

**ETHIOPIAN CIVIL AVIATION AUTHORITY**



**Aircraft Return to Service from Storage/Prolonged  
Parking**

---

**AUGUST 2020**

## Table of Contents

Table of contents.....	1
Approval.....	2
1 Introduction .....	3
2 continuing airworthiness .....	4
3. Aircraft return to service considerations .....	4
3.4 Airworthiness: .....	4
3.5 Flight crew: .....	7
3.6 Ground handling: .....	7
4 Compliance/action to be taken .....	7
5. Reference material .....	8

# AIRCRAFT RETURN TO SERVICE FROM STORAGE/PROLONGED PARKING

---

## APPROVAL


CIR. REF.: ECAA/DG/AIF/007/20  
Subject: Aircraft Return to Service from Storage/Prolonged Parking  
Issue No.: First Issue  
Date: 6<sup>th</sup> August 2020  
Applicability: This Circular is applicable to all Aircraft Operators/owners who have aircraft placed in storage or prolonged 'parked' condition, and Approved Maintenance Organizations (AMOs).

This Advisory Circular contains recommendations regarding operational safety. This document is published to provide guidance that can be used by operators and approved maintenance organizations (AMOs) and all concerned to support the safe return to service of aircraft that have not flown for several weeks or months due to the special situation resulting from the COVID-19 pandemic.

Air Operators and AMOs must ensure that this document is copied to all members of their staff who need to take appropriate action or who may have an interest in the information (including any 'in-house' or contracted maintenance organizations and relevant outside contractors).

This Circular is approved by the undersigned for use by all to whom the Circular applies and will remain in effect until further notice.

Approved by:

  
Wessnyesh Hunegnaw (Col.)  
Director General



## 1. Introduction

- 1.1 As a result of the COVID-19 economic impact, a significant number of aircraft have been 'parked' (extended downtime) with only routine maintenance activity. Industry experience shows that when returning such aircraft to operational service, there are additional hazards that should be considered by maintenance and flight crew as part of their preparations.
- 1.2 This document is published to provide guidance that can be used by operators and approved maintenance organizations (AMOs) and all concerned to support the safe return to service of aircraft that have not flown for several weeks or months due to the special situation resulting from the COVID-19 pandemic.
- 1.3 More specifically, the document proposes organizations to analyze the foreseeable process and identifies some hazards and potential mitigating measures when returning to service a large number of aircraft of an operator's fleet, put on storage during the pandemic. While the purpose of the guidelines is to maintain the level of safety of the aircraft, following this guidelines may also avoid undesirable operational constraints or financial implications.
- 1.4 Considering the unprecedented scenario, it is very likely that affected organizations were not totally prepared for the rapid storage of aircraft and some of the hazards affecting the return to service of aircraft may not be obvious. At this point in time, the organizations management systems play an essential role in identifying these hazards and defining strategies to mitigate the associated risks, and thus ensuring a safe return to normal operations. Different to the traditional management systems that use known past occurrences and experience to identify hazards and build up mitigations, in this case, the current unprecedented situation demands also for the pro-active anticipation of the potential difficulties and their proper consideration and the rapid adaptation of the internal processes based on lessons learnt with the first aircraft returned to operations.
- 1.5 Air Operators need to establish coordination mechanisms among flight operations department including planning operations, maintenance control department, AMOs and others as required to identify the need of aircraft with a specific configuration (e.g. cargo in cabin) and inputs before the first flight such as if a check flight or an in-depth review of the pre-flight inspection/checks for the first flights is needed, exchange of information recorded in the on-board maintenance computer, discussion on the status of the deferred items and consequences for the flight crew. If a check flight is needed, identification of special attention items that the flight crew should focus on during the flight, such as discrepancies in speed and altitude indications and engine parameters. The coordination should also include special checks before flying RVSM and ETOPS operations.
- 1.6 It is essential that information related to particular defects, unexpected findings and conditions found by the AMO on aircraft while preparing it for return to service and which can be reasonably assumed to be linked with storage is collected and linked, where applicable, to a fleet of aircraft being stored in the same or similar condition. As a matter of fact, same aircraft types stored at the same time and same environment are expected to behave in the same way. This data should be collected as soon as possible after the manifestation of the defect or condition on a single aircraft and exchanged with the Air Operator without delay. Some findings may also need to be reported to Type Certificate Holder (TCH) and ECAA any unexpected findings found during the additional inspections and tests, to contribute to the improvement of Type Certificate Holder (TCH) recommended practices.

