

## Guidance for Air Travel through the COVID-19 Public Health Crisis



### Aircraft Module

The aircraft module contains specific guidance addressing boarding processes, seat assignment processes, baggage, interaction on board, environmental control systems, food and beverage service, lavatory access, crew protection, management of sick passengers or crew members, and cleaning and disinfection of the flight deck, cabin, and cargo compartment.

The elements of this module are:

1. Aircraft-Module --- Passenger and Crew --- General
2. Aircraft-Module --- Disinfection --- Flight-Deck
3. Aircraft-Module --- Disinfection --- Passenger-Cabin
4. Aircraft-Module --- Disinfection --- Cargo-compartment
5. Aircraft-Module --- Disinfection --- Maintenance
6. Aircraft-Module --- Air-System Operations

## Aircraft Module - Passenger and Crew – General

### Provide a safe, sanitary operating environment for passengers and crew

#### Considerations

- Adjust the boarding process. To the extent possible consistent with weight and balance requirements, board and disembark passengers in ways that reduce the likelihood of passengers passing in close proximity to each other.
- Seat Assignment Processes: Where required, assign seats for adequate physical distancing between passengers. Airlines should allow for separated seating arrangements when occupancy allows it.
- Limit interaction on board. Encourage passengers to travel as lightly as possible with check-in of all luggage except small hand luggage that fits under the seat. Remove newspapers and magazines. The size and quantity of duty-free sales may also be temporarily limited.
- Encourage passengers to stay in the assigned seat as much as possible.
- Limit or Suspend Food and Beverage Service: Limit or discontinue food and beverage service on short-haul flights or require dispensing in sealed, pre-packaged containers.
- Restrict lavatory access. When possible, one lavatory should be designated for crew use only, provided sufficient lavatories remain available for passenger use without fostering congregation by passengers waiting to use a lavatory. Also, to the extent practicable depending on the aircraft, require passengers to use a designated lavatory based on seat assignment to limit passenger movement in flight, which reduces exposure to other passengers.
- Crew protection measures. Prohibit sharing of safety equipment used for safety demonstrations. Instruct crew members to provide service only to specific sections of the cabin. Explore additional means of protection, for instance plastic curtains or Plexiglas panels during the boarding process (to be removed once boarding is completed).

Note: The attached Table 2 concerning disinfection contain the latest joint Aircraft OEM recommendations currently available. Users of this guidance should note that:

- These recommendations are based on evolving circumstances and technology.
- While every attempt was made to provide common recommendations for disinfectants usage on airplanes, there are differences between the products manufactured by each Aircraft OEM. It is strongly recommended that the operator is familiar with OEM guidance and consults the OEM for any questions specific to that airframe.
- The intent of these guidelines is to provide operators with recommendations that are aligned with the aircraft product. It is the responsibility of the operator to ensure that the disinfectants are used per the manufacturer's instructions, proper protection is employed by those using the disinfectant and that their use is in alignment with health organizations recommendations for recommendations for efficacy, and in accordance with the label instructions of the disinfectant.

## Aircraft Module - Disinfection – Flight Deck

### Provide a safe, sanitary operating environment for crew and ground staff

#### Considerations

- Frequency of cleaning of the flight deck should account for both separation of the flight deck from the passenger compartment and frequency of crew transitions.
- Clean and disinfect the flight deck at an appropriate frequency to accommodate safe operations for the crew.
- Airframe manufacturers recommend the use of a 70% aqueous solution of Isopropyl Alcohol (IPA) as a disinfectant for the flight deck touch surfaces. Refer to appropriate health organizations for instruction on application to be effective against viruses. Refer to the original equipment manufacturer's instructions to ensure that the proper application, ventilation, and personal protection equipment is used. For more detailed recommendations or additional disinfecting chemicals, please reach out to the specific Airframe Manufacturer.
- Clean surfaces of dirt and debris before disinfecting to maximize effectiveness.
- Apply with pre-moistened wipes or single use wetted cloth and use limited bottle sizes on board to minimize the risk of spilling the IPA solution. Do not spray IPA in the flight deck. Do not allow the liquid to pool or drip into the equipment.
- IPA is flammable, so precautions should be taken around potential sources of ignition.
- Because the frequency of disinfection has significantly increased due to COVID-19, and there is no data on the long term effects associated with this frequent application, the operator should periodically inspect the equipment to ensure that there are no long term effects or damage over time. If damage is observed, contact the OEM for guidance on alternate disinfectants. Specific care should be taken for application on leather and other soft goods.
- Given the increased likelihood that switch positions may be inadvertently changed during the cleaning or disinfection process, operators and flight crew should reinforce procedures to verify that all flight deck switches and controls are in the correct position prior to operation of the airplane.
- Some equipment on the flight deck may have additional disinfectant requirements based on usage (e.g. oxygen masks) and procedures should be put in place accordingly.

