

European Union Aviation Safety Agency

GUIDELINES

TRANSPORT OF CARGO IN PASSENGER COMPARTMENT - EXEMPTIONS UNDER ARTICLE 71(1) OF REGULATION 2018/1139 (THE BASIC REGULATION)

Issue 3, Cologne, 24 Apr. 2020

Author (Name/Function): A. OTTOMANIELLO/Exp AirOps, Th. OHNIMUS/SenExp Cab Safety

Reviewed (Name/Function): E. CIOFU/HoS FS.2.1, V. ARNSMEIER/HoS CT3.3

Approved (Name/Function): R. DAESCHLER/acting CT Director



1. Purpose of these Guidelines

The purpose of this document is to provide guidelines for national competent authorities (NCAs) to consider when granting exemptions under Art. 71(1) of Regulation (EU) 2018/1139 (hereinafter, the Basic Regulation) allowing the Transport of Cargo in Passenger Compartments, during the current COVID-19 outbreak. Only those exemptions granted after the publication date of this document should take the updated guidelines into account.

Air cargo services are vital for the economy and for fighting COVID-19, and European and global supply chains depend on them being operated unhindered. Air cargo should therefore be able to continuously deliver critical products such as food, medical supplies and personal protective equipment (PPE), and other products which are vital for the functioning of sensitive supply chains. Following this more and more operators are required to fly cargo using passengers' aircraft. The purpose of this document is to provide guidelines to the NCAs for transporting cargo in a cabin certified to carry only passengers.

For airworthiness aspects regarding transport of cargo in the passenger compartment this document provides the NCA with technical information and related aspects for the issuance of an Exemption to an operator when no approved design change exists or related technical investigations are on-going.

Exhaustive technical guidance from EASA is provided in Annex 1 of this guideline.

Documents published by the Industry (aircraft OEMs, SAE) to provide guidance on how to transport cargo in the passenger cabin are referenced in Annex 2.

2. Scope of exemptions

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 to the applicable rules is needed.

2.1. When applying Article 71(1) of the Basic Regulation (BR) to exempt operators from certain requirements of Regulation 748/2012 and Air OPS- Regulation 965/2012,¹ the NCAs should specify the following:

- a) The period of exemption: the period should refer to the duration of the COVID-19 outbreak in the Member State, but in any case should be less than 8 months.
- b) The scope of exemption: as applicable.

¹ Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1).



- c) The exempted provisions should 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)

- 2.2.** 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 floor² using the available seat tracks.
- 2.3.** 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.

3. Operational aspects for Transport of Cargo in passenger compartment

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

3.1. Crew composition

- a) Operations without passengers shall still require 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 sit on seats which are not located near the cargo.

3.2. 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.

3.3. 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).

² Note: 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.

- 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. Specific details must be coordinated with local regulatory authorities.
- 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) (deleted)
- t) (deleted)
- u) (deleted)
- v) If nets are used to restrain cargo items, these nets should be (E)TSO 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.

4. 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:
 - the risks and consequences of increasing the amount of DG in the hold;
 - 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 authorised representative of an appropriate national authority or an authorised 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.



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

5.1. Transport of cargo in the passenger cabin under the provisioning of Article 71.1 of the Basic Regulation 2018/1139

In order to enable an early availability of a transport solution in the frame of the current COVID-19 situation, EASA supports the use of Article 71.1 of the Basic Regulation 2018/1139, also in case of on-going certification projects. A design change approval is not a prerequisite for the issuance of an Exemption. However, certain design data may support the process.

Further guidance can be found in Annex 1 of this guideline document.

The present guidelines and additional technical support to NCAs and operators, as required, should enable to address to an acceptable level on a temporary basis (i.e. up to 8 months) the airworthiness certification aspects for projects regarding transport of cargo in the passenger cabin of Large Aeroplanes.

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

In order to allow transport of cargo on a permanent basis, i.e. beyond the 8 months limitation set by Article 71.1 of the Basic Regulation 2018/1139, a design change approval must be pursued outside the scope of flexibility provisions ensuing from the Article.

Except for what allowed by paragraph 5.2.1 below, for transport of cargo restrained on seats as well as in case a removal of seats is necessary to allow fixation of cargo onto the aircraft structure, a Major Change or STC application is required and will be processed by EASA 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.