## **2 Continuing Airworthiness**

- 2.1 Resuming passenger flight operations requires first of all, restoring to an airworthy condition the aircraft stored for weeks or months.
- 2.2 Maintenance linked to initiating and sustaining aircraft parking/storage and related de-preservation for aircraft return to service, and maintenance linked to the Aircraft Maintenance Program under which the aircraft is approved to operate, are the two main categories/types of aircraft maintenance actions which the operators must address.
- 2.3 There are threats associated with a return to flying of parked/stored aircraft, even when an approved Aircraft Maintenance Programme (AMP) has been correctly followed. A recent rejected take-off due to unreliable airspeed indications was discovered to be caused by insect larvae in the pitot tube drain, even though approved pitot probe covers had been used and the pitot system flushed in accordance with manufacturers guidance. This event is the subject of an Air Accident Investigation Branch (AAIB) investigation of UK.
- 2.4 Operators should also be aware of concerns around the inappropriate application of the fuel biocide Kathon FP1.5. A Japan Transport Safety Board Serious Incident report (B787 both engines below idle on approach with subsequent L and R ENG FAIL EICAS messages) has determined the failures to be attributable to the incorrect dosage of biocide ~ Kathon FP1.5. This is the second serious event this year that has been attributable to the incorrect dosage of biocide (Reference: EASA SIB 2020-06).
- 2.5 Furthermore, as the recent FAA Emergency Airworthiness Directive (AD#2020-16-51) demonstrates, aircraft storage may result in unexpected corrosion of specific systems with significant safety implications. The Airworthiness Directive pertains to a check valve forming part of the engine bleed system in various Boeing 737 models.

## **3. Aircraft Return to Service Considerations**

- 3.1 Ensuring aircraft airworthiness is an essential element to the safety of airline operations and the challenges of preserving the continuity of aircraft airworthiness in the conditions of a massive and prolonged inactivity of the global fleet are numerous.
- 3.2 The potential maintenance, logistic and economic burdens which could arise for the operators if the parking and storage requirements are only partially (or not at all) fulfilled should always be considered. Additionally, in order to optimize the value protection of their aircraft assets and prevent costly findings at the return to service (RTS) phase, operators may customize the parking/storage maintenance program to address the individual aircraft condition with maintenance actions above and beyond the standard requirements.
- 3.3 Operators should identify areas where safety concerns may arise as aircraft and personnel are prepared for return to service and consider means of mitigating any impact. Operators shall perform a detailed safety risk assessment to identify hazards, evaluate and mitigate correlated risks. Some examples are listed below but these are by no means exhaustive.

### **3.4 Airworthiness:**

- The Air Operator should fully understand the work required to reactivate the aircraft from parking/storage, including overdue maintenance, recently published data and Airworthiness Directives (AD).

## AIRCRAFT RETURN TO SERVICE FROM STORAGE/PROLONGED PARKING

---

- The Air Operator Organization should liaise with the AMO, providing clear instructions on the work to be carried out. The Air Operator should carry out production planning in conjunction with the AMO to fully understand the certification of tasks and the timeline for aircraft stand up.
- Air operators and/or AMOs need to plan resources, hangar space, procure spare parts and consumables, relocate tooling and ground equipment, potentially acquire special tools and double-check the status of calibrated tools and status of the maintenance data.
- Air Operators need to contact Type Certificate Holder (TCH) for clarification of the instructions to be followed, additional support in the form of a non-technical objection or repair designs due to any damage that occurred on the aircraft during the storage, additional instructions in case the storage procedures were not complied with.
- Any system upgrades with potential flight operations implications (particularly which relate to Flight Crew Operating Manuals/MEL) should be coordinated so that the operating crew are aware of any upgrades/embodiments.
- The Air Operator's personnel should all be aware of Human Factors regarding the furloughing of staff and any potential re-organizations which may affect the re-introduction to service of the aircraft.
- The recency and experience of staff of Air Operator and AMO should be considered and addressed.
- It is of the utmost importance that, for each individual aircraft in their fleet, operators are cognizant of the specifics regarding:
  - Aircraft actual configuration and location (with details on aircraft accessibility and GSE availability, restrictions for APU and engine operation, fuel on board and last refueling etc.)
  - Maintenance and utilization status records (with last flight info, the maintenance program which the aircraft is undergoing and the performed maintenance tasks including any preservation work accomplished etc.)
  - Eligibility and use of any maintenance tasks' extensions or execution deviations.
- Ensure aircraft are stored in accordance with storage procedures and in accordance with Instructions for Continued Airworthiness (ICA).
- In case, parts are robbed from one aircraft for use on another aircraft, do the following:
  - Perform an independent check to verify that these actions are recorded in the aircraft records and match with the results of a physical inspection of the aircraft.
  - Plan to conduct ground checks on the affected systems of this aircraft once newly available parts are installed.
- Assuming that there may be effects of the environment during aircraft storage (e.g. humidity, salt, dust, ashes, etc), ensure:
  - Considering additional protection (e.g. sealant coating of engine inlets and leading edges, and seat cover and cushion removal during storage) as long as not contradicting Type Certificate Holder (TCH) instructions.

