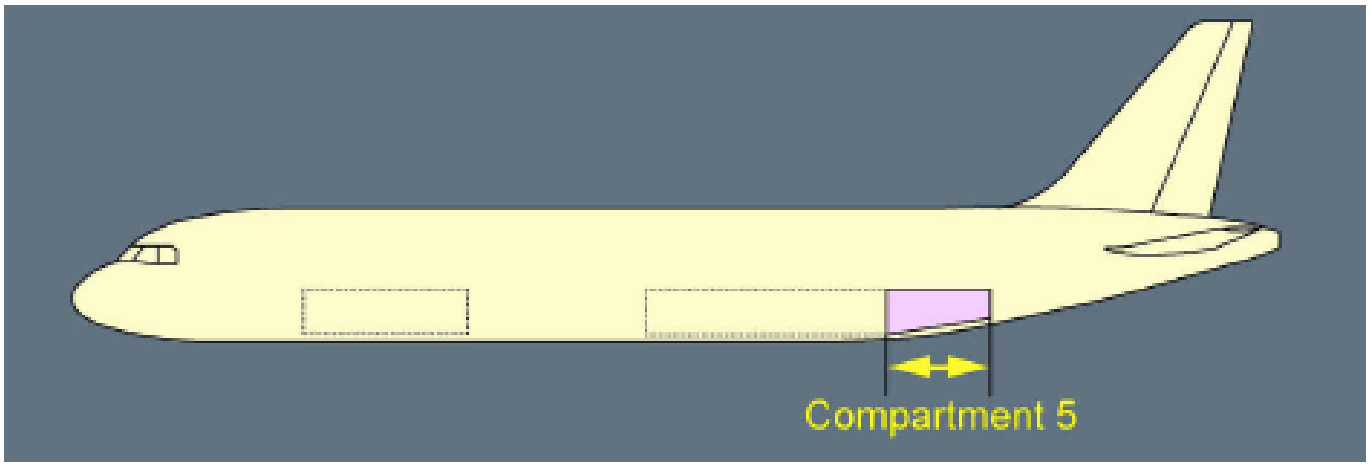
After the B737 Max nose dived due to pitch controllability issues, Airbus has identified similar high pitch issues with the A320 and A321 NEO aircrafts.

A combination of scenario where the aircraft is loaded in a balance where the tail side is heavy , speed is reducing and side stick pulled full back with maximum(TOGA) thrust. Under these circumstances excessive pitch attitude could occur beyond the aircraft computers handling capability.

The manufacturer and the regulator have issued notices and directives to all operators so that they limit the loading such that this eventuality doesn’t arise. Lufthansa and British airways have decided to keep the last row of passenger seats empty to comply with the directive and prevent a tail heavy balance.

Airlines in India like IndiGo and Go Air have decided to keep the rearmost cargo compartment (HOLD5) empty to prevent an excessive rear centre of gravity.



Compartment 5

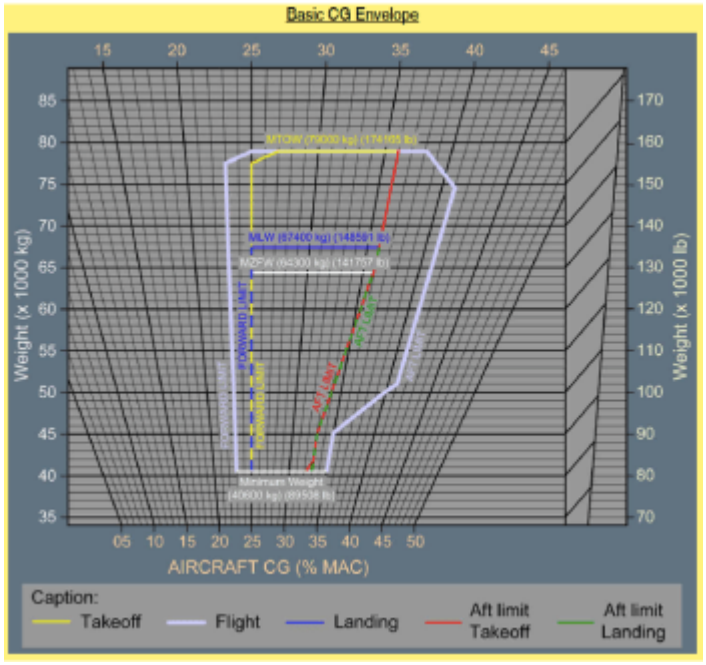
AFT CG RESTRICTION

Ident.: **TDU / LIM-WGHT-00010658.0051001 / 19 JUL 19** **APPROVED**
Criteria: (320-251N or 320-253N)
Impacted DU: NONE
Belongs to TR773 Issue 1