EASA will raise special conditions using as a reference:

- the guidance in Annex 1 of this guideline document.
- EASA CM-CS-003
- The published Special Conditions on Cargo Seat Bags installation

5.2.1. Transport of medical supplies restrained on passenger seats

In the context of the emergency situation created by the Covid-19 pandemic, Approved Design Organizations with adequate design scope may request EASA for the re-classification as “Minor Change” and upon concurrence by the Agency, 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 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 airplanes registered in an EU Member state or EFTA state. The DOA shall introduce this limitation in the design change approval sheet. This should not prevent other authorities to assess acceptability of those design change approvals within their own decision process.

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.



6. Information

For the purpose of notification of exemptions, NCAs are invited to inform EASA of the granted exemptions through EASA Flexi tool.

7. Other applicability

For flights not falling under the scope of the Basic Regulation, the NCA may use these Guidelines with the necessary adaptations.



Annex 1

1. Further guidance for transport of cargo in the passenger cabin under the provisioning of Article 71.1 of the Basic Regulation 2018/1139.

The following guidance addresses in general the transport of cargo on seats, on the cabin floor with seats installed or with seats removed.

Primary objectives to be achieved for the unusual use of the passenger cabin for transport of different kind of cargo are provisions and mitigations for:

- Fire risks and enabling adequate firefighting means;
- Fixation of cargo and related changes of aircraft centre of gravity, accounting for the structural strength and integrity in normal and emergency conditions;
- Emergency evacuation of occupants.

An applicability list of the below listed areas - depending on the kind of cargo – is provided in Table 1.

1.1. Restrictions to the kind of cargo:

- a) No Dangerous goods.
- b) In addition, the operator should have a process to prevent excepted quantities of lithium batteries contained in, or packed with, equipment from being stowed in the cabin.

1.2. Cabin preparation:

- a) Passenger convenience systems (IFE, in-seat power, galley systems and any other heat generating systems) in the cabin areas in which cargo is transported will have to be disabled or deactivated.
- b) Supplemental oxygen systems in the cabin areas in which cargo is transported will have to be removed from the PSU channels, without leaving any opening, or should be deactivated.
- c) Portable oxygen cylinders and PBEs located in the stowage compartments in the cabin areas in which cargo is transported will have to be removed.
- d) Portable devices containing lithium batteries, including the emergency locator transmitters not required for the number of persons on board, will need to be removed from the cabin areas in which cargo is transported.

1.3. Cargo loading:

- a) It is not required to install a 9g barrier and a smoke barrier to protect the flight deck and cabin occupants. Cargo shall be restrained so that each cargo installation meets 25.561 and other applicable structural requirements.
- b) In each section of the cabin where cargo is transported:
 - there should 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.
 - Cargo should be loaded so that there is sufficient access to the cargo to allow effective fire-fighting.
 - For twin-aisle aeroplanes in which seats are not removed and are used to restrain cargo, there should be an unloaded seat row to allow crossing from one aisle to the other. To the extent possible the unloaded seat row should be located at equal



distance from the available cross-aisles required by CS 25.813.

- c) 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.
- d) Features that allow decompression should be maintained, i.e. pallets or cargo should not obstruct decompression vents or flow.
- e) When cargo is loaded on the floor, the height of the cargo shall not exceed 127 cm (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 competent Aviation Authority; EASA support can be provided upon request.
- f) Cargo loaded on a seat should not exceed 22,5 kg (50 lbs) per seat place and should not extend above the seatback height. Potential restraint methods might include:

- Seat tracks (after removing the plastic row-to-row track cover), based on guidance from the aircraft OEM as deemed necessary by the competent Aviation Authority.

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.

- Seat belts or seat belt shackles.

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).

- Seat beams (located immediately below the seat bottom cushion)

Strap the forward and top side of the boxes to the forward and aft beams by routing the straps under the seat.

- Seat legs

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.

1.4. Safety equipment:

- a) Portable oxygen equipment should 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 shall be carried by the crew members during their inspections.
- b) Appropriate protective garments (e.g. fire gloves, etc.) shall be stored adjacent to the crew member's stations.
- c) In addition to the extinguishers already installed in the cabin the need for additional firefighting capabilities should be evaluated by considering the cargo to be transported (e.g. expected class of fire).

