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NOTICE TO AIRCRAFT OPERATORS

Subject: Information regarding Transport of Cargo in Passenger Compartments during SARS-CoV2 outbreak	Number: NTAO 02/2020
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Purpose and Scope:

In the current global situation, air cargo services are deemed vital for the economy and in the fight against COVID-19. It is important that air cargo should be able to deliver critical products which includes food, medical supplies and equipment as well as other products which are essential for the continued functioning of supply chains. In view of these developments, operators may be required to fly cargo using aircraft certified for the carriage of passengers.

This NTAO makes reference to guidelines by EASA for the required process, including but not limited to the content of the safety risk assessment, procedures for crew and other aspects. Therefore, it is the responsibility of users to ensure compliance with applicable laws. The objective of the document is to serve as guidance to aircraft operators, however given the extensive information this is being provided to all operators under the Department oversight.

SCOPE OF EXEMPTIONS:

The Department of Civil Aviation will consider granting of exemptions in accordance to flexibility provisions subject to the following:

The period of exemption granted shall be of a limited duration and will be granted on a case-by-case basis;

The exempted provisions will be limited to:

- CAT.IDE.A.100 “Instrument and Equipment/General,” if applicable,
- CAT.OP.MPA.160 “Stowage of Baggage and Cargo”,

- Part 21.A.181 Duration and continued validity (of the airworthiness certificate)

The exemption will allow, on a temporary basis, the transport of cargo in the passenger cabin including on installed seats, with adequate restraint systems/means. In the case of exemptions to the requirements to use/install only approved equipment and aircraft configurations, these will be limited to cases where no approved design data are available.

OPERATIONAL ASPECTS:

The Guidance document contains essential elements that the operator needs to identify, assess. Operators are required to include all the elements herein in the risk assessment. The DCA will not process and provide additional specific approval to carry dangerous goods (DG) other than those already approved.

Operators need to be wary of potential hidden DG that medical supplies and similar cargo shipments may contain. Operators approved to transport DG, may use the limits in the Technical Instructions for Cargo Aircraft only for flight where no passengers are carried.

AIRWORTHINESS ASPECTS FOR TRANSPORT OF CARGO IN THE PASSENGER CABIN OF LARGE AEROPLANES:

The Guidance document provides details on airworthiness aspects and types of transports requiring change approval.

ACTION BY OPERATORS:

Any operators wishing to apply for an exemption to carry cargo and / or dangerous goods using aircraft certified for passenger transport, is to contact the DCA in writing and provide the following:

- description and scope of exemption being requested, including estimated duration;
- adequate risk assessments;
- documentary evidence to show that the requirements set out in this NTAO are fully met.

Operators shall also make use of guidelines issued by TC holders where available. The notification shall make clear references to provisions in the regulation to which an exemption is requested for.

GUIDELINES TRANSPORT OF CARGO IN PASSENGER COMPARTMENT

1. Scope of exemption

In accordance with the type certification of the relevant large aeroplanes certified for passenger transport, the passenger cabin is not approved as a cargo compartment and, therefore, it does not meet the applicable requirements for the transportation of cargo. AMC2 CAT.OP.MPA.160 (b) (2) specifies the need for approved restraint equipment to secure the intended cargo. The terminology “cargo” used in CAT.OP.MPA.160 is intended to include everything that is not a luggage.

The details as to what extent cargo can be carried in a passenger compartment without additional certification are also provided by the relevant EASA Special Condition on this subject, recognized by both Boeing MOM-MOM-20-0239-02B and Airbus FOT 999.0028/20. The carriage of cargo in the cabin beyond already approved stowage areas is neither covered by the approval of the aircraft nor by the approval of the seats. **As already explained, the passenger cabin is not approved for cargo transportation.** Moreover, to compensate for the non-compliance related to smoke detection or fire suppression means, limitations and/or procedures must be introduced. Therefore, an exemption is needed.

The exemption should allow, on a temporary basis and as applicable or necessary, the transport of cargo and a limited number of crew members in the passenger cabin. Cargo items may be installed on seats, with adequate restraint systems/means, or, if seats are removed, directly attached onto the aircraft floor (the expression "cargo restrained on the cabin floor" refers to any installation in which seats) are removed and the cargo does not transfer load to the aircraft structure only through the seats. using the available seat tracks.

Exemptions to the requirements to use/install only approved equipment and aircraft configurations should be limited to cases when no approved design data are available, respectively the related part numbers of an approved design are not available.