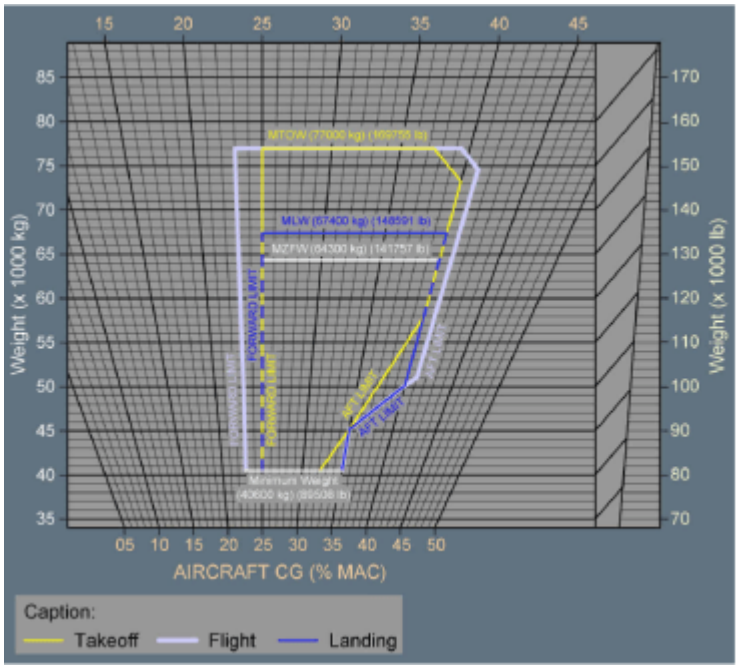
The aft CG limit of the aircraft for takeoff and landing must be restricted according to the aft CG limit shown in the CG envelopes below.

Note: *The CG envelopes shown below correspond to the highest certified MTOW, MLW and MZFW. For the certified MTOW, MLW and MZFW applicable to the aircraft, refer to the Weight Variant in the Weight Limitations chapter. Except for the aft CG limit, the CG envelopes according to the aircraft Weight Variant remain valid.*

New restriction



New CG range with the basic FWD CG

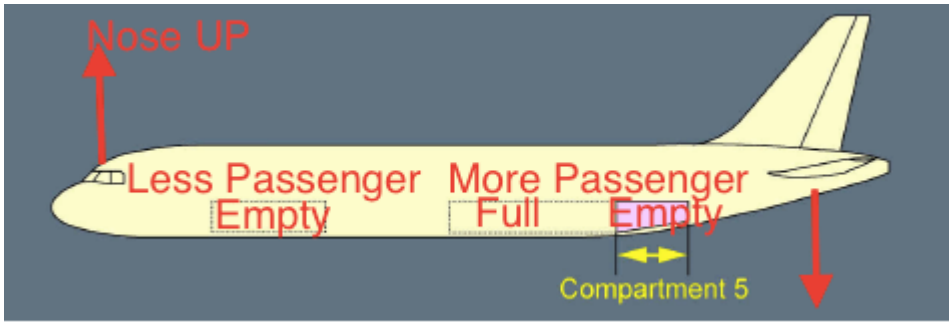


Old CG limit

It is evident that the load and trim softwares which normally ensures that the C of G is within the range has not been modified to meet with the new requirements. The pilot is under the impression that the problem has been addressed so they are not too concerned. One airline has instructed the crew to ensure that the takeoff aft limit is restricted but does not address the landing aft limit. The question now arises that, have the airlines considered all possible scenarios?

There is a need to carry out a comprehensive risk assessment in order to ensure that no other possibility exists or all possibility have been reviewed and mitigating actions defines.

E.g. There could be a possibility of the from cargo holds empty and the rear hold full. Now despite the hold 5 being empty, there could be a combination of passenger, fuel and cargo loading that could exceed the limits. Has the system software been amended to control this limit? I doubt, had this been done then the need to keep the hold empty would not have arisen.