The following additional fire extinguishers would provide adequate firefighting capabilities in case of no cargo restrictions other than no dangerous goods on the passenger deck:

- Two Underwriters Laboratories (UL)2A (2-1/2 gallon) rated water portable fire extinguishers, or an equivalent amount of water, and
- At least two fire extinguishers with a minimum UL 4A-80B:C rating or equivalent. Four UL 2A-10B:C extinguishers is considered equivalent.



- d) Extinguishers should be located next to firefighters station(s) or at other locations that the operator determines would be more effective in providing fire protection.

1.5. ECS settings:

- a) 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.
- b) Emergency Procedures
In the event of a fire in the cabin it should be ensured that the ventilation system is 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.

1.6. Procedures and documentation:

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

The Airplane Flight Manual (AFM) should be revised as to include the following:

- a) 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.
- b) the additional crew members should be trained on:
 - Fire-fighting procedure
 - Use of the emergency equipment, including portable oxygen systems
 - Operation of emergency exits and evacuation procedures
- c) The additional crew members should make a visual inspection of the cargo on a regular basis including prior to TT&L.
- d) When making the inspection required above, the additional crew members should carry portable oxygen equipment (see section Safety Equipment).
- e) Provisions should be available to allow the flight crew members to notify the crew members in the cabin in case of a decompression.
- f) Seats that need to be occupied during TT&L and emergency scenarios such as turbulence or decompression (possibly ensuring visibility of cargo).
- g) A new cabin fire emergency procedure based on manual fire-fighting.

2. Return to passenger service

Before the aircraft is used for passenger service, the operator should ensure the return of the cabin back to the configuration certified for passenger transportation. Operators are reminded that if the operator wishes to make these changes permanent, then a design change approval is required.



Applicability of sections in Annex 1 depending on the restrictions to the kind of cargo			
	Restrictions to the kind of cargo	Restrictions to the kind of cargo	Restrictions to the kind of cargo
	<ul style="list-style-type: none"> • 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. 	<p style="text-align: center;">Restrictions to the kind of cargo</p> <p style="text-align: center;">positive list of kind of cargo</p>	<p style="text-align: center;">Restrictions to the kind of cargo</p> <p style="text-align: center;">Medical supplies only</p>
Cabin preparation	✓	<p style="text-align: center;">✓</p> <p style="text-align: center;">(except that deactivation/removal of supplemental oxygen systems is not required)</p>	N/A
Cargo loading	✓	✓	✓
Safety equipment	✓	<p style="text-align: center;">✓</p> <p style="text-align: center;">(with adaptations, as appropriate, depending on the type of cargo transported in the cabin)</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">(with adaptations, as appropriate)</p>
ECS settings	✓	<p style="text-align: center;">✓</p> <p style="text-align: center;">(with adaptations, as appropriate)</p>	✓
Procedures and documentation	✓	<p style="text-align: center;">✓</p> <p style="text-align: center;">(with adaptations, as appropriate)</p>	<p style="text-align: center;">✓</p> <p style="text-align: center;">(with adaptations, as appropriate)</p>
Appendix to Annex 1	✓	✓	✓

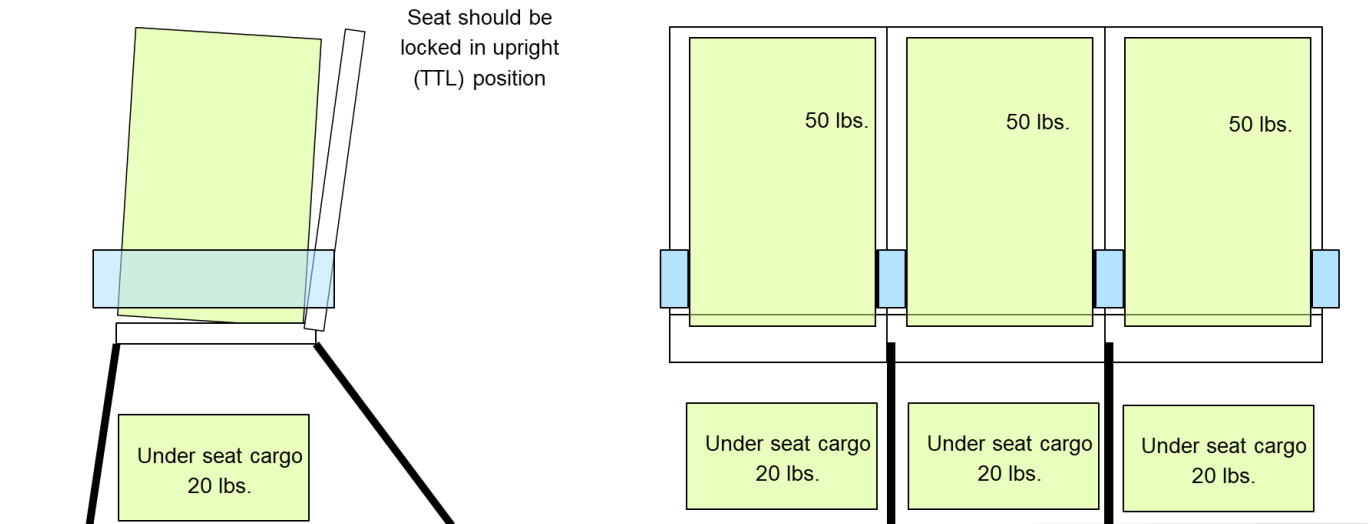
Table 1 - Applicability of sections in Annex 1 depending on the restrictions to the kind of cargo