2. Operational aspects for Transport of Cargo in passenger compartment

Cargo shall only be transported by Operators holding valid Cargo transport approvals.

Crew composition

- a) Operations without passengers shall still the presence of crew members to survey and access all areas of the cabin during all phases of flight. Any fire that might occur must be timely detected and effectively fought utilizing the available existing emergency equipment.
- b) Crew members in the cabin have to seat on seats which are not located near the cargo.

Procedures

- a) A risk assessment shall be performed in order to identify hazards related to operating cargo flights using cabin configurations which have been approved for transporting only passengers.

- b) Checks shall be made before take-off, before landing and whenever requested by the captain to ensure that cargo is properly stowed and secured.
- c) Operators shall establish procedures to manage emergencies in the cabin.
- d) Operators shall publish temporary revisions to the OM to include the new type of operations and the related procedures.

Loading, Mitigations (Focus areas for the competent authorities) for transport of cargo in passenger compartment including on passenger seats

- a) Exact cargo weight and position in the cabin and in the cargo hold shall be reflected in the mass and balance documentation (load sheet).
- b) The pilot-in-command shall be provided with information on the content of all the cargo such as through provision of the cargo manifest or other appropriate documentation.
- c) The operator shall load the aircraft considering the different levels of available fire protections of the loading areas (i.e. passenger cabin and lower deck cargo compartments).
- d) For the bulkheads that have a placard indicating maximum capacity, the cargo items stowed in aft of these bulkheads shall not exceed the maximum capacity indicated in the placard.
- e) The maximum capacity limitations in the required safety placards (on or adjacent to the cargo approved stowage locations) shall not be exceeded. All stowage instructions specified in the placards apply.
- f) The mass of the cargo shall not exceed the structural loading limits of the aircraft. Compliance with CS 25.561, 25.787 and CS 25.789 is expected.
- g) The cargo placed in enclosed stowage areas shall not be of such size that they prevent latched doors from being closed securely.
- h) The cargo items shall be stowed only in a location that is capable of restraining it.
- i) The cargo stowage location shall be such that, in the event of an emergency evacuation, it will not hinder aisle access and egress.
- j) The cargo shall not be placed where it can impede access to emergency equipment.
- k) The cargo shall be checked to ensure proper stowage in the following instances (at the minimum):
 - o Before take-off,
 - o Before landing,
 - o Under orders of the Pilot in Command (PIC).
- l) The aisle(s) shall remain free of cargo to enable access to the seats and the goods in case of smoke or fire.
- m) Any smoke/ fire within the cabin must be easily detected and effectively fought using the existing emergency equipment. Thoroughly briefed crew members (not part of the flight crew) shall be on-board to survey and access all areas of the cabin during all flight phases. There must be an adequate number of trained crew members acting as fire-fighter with sufficient amount of

firefighting equipment. This equipment may be stowed in the cabin using existing stowage provisions (overhead bins, stowage's) provided that the location is identifiable for the crew.

n) Crew members in the cabin should use existing cabin crew seats and must not share seat rows with cargo. There must be a clear separation of areas occupied by cabin occupants and those fitted with cargo during taxi, take-off and landing. At least one empty seat row between cargo and reserved occupant seats must be established.

o) 'Under seat stowage' is allowed only if the seat is equipped with a restraint bar system and the cargo items can be placed fully underneath the seat. The loading of the cargo under each seat should not exceed 9 kg (20 lbs).

p) The cargo packaging shall be able to equalize the pressure so that it can handle the Delta Pressure (DP) during the flight, as applicable.

q) All smoke and fire detectors shall be maintained as per Maintenance Manual instructions.

r) The Air Conditioning system shall be set taking into account the nature of the cargo transported in the cabin and the number and distribution of cabin occupants.

s) If nets are used to restrain cargo items, these nets should be ETSO approved and any load limitations of these nets including their attachment means should be adhered to. Any deformation of these nets due to the mass of the cargo items restrained under emergency landing, flight or ground loads should be evaluated for contact to other objects in the cabin and be shown not to block emergency evacuation paths nor access to emergency equipment.