Airbus is working on reprogramming the software which controls the elevators to keep the aircraft flying is a safe flight envelope. Till then the directive is a temporary fix to mitigate the risk.

DGCA commits to conducting a safety risk assessment as stated in the State Safety Policy.

Conduct both performance-based and compliance-oriented activities, supported by analyses and prioritized resource allocation based on safety risks levels (proactively targeting regulatory attention on known areas of high risk);

Ensure that acceptable levels of safety for aviation operations within the State are being set, measured and achieved, and expressed in terms of safety performance indicators and safety performance targets;

As Airbus studies more scenarios we expect more issues highlighted and remedies. There are active risks and latent risks. If we tinker with a system there is a high possibility that the latent risks come to fore. This for example is a risk that emerged by introducing the bigger engines on the NEO. Therefore it’s imperative to carry out a change management risk analysis.

FLIGHT OPERATIONS TRANSMISSION - FOT

TO: All A320 Operators

SUBJECT: ATA 27 – LIMITATION OF THE AFT CG ENVELOPE

OUR REF.: 999.0059/19 Rev 00 dated 25-JUL-2019

CLASSIFICATION: Airworthiness or Safety

APPLICABLE AIRCRAFT: This FOT is applicable to all A320neo aircraft.

Notice: This FOT provides information about a significant operational issue that is related to airworthiness or safety. It is each Operator's responsibility to distribute this FOT or to distribute the information contained in this FOT, to all of their applicable flight crews without delay. Failure to apply this FOT may have a significant impact on safe aircraft operations.

1. PURPOSE / INTRODUCTION

The purpose of this FOT is to provide operators with information on the new limit of the AFT CG for take-off and landing for the A320neo (AFM Temporary Revision - TR ref 773, 774,775 and 776).

2. ISSUE DESCRIPTION and CONSEQUENCES

During continuous development of flight control laws, additional analyses on the A320neo revealed that excessive pitch attitude can occur under the following remote specific combination of configuration and maneuver:

- The CG position is beyond the aft limitation specified in the AFM TRs (refer to the attached documents) and,
- The aircraft is in CONF 1+F, 2, 3, or FULL and,
- The aircraft is decelerating (e.g. from VFE down to a speed lower than VLS+10kts), closely followed by,
- The application of full back stick and TOGA thrust by the flight crew.

This scenario has never been encountered in operations, neither in flight test. The issue was identified on an Airbus development simulator (computer based simulation) during standard development of a new ELAC standard.

This issue is applicable to all ELAC standards installed on the A320neo fleet (L98, L99, L101).

3. OPERATIONAL RECOMMENDATIONS

The following AFM TRs are applicable to the A320neo depending on the engine type and SHARP (Short Airfield Package) option activation:

AFM TR	TR Title	Applicability
773	A320neo CFM – Aft CG restriction	A320-251N or A320-253N
774	A320neo PW – Aft CG restriction	A320-271N or A320-273N
775	A320neo CFM – Aft CG restriction with SHARP option	(A320-251N or A320-253N) and Mod 161753
776	A320neo PW – Aft CG restriction with SHARP option	(A320-271N or A320-273N) and Mod 161753

The above-mentioned AFM TRs limit the CG envelope during takeoff and landing.

To take into account these new CG limits:

- The WBM is updated (unplanned revision)
- Operators must contact their load control service provider to update their data
- AFM TRs and the CG diagrams/tables of the highest weight variant are attached to this FOT.

Additional attention to aircraft loading will be required:

For better operational loading configurations, the operators should consider the following loading recommendations:

- Follow forward cargo loading practices by:
  - Prioritize the forward compartments (1&2)
  - Minimize the use of the aft compartments (3&4)
  - Limit the use of compartment 5 (bulk)
- Limit the amount of catering supplies stowed in aft galleys (trolleys)
- Consider passenger seating allocation prioritized to forward cabin

If the operator decides not to use Last Minute Changes (LMCs), the LMC margins can be removed. This will enable to use optimized operational limits.

If these recommendations are not sufficient to balance the aircraft, payload restrictions may apply.

4. CORRECTIVE ACTION

Airbus aims to correct this behavior and to cancel the AFM TRs, the CG limitation and the WBM restrictions with improvements introduced in future ELAC standards. The next ELAC standard to be certified is standard L103 (certification scheduled for mid-2020).

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