Appendix to Annex 1

Example for loading cargo on seats

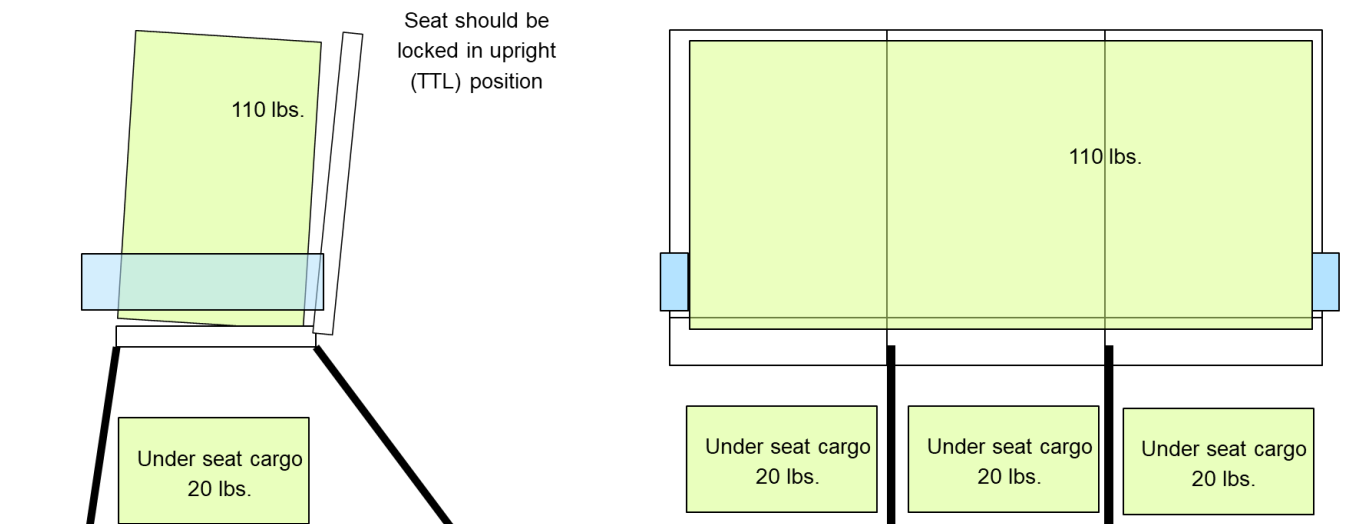
Interim cargo carriage on seat for 3 boxes maximum 22.5kg (50 lbs)

Maximum height of cargo not higher than top of seat backrest



Interim cargo carriage on seat for 1 box maximum 50kg (110 lbs)

Maximum height of cargo not higher than top of seat backrest



Appendix 2 to Annex 1:

Recommended procedures for loading and unloading cargo

The below recommended procedure is an example. The recommended loading / unloading sequence depends on the aircraft type.

Sequence for loading:

- First, load the lower forward cargo compartment
- Next, load the main deck from the front to the back
- Last, load the lower centre/aft cargo compartments (lower cargo compartment aft of the wing)

Sequence for unloading:

- reverse order from loading sequence



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
- The Boeing Company : MOM-MOM-20-0239

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

