed 25,000 feet for more than 2 minutes or exceed 40,000 feet for any duration.

Your request was posted to the Department of Transportation's Federal Docket Management System (at Regulations.gov) on April 10, 2023, and has been placed in Docket No. FAA-2015-0232. We have reviewed your petition and have determined that more information is needed from Airbus before we can process the request for exemption please provide the following information for us to further consider your petition:

1. In the letter a statement is made that the modifications result in "*Compliance to Section 25.841(a)(2) and (3) Amendment 25-87 is only marginal affected by the A321XLR project due to a slightly different descent performance.*". However, in Airbus's petition, you state that "... *When deploying airbrakes in the scenario of emergency descent, the flow topology will change fundamentally and consequently the drag will increase by ~50% of total aircraft drag in clean.*"

FAA interprets this to mean that after deploying the control surfaces (a.k.a., airflow spoilers/airbrakes) to configure the airplane for an emergency descent that the total airplane drag increases by 50% relative to the total airplane drag during cruise. Is this a correct interpretation? Is this increase in drag relative to the pre-modified configuration or the post-modified configuration? Please provide clarification and additional details.

2. In Airbus's petition you stated:

Due to the A321XLR (A321-253NY and -271NY) modifications with respect to A321neo which affect high speed performances, mainly:

- *belly fairing and aileron droop optimizations,*

- *inboard flap re-profiling,*
- *tab fairing removal and flap track fairing 2 re-design,*

the total aircraft drag in clean configuration is decreased by ~0.7% (depending on flight conditions) on A321XLR compared to A321neo.

FAA interprets this to mean during a nominal cruise configuration that the total aircraft drag is decreased by ~0.7% between the baseline (pre-modified configuration) and the changed configuration (post-modified configuration). Please provide to the FAA clarification and additional details to confirm this interpretation, or provide a correction.

3. Airbus stated in the letter that – *“Under this new flow topology in airbrakes out, which is not anymore optimised, it is technically expected that the small XLR savings mentioned before (only evaluated for clean) will not materialize and the aircraft descent capability can be assumed equivalent to A321NEO.”*

Airbus did not provide any quantitative comparison of the A321XLR series airplane models (i.e., A321 -253NY and A321-271NY) via airplane performance models showing the delta drag effect (i.e., between airplane drag configured for descent for pre-modified configuration and post-modified (changed) configuration). In addition, as Airbus is aware, a condition of the partial exemption No. 13048 is that any airplane must be able to descend from cruise altitude to 25,000 feet pressure altitude in no more than 3 minutes. There is no tolerance on this value. Please provide clarification and additional details:

- (a) Airplane performance model predictions showing the cumulative effect of the changes in drag during an emergency descent. A comparison of the results for the pre-modified configuration and the post-modified configuration (i.e., for the A321 -253NY and -271NY models) from maximum cruise to 10,000 feet altitude would be helpful.
 - (b) Does Airbus have any company flight tests data to substantiate the accuracy of the airplane performance model predictions (i.e., for the A321 -253NY and -271NY models) for the post-modified (changed) configuration during descent? If so, please provide a comparison of the data sets.
4. As Airbus is aware, one of the conditions of partial Exemption No. 13048 (and other similar exemptions) has been the following:

3. Airbus must submit certification flight test data for the Airbus Model A319-171n, A319-151n, A320-271n, A320-251n, A321-271n, and A321-251n series airplanes to corroborate the descent profiles used in the analysis to show that, after decompression at the maximum certificated airplane indicated operating pressure altitude, the cabin pressure altitude will not exceed 25,000 feet for more than 3 minutes or 40,000 feet for more than 1 minute.

FAA requests the above information to determine if the changes made to the A321 -253NY and -271NY models warrant requiring certification flight test data.

Please provide the requested information within 30 days of the date of this letter by submitting it to the established docket (FAA-2015-0232) at [regulations.gov](http://www.regulations.gov). Please note that the agency's work on this petition will resume after the FAA receives the additional information from Airbus. If the additional information is not submitted within that timeframe, the agency will cease work on the project with no further correspondence to you. If Airbus considers any of the additional information to be proprietary, you may mark the material "PROPRIETARY" and submit it directly to the FAA, addressed to the person below.

If you have any questions or concerns regarding your petition or the petition process, please contact Stephen Happenny at (206) 231-3170 or by e-mail at Stephen.Happenny@faa.gov.

Sincerely,

Mark James
Manager, Mechanical & Dynamic Systems
Policy and Standards Division
Aircraft Certification Service