#### Means for uniform implementation

- OEM communication through ICCAIA and OEM communication with operators
- Use the Aircraft COVID-19 Disinfection Control Sheet (PHC Form 2) or a similar one when appropriate.

## Aircraft Module - Disinfection – Passenger Cabin

### Provide a safe, sanitary operating environment for passengers, crew, and ground staff

#### Considerations

- Clean and disinfect the cabin at an appropriate frequency to accommodate safe operations for the passengers and crew. The frequency should account for the operation of the aircraft and the potential exposure of an infected person.
- Airframe manufacturers recommend the use of a 70% aqueous solution of Isopropyl Alcohol (IPA) as a disinfectant for the touch surfaces. Refer to appropriate health organizations for instruction on application to be effective against viruses. Refer to the manufacturer's instructions to ensure that the proper application, ventilation, and personal protection equipment is used. For more detailed recommendations or additional disinfecting chemicals, please reach out to the specific Airframe Manufacturer.
- Clean surfaces of dirt and debris before disinfecting to maximize effectiveness
- Apply with pre-moistened wipes or single use wetted cloth and use limited bottle sizes on board to minimize the risk of spilling the IPA solution. Do not spray IPA in the cabin. Do not allow the liquid to pool or drip into equipment (e.g. In-Flight Entertainment electronic boxes).
- IPA is flammable, so precautions should be taken around potential sources of ignition.
- Because the frequency of disinfection has significantly increased due to COVID-19, and there is no data on the long term effects associated with this frequent application, the operator should periodically inspect the equipment to ensure that there are no long term effects, color shift or damage over time. If damage is observed, contact the OEM for guidance on alternate disinfectants. Specific care should be taken for application on leather and other soft goods. The operator should validate disinfecting agents for Buyer Furnished Equipment (e.g. Seats and IFE) with the manufacturer.
- Airlines may wish to review their operating procedures to minimize the number of personnel who need to contact high-touch surfaces such as access panels, door handles, switches, etc. For more detailed recommendations or additional disinfecting chemicals, please reach out to the specific Airframe Manufacturer.

#### Means for uniform implementation

- OEM communication through ICCAIA and OEM communication with airlines.
- Use the Aircraft COVID-19 Disinfection Control Sheet (PHC Form 2) or a similar one when appropriate.

## **Aircraft Module - Disinfection – Cargo compartment**

### **Provide a safe, sanitary operating environment for crew and ground staff**

#### Considerations

- Clean and disinfect the cargo compartment touch surfaces at an appropriate frequency to accommodate safe operations for the ground staff.
- Airframe manufacturers recommend the use of a 70% aqueous solution of Isopropyl Alcohol (IPA) as a disinfectant for the touch surfaces. Refer to appropriate health organizations for instruction on application to be effective against viruses. Refer to the manufacturer's instructions to ensure that the proper application, ventilation, and personal protection equipment is used. For more detailed recommendations or additional disinfecting chemicals, please reach out to the specific Airframe Manufacturer.
- Clean surfaces of dirt and debris before disinfecting to maximize effectiveness
- Apply with pre-moistened wipes or single use wetted cloth and use limited bottle sizes on board to minimize the risk of spilling the IPA solution. Do not spray IPA in the Cargo Compartment. Do not allow the liquid contact critical equipment (e.g. smoke detector, electronic door operation equipment and fire extinguishing discharge nozzle).
- IPA is flammable, so precautions should be taken around potential sources of ignition. Pay particular attention to hidden ignition sources as many aircraft have electronic boxes mounted in the cargo compartment.
- Because the frequency of disinfection has significantly increased due to COVID-19, and there is no data on the long term effects associated with this frequent application, the operator should periodically inspect the equipment to ensure that there are no long term effects or damage over time. If damage is observed, contact the OEM for guidance on alternate disinfectants.
- Airlines may wish to review their operating procedures to minimize the number of personnel who need to contact high-touch surfaces such as access panels, door handles, switches, etc.

#### Means for uniform implementation

- OEM communication through ICCAIA and OEM communication with airlines
- Use the Aircraft COVID-19 Disinfection Control Sheet (PHC Form 2) or a similar one when appropriate.