3. Operational Transport of Dangerous Goods

Dangerous goods (DG) shall only be transported by Operators holding an approval (SPA.DG).

a) In the absence of passengers, the limits for the dangerous goods can be those established in the Technical Instructions for Cargo Aircraft, instead of Passenger Aircraft. The operator shall nevertheless include this aspect in the risk assessment performed.

b) Additional training/briefing shall be given to the crew, particularly letting them know whether the limits have been increased from those applicable to passengers to those applicable to cargo. This should, at least, include the following:

- o the risks and consequences of increasing the amount of DG in the hold;

- o any changes in the emergency procedures and the emergency equipment that may be on board.

c) Relevant information on dangerous goods (e.g. affecting emergency procedures) shall be included in the briefing given to other people occupying the aircraft.

d) Dangerous goods shall not be carried in the passenger cabin and always be carried in the hold and shall be transported under the conditions established by the Technical Instructions.

e) Nobody other than a crew member, an operator's employee in an official capacity, an authorized representative of an appropriate national authority or an authorized person accompanying a consignment or other cargo may be present on board. Any other person will be considered a passenger and, therefore, the aircraft will no longer be able to use the provisions applicable to

cargo aircraft as regards the transport of dangerous goods.

4. Airworthiness aspects for transport of cargo in the passenger cabin of Large Aeroplanes

The present guidelines and additional technical support to operators, as required, should enable to address to an acceptable level on a temporary basis, the airworthiness certification aspects for projects regarding transport of cargo in the passenger cabin of Large Aeroplanes.

5. Transport of cargo in the passenger cabin under a design change approval

Except for what allowed by paragraph below, for transport of cargo restrained on seats as well as in case removal of seats are necessary to allow fixation of cargo onto the aircraft structure, a Major Change or STC application is required and will be processed by the DCA with priority.

The type of cargo to be transported in the passenger cabin would need to be under control (no unidentified cargo) and assessed beforehand in the frame of the STC assessment process by the Authorities certification team.

6. Transport of medical supplies restrained on passenger seats

In the context of the emergency situation created by the Covid-19 pandemic, Approved Design Organizations may reclassify as “Minor Change” and approve under their DOA-privileges, design changes allowing the transportation of medical supplies (e.g. masks, gloves, clothing, etc.) restrained on passenger seats, provided that they the transported medical supplies are not classified as dangerous goods. This has to be indicated in the approval documents and AFM Supplement.

The applicability of these design changes is to be restricted to non-exported airplanes. The DOA shall introduce this limitation in the design change approval sheet.

Since this kind of installation is a change in the scope of operation of the aeroplane, and in the absence of dedicated operational requirements covering this kind of operation, the installation and the procedures for operation have to be addressed taking into account the specific configuration of each aeroplane model affected.

Restrictions to the kind of cargo:

- No Dangerous goods.

In addition, the operator must have a process to prevent excepted quantities of lithium batteries contained in, or packed with, equipment from being stowed in the cabin.

Cabin preparation:

- Passenger convenience systems (IFE, in-seat power, galley systems and any other heat generating systems) will have to be disabled or deactivated.
- Supplemental oxygen systems will have to be removed from the PSU channels, without leaving any opening, or should be deactivated.
- Portable oxygen cylinders and PBEs located in the stowage compartments in the cabin areas in which cargo is transported will have to be removed.
- Portable devices containing lithium batteries, including the emergency locator transmitters, will have to be removed from the cabin areas in which cargo is transported.

Cargo loading:

- It is not required to install a 9g barrier and a smoke barrier to protect the flight deck and cabin occupants. Cargo must be restrained so that each cargo installation meets 25.561 and other applicable structural requirements.
- In each section of the cabin where cargo is transported:
 1. there must be at least one longitudinal aisle meeting the minimum width dimensions specified in 25.815 for aeroplanes with a seating capacity of 10 or less passengers.
 2. Cargo must be loaded so that there is sufficient access to the cargo to allow effective fire-fighting.
 3. For twin-aisle aeroplanes in which seats are not removed and are used to restrain cargo, there must be an unloaded seat row to allow crossing from one aisle to the other. To the extent possible the unloaded seat row must be located at equal distance from the available cross-aisles required by CS 25.813.
- Floor path marking may be removed or obscured by cargo in areas that are not going to be used as evacuation paths by the cabin occupants.
- Features that allow decompression must be maintained, i.e. pallets or cargo must not obstruct decompression vents or flow.
- When cargo is loaded on the floor, the height of the cargo shall not exceed 50 inches (approximately the height of a typical economy class seat). Limitations applicable to the mass, distribution and method of restraint of the cargo must be established based on guidance from the aircraft OEM as deemed necessary by the DCA His support can be provided upon request.
- Cargo loaded on a seat must not exceed 50 lbs per seat place and must not extend above the seatback height. Potential restraint methods might include (see also appendix):
 1. Seat tracks (after removing the plastic row-to-row track cover), based on guidance from the aircraft OEM as deemed necessary by the DCA.
 2. Attach netting over the seat and boxes. Secure the net to the seat track. Ensure that the net is moderately taut so as to maintain an aisle width for in-flight surveillance of smoke and fire.