## AIRCRAFT RETURN TO SERVICE FROM STORAGE/PROLONGED PARKING

---

- Contacting the Type Certificate Holder (TCH) for additional support if needed to add inspection items to the return-to-service procedures for structures or parts sensitive to environmental effects. For example, engineering judgment should select opening of some panels located in lower external zones where accumulation of water could occur.
- If aircraft are not preserved/protected fully in accordance with storage procedures, do the following:
  - Consider implementing an audit programme for aircraft in storage to ensure that all required tasks are both called out and actually accomplished.
  - Consider the need for additional maintenance, for instance: cleaning and lubricating as needed parts that have not been effectively protected as it was recommended (e.g. lack of available covers and possibility of insect/bird nesting); conducting analysis for fuel contamination; evaluating batteries condition; etc.
  - Consider dedicated inspections for potentially affected areas.
  - Contact the aircraft/engine type certificate holder (TCH) to decide if additional maintenance tasks are required before the aircraft is released to service and share any relevant findings during inspections.
- If maintenance staff is with limited experience on storage procedures:
  - Refresh the procedures through training.
  - Prepare leaflets and communicate repeatedly key messages.
  - Prepare checklists when needed.
  - Apply 'just culture' principles.
- Since COVID-19 health recommendation poses restrictions on group activities, consider in advance what tasks/activities may be affected due to health recommendations and plan based on them (e.g. establish isolated teams working on shifts or remotely (if this does not affect job effectiveness), while ensuring adequate and timely flow of information).
- In case suppliers are not delivering on time or the required quantity or with the expected quality, accomplish the following:
  - Ask for their operational status before entrusting them with activities and plan ahead with them.
  - Remind them to review also their own risks to mitigate them, providing you with feedback.
  - In case of doubt, ensure your concerns are addressed properly.
- In case AMO tools and equipment are not serviceable (e.g. AMO tools calibrations expired or tools corroded due to lack of use without adequate protection), before using the tools/equipment, their condition must be verified.
- Consider that the intensive sanitization program introduced in aircraft operations during the pandemic may raise additional maintenance actions in order to control any consequence on the aircraft interiors as a result of the high frequency of use of disinfecting products and the procedures to apply the products in the aircraft cabin and flight deck.

## 3.5 Flight Crew:

- Pilot recency, experience on type and competency should be appropriate to the flight.
- Scope of the flight should be considered and understood (simple ferry flight or any system function requirements).
- Comprehensive briefing should be received from maintenance personnel concerning aircraft status and any work carried out on the aircraft whilst parked.
- Additional time requirements for external/internal checks (greater vigilance due to the possibility of system degradation, unreported ground damage, incorrect switch position, equipment not properly stowed etc).
- Thorough briefing including Threat and Error Management; an understanding that dispatch reliability is higher and maintenance problems fewer for airplanes in regular service and crew should be ready for the 'unexpected.'

## 3.6 Ground Handling:

- Ground crews should be appropriately qualified in aircraft type/company specific procedures and have been made aware of any relevant changes implemented during COVID-19.
- Ground crews should be informed of changes to the aerodrome environment, implemented during COVID-19, which may create additional hazards when performing related duties. For example, revised taxiway/stand configurations and 'non-standard' parking arrangements may increase the likelihood of error, collision and/or jet blast during towing/pushback operations.
- Ground Service Equipment (GSE) may not have been used regularly in recent months, so particular focus on serviceability and correct operation is essential to prevent the likelihood of damage/injury. Daily and pre-trip inspections should be conducted in accordance with required standards and the connection/disconnection processes to/from the aircraft, should be undertaken with extra care and attention.
- Pre-departure safety checks should be sufficiently thorough to ensure that: the apron and intended path of the aircraft are clear of obstructions; all servicing panels and/or doors are closed; there is no visible damage on the aircraft and all equipment associated with 'parked' aircraft has been removed. Whilst maintenance and flight crews will be tasked with similar duties, ground crews provide the last line of defense.
- Where any doubts or questions regarding operational procedures exist, ground crews should be encouraged to openly communicate with flight crews to seek a coordinated resolution to prevent a subsequent incident.

## 4 Compliance/Action to be taken

- 4.1 Operators should ensure that they have appropriate procedures and oversight for returning 'parked' aircraft to regular service within their management systems. Consideration should be made to crew qualification for the task, recent experience and any special briefing or checklist requirements. Type Certificate Holder (TCH) guidance for the return to service of parked aircraft should be followed (and requested if not already available).
- 4.2 Operators should make use of the varied guidance material that is available in helping to develop their strategies for return to normal operations.



## AIRCRAFT RETURN TO SERVICE FROM STORAGE/PROLONGED PARKING

---

- 4.3 The return to service (RTS) phase should be carefully coordinated with consideration of all possible risks/hazards/mitigation measures which the air operator airline should capture in its Safety Risk Assessment. The review and scrutiny of all maintenance work due for the aircraft and its components/parts are essential.
- 4.4 A point of particular focus should be the aircraft actual configuration, its cross-reference with the allowable configuration and the actions to address any existing gaps. This should cover both the aircraft hardware and software components/parts. Additional attention should be given to appropriately address any aircraft components /parts removed for off aircraft maintenance or storage events during the parking period as well as for any “aircraft cannibalization” practices which could have occurred during that period.

### 5. Reference Material

EASA ‘Guidelines for return to service of aircraft from storage in relation to the COVID-19 pandemic’.

UK CAA SAFETY NOTICE, Returning Aircraft to Service from ‘Extended Parking’

ECAA Guidelines for Airline Industry in the COVID-19 Recovery Phase

FAA Emergency Airworthiness Directive (AD#2020-16-51) Boeing Company Model 737-300,-400,-500,-600,-700,-800,-900.