## **Aircraft Module - Disinfection – Maintenance**

### **Provide a safe, sanitary operating environment for passengers, crew and ground staff**

#### Considerations

- Airlines should be mindful of regular maintenance to both air systems and water systems to ensure they continue to protect the passenger and crew from viruses. Airlines should refer to the Airframe OEM for specific maintenance actions and intervals.
- It is recommended that airlines include access panels and other maintenance areas in their disinfection procedures to ensure a safe environment for the maintenance crews.
- Airlines may wish to review their operating procedures to minimize the number of personnel who need to contact high-touch surfaces such as access panels, door handles, switches, etc.
- It is recommended that Airlines establish maintenance procedures applied after disinfection procedures to check Flight Deck, Passenger Cabin and Cargo Compartment for correct positioning of control handle, circuit breakers and control panels switches and knobs. Access panels and doors closure also should be checked.

#### Means for uniform implementation

- OEM communication through ICCAIA and OEM communication with airlines
- Use the Aircraft COVID-19 Disinfection Control Sheet (PHC Form 2) or a similar one when appropriate.

## Aircraft Module - Air System Operations

**To minimize people generated contaminant concentrations during ground and flight operations, the aircraft manufacturers recommends maximizing total cabin airflow and care should be taken to avoid blocking air vents (particularly along the floor). These are general recommendations for cabin air considerations and there may be exceptions for specific aircraft models. It is strongly recommended that operators consult with the Aircraft OEM for questions specific to an aircraft type.**

### Considerations

#### Ground Operations (before chocks-off and after chocks-in)

- Avoid operations without the air conditioning Packs or external Pre-Conditioned Air (PCA) source. External air sources are not processed through a HEPA filter. The aircraft APU should be permitted to be used at the gate to enable the aircraft's air conditioning system to be operated, if equivalent filtration from PCA is not available.
- If the aircraft has an air recirculation system, but does not have HEPA filters installed, refer to OEM published documents or contact the OEM to determine the recirculation system setting.
- It is recommended that fresh air and recirculation systems be operated to exchange the volume of cabin air before boarding.
  - For those aircraft with air conditioning, run the air conditioning packs (with bleed air provided by APU or engines) or supply air via external Pre-Conditioned Air (PCA) source at least 10 minutes prior to the boarding process, throughout boarding and during disembarkation.
  - For aircraft with HEPA filters, run the recirculation system to maximize flow through the filters.
  - For those aircraft without air condition system, keep aircraft doors open during turnaround time to facilitate cabin air exchange (passengers' door, service door and cargo door).

#### Flight Operations

- Operate Environmental Control Systems with all Packs in AUTO and recirculation fans on.
  - Valid only if HEPA recirculation air filters are confirmed to be installed.
- If non-HEPA filters are installed, contact the Aircraft OEM for recommendations on recirculation settings.
- If the aircraft in-flight operating procedure calls for packs to be off for take-off, the packs should be switched back on as soon as thrust performance allows.

#### MEL Dispatch:

- Fully operational air conditioning packs and recirculation fans provides the best overall cabin ventilation performance. It is recommended to minimize dispatch with packs inoperative. It is recommended to minimize dispatch with recirculation fans inoperative for aircraft equipped with HEPA filter.
- Some aircraft have better airflow performance with all outflow valves operational. It is recommended the contact with the OEM about the ventilation performance of the



aircraft with outflow valves inoperative and the limitations associated with the dispatch in this situation.

#### High Flow (max Bleed) Switch:

- If the aircraft has an option for high flow operation, contact the OEM for setting recommendations.

For example:

Boeing recommends that airlines select High Flow Mode for 747-8, MD-80 and MD-90 aircraft, as this will maximize total ventilation rate in the cabin. Note that this will increase fuel burn. However, for the 747-400 and 737, High Flow Mode should NOT be selected as this does not result in an increase in total ventilation rate. For all models, recirculation fans should remain on (when HEPA filters are installed).

#### Sick Passenger Positioning:

- Separate the ill person from the other passengers by minimum of 2 meters (usually about four seats left empty in all directions, depending on the cabin design) from the seat occupied by the suspected case. Where possible this should be done by moving other passengers away.

#### Filter Maintenance:

- Follow normal maintenance procedures as specified by the OEM. Please take note of special protection and handling of filters when changing them.
- Contact OEM or refer to OEM published document to check if an additional sanitization procedure and/or personnel health protection is required to avoid microbiological contamination in the filter replacement area.

#### Means for uniform implementation

- OEM communication through ICCAIA and OEM communication with airlines
- Use the Aircraft COVID-19 Disinfection Control Sheet (PHC Form 2) or a similar one when appropriate.