3. Seat belts or seat belt shackles.
4. Add additional strapping attached to or going around the forward and top side of the boxes. This strapping to be attached to the buckled and cinched down seat belt (seat belt does not go around box since it doesn't adequately restrain the box in forward and up directions).
5. Seat beams (located immediately below the seat bottom cushion)
6. Strap the forward and top side of the boxes to the forward and aft beams by routing the straps under the seat.
7. Seat legs
8. Strap the forward and top side of the boxes to the front legs and to the aft legs by looping the straps around the legs.

Safety equipment:

- Portable oxygen equipment must be provided for each crew member whose duties on board include fire detection and fire-fighting in the cabin. The equipment shall meet 25.1439 (b) and 25.1443(e) and must be carried by the cabin occupants during their inspections.
- Appropriate protective garments (e.g. fire gloves, etc.) shall be stored adjacent to the crew member's stations.
- In addition to the extinguishers already installed in the cabin, the following fire extinguishers shall be available:
 1. Two Underwriters Laboratories (UL)2A (2-1/2 gallon) rated water portable fire extinguishers, or an equivalent amount of water, and
 2. At least two fire extinguishers with a minimum UL 4A-80B:C rating or equivalent.
 3. Four UL 2A-10B:C extinguishers is considered equivalent.
- Extinguishers should be located next to fire fighters station(s) or at other locations that the operator determines would be more effective in providing fire protection.

ECS settings:

- Normal Procedures

ECS settings shall be adapted considering the number aircraft occupants. If the ECS system is configured with Gasper outlets they should be in close / off position at all phases of flight.

- Emergency Procedures

In the event of a fire in the cabin it must be ensured that packs are set to low flow. The existing Smoke, Fire, Fumes FCOM procedures (which includes possible divert, don oxygen masks, establish crew communications, re-circulation fans switched off, Smoke Fumes Checklist) must be followed.

Procedures and documentation:

Existing procedures, including emergency procedures, must be reviewed and adapted as necessary.

The Limitations Section of the Airplane Flight Manual (AFM) must be revised as required to include the following:

- Minimum number of additional crew members in the cabin:
 1. Minimum of two additional crew members whose duties are to detect and fight a fire, and relay information to the flight crew.

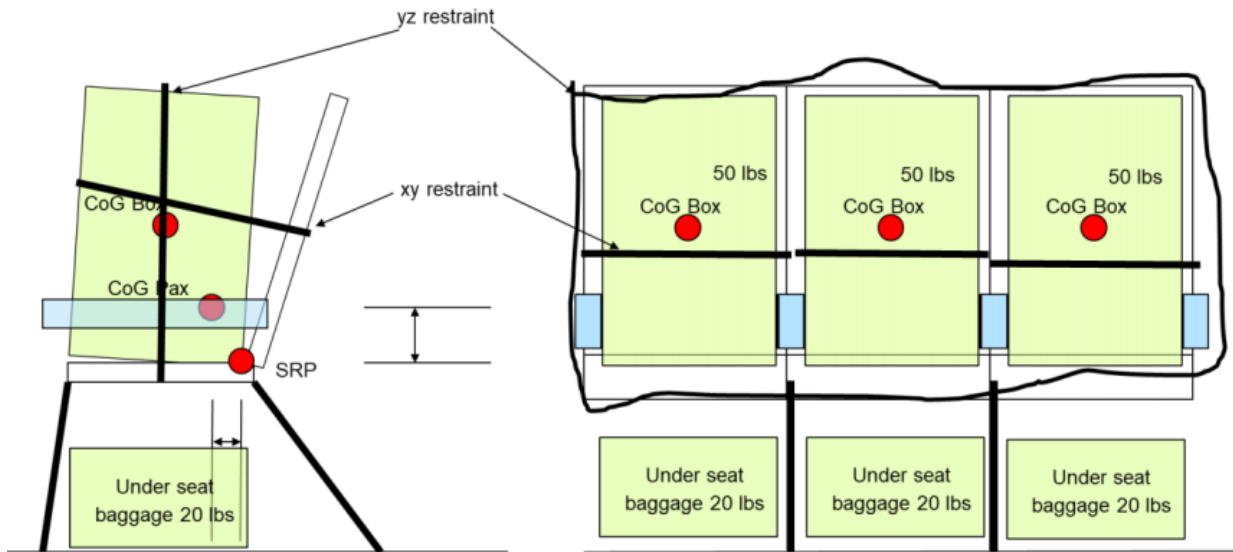
2. For twin aisle and other large long range airplanes, a minimum of 3 additional crewmembers will likely be needed. Additional crewmembers above 3 should be justified based on a risk assessment. The number of cabin occupants should be minimized to the number necessary to satisfy item 1.
- the additional crew members must be trained on:
 1. Fire-fighting procedure
 2. Use of the emergency equipment, including portable oxygen systems
 3. Operation of emergency exits and evacuation procedures
 - The additional crew members must make a visual inspection of the cargo on a regular basis including prior to TT&L.
 - When making the inspection required above, the additional crew members must carry portable oxygen equipment (see section Safety Equipment).
 - Provisions must be available to allow the flight crew members to notify the crew members in the cabin in case of a decompression.
 - Seats that must be occupied during TT&L and emergency scenarios such a turbulence or decompression (possibly ensuring visibility of cargo).
 - A new cabin fire emergency procedure based on manual fire-fighting.

Appendix to Annex 1

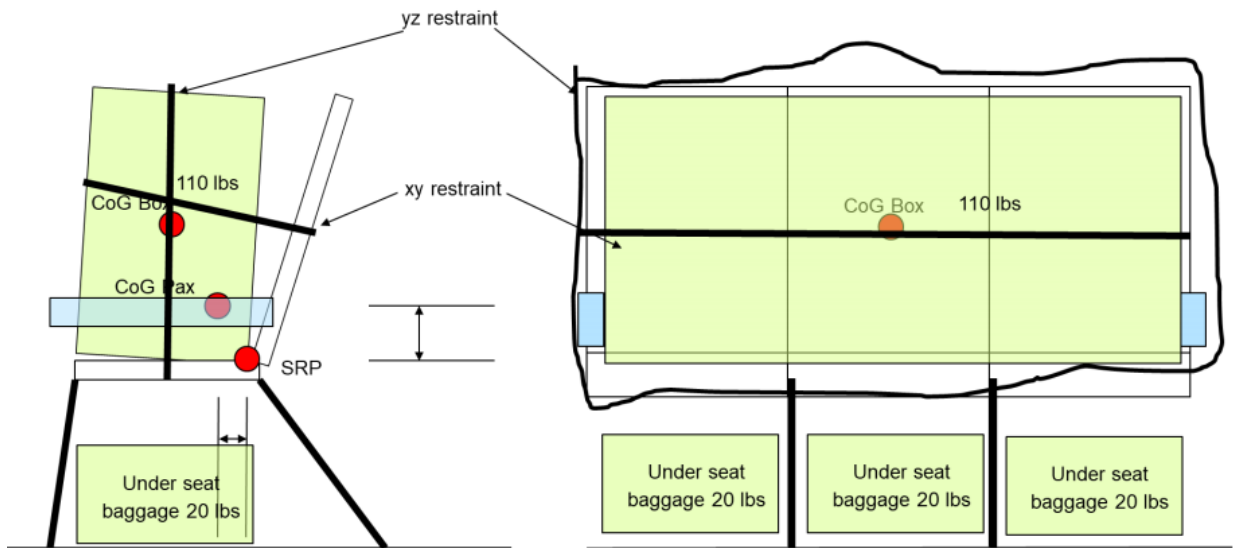
Max z height should not be higher than top of seat backrest

Min capability of strap: $3 \times 25 \text{kg} \times 9,81 \times 1,33 = 8807 \text{N}$

Loading configuration with 1 box (max 50 lbs) per seat place:



Loading configuration with 1 box (max 110 lbs) per triple seat:



Annex 2 – Industry guidance

The following documents were sent by certain aircraft OEMs to provide guidance on how to transport cargo in the passenger cabin:

Airbus SAS : FOT-999-0028-20-00)

ATR: OIM2020/003

Guidance on how to restrain cargo on seats can be found in SAE ARP 4049 Cargo Restraint on Aircraft Passenger Seats – Main Passenger Cabin.



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for Director of Civil Aviation