



**CIVIL AVIATION SAFETY AND
SECURITY OVERSIGHT AGENCY**

**ADVISORY
CIRCULAR**
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SAFETY RISKS AND MITIGATION MEASURES ASSOCIATED WITH THE COVID-19 GLOBAL PANDEMIC

1.0 PURPOSE

Following the outbreak of the COVID-19 global pandemic, a number of travel directives relating to restrictions and advisories on air transport were issued at State, Regional and Global level. It is therefore necessary for CAAs and operators to take measures to support business and continued civil aviation and safety and security. This can be achieved by conducting an initial analysis of the effects of the effects of the COVID-19 global pandemic and its impact on civil aviation. It is important that high safety performance is maintained in all operations.

The purpose of this Advisory Circular is to provide guidance to the industry in the identification of aviation safety risks and mitigation measures associated with the COVID-19 global pandemic. It outlines safety related considerations to support safety and operational personnel navigate the pandemic's impact and to help inform decision-making.

2.0 REFERENCE

- 2.1** ICAO Doc 10144, ICAO Handbook for CAAs on the Management of Aviation Safety Risks related to COVID-19.
- 2.2** Civil Aviation (Safety Management) regulations as amended.
- 2.3** Flight Safety Foundation document 'Pandemic: Non-medical operational safety aspects and supplemental materials'.

3.0 INFORMATION AND GUIDANCE

Based on the prevailing circumstances relating to the COVID 19 global pandemic it is necessary to implement actions in line with the following guidelines:

- a) Adopt flexible measures on compliance issues such as certifications, licensing, approvals and authorizations without adversely impacting aviation safety and security; and
- b) Implement safety management principles for the management of operational risks.

The application of safety management principles considers identification of safety hazards and the related mitigation measures. Following this methodology, examples of hazards and mitigation measures are provided as a guide.

3.1 Safety Hazard Identification

The following were identified as some of the potential and existing safety hazards arising from COVID-19 pandemic:

- a) Prolonged parking of aircraft and equipment;
- b) Redundancy of aviation personnel;
- c) Redundancy of airport & ANS infrastructure/system; and
- d) Reduced Aviation Safety Oversight activities.

3.2 Consequences

The following are examples of possible consequences that could arise from the COVID-19 pandemic:

a) Effects of prolonged parking of aircraft and equipment

- i) Degradation of aircraft systems and equipment;
- ii) System and Instruments malfunctioning;
- iii) Expired calibration of aircraft instruments;
- iv) External and internal structural damage caused by corrosion; and
- v) Unserviceability of aircraft systems.

b) Redundancy of aviation personnel;

- i. Staff layoffs
- ii. Loss of currency and competence
- iii. High turnover of experienced and qualified personnel.
- iv. Psychological factors demotivation and stress

c) Effect of redundancy of airport & ANS infrastructure/system

- i) Degradation of airport infrastructure and CNS equipment and systems;
- ii) Malfunctioning of equipment and systems;
- iii) Expired calibration of navigation systems;
- iv) Unserviceability of equipment and systems; and
- v) Loss of revenue from inoperative businesses at the Airport.

d) Effects of ineffective aviation Safety and Security Oversight activities

- i) Increased non-compliances with rules and procedures;
- ii) Slow rule making processes and promulgation thereof;
- iii) Reduced surveillance and resolution of safety concerns; and
- iv) Lack of implementation of Critical Elements.

3.3 Mitigation Measures

The following are proposed mitigation measures may be adopted for minimizing the effects of the possible consequences highlighted in 3.2 above;

- a) Consider issuance of exemptions and extensions on licences/certificates/approvals/permit/authorizations;
- b) Enhanced Screening Protocols for passengers at airports;
- c) Enhance and amend Airport Emergency Response Plans with particular emphasis on handling of Public Health Emergencies;
- d) Enhance and amend operators and service providers Emergency Response Plans with particular emphasis on handling of Public Health Emergencies
- e) Training of staff at airports on national and airport emergency preparedness and response plans, public health capacities and prevention and surveillance of the spread of COVID-19;
- f) Renewal of and exemptions and extensions on personnel licences/certificates/approvals/permits/authorizations;
- g) Support recurrence training aviation personnel as applicable;
- h) Support proficiency and skill checks for flight crew;
- i) Provide guidelines and requirements for corrective maintenance and recalibration of equipment;
- j) Renewals, extensions and exemptions for Aircraft Certificates of Airworthiness;
- k) Provide guidelines for compliance with storage and de-storage of aircraft requirements and procedures;
- l) Provide guidelines and requirements for corrective maintenance and recalibration of equipment;
- m) Encourage airport equipment Insurance renewals;
- n) Carry out renewal of airport certificates, permits and Licences;
- o) Seek and support financial waivers for service providers & other businesses at airports;

- p) Establish and implement of robust contingency plans for ANS and aerodrome operators;
- q) Establish and implement remote and desktop surveillance activities to review documents, procedures and evidence of activities such as operational and audit records, risk registers and Safety Performance Indicators;
- r) Distribution of checklists to operators and service providers to provide evidence of compliance with and procedures;
- s) Provide guidelines for the conduct of audits via teleconference and adjusted to the operations of the operators or service providers;
- t) Hazard identification by service providers;
- u) Promote the exchange and sharing of lessons learned from the COVID-19 relating to aviation operations;
- v) Establish and maintain adequate safety reporting systems to collect data;
- w) Encourage CAAs to share these with other States and RSOO the useful information gathered and lessons learnt; and
- x) Encourage CAAs record key meetings and decisions taken when applying the safety management principles.

4.0 CATEGORIZATION OF MITIGATION MEASURES

In order for the industry to identify new and emerging aviation risks resulting from the COVID-19 global pandemic, and have guided decision-making, it is advisable to categorize safety risks and mitigation measures into three broad sections namely; ***continuing, reducing/cessation, and re-establishing aviation operations.***

The following areas are considered for each of the broad sections:

- a) General considerations;
- b) Human factors;
- c) Flight operations;
- d) Regulators;
- e) Air traffic services;
- f) Aerodromes and Ground Aids;
- g) Airworthiness of Aircraft; and
- h) Ground operations.

The foregoing provides a systematic guide to consideration of the safety risks and mitigation measures due to reduced passenger numbers, grounded fleets of aircraft and several redundant personnel. Despite the disruption, the aviation system is still functioning; there is continued air traffic services; airports remain open and operating; albeit at reduced capacity; and aviation personnel are still engaged. The Safety aspects for the areas have been tabulated below in order to provide guidance on the considerations to be made under the three categories.

4.1 GENERAL

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
1.	Prepare the industry to enable them recover following a prolonged period of reduced operations.			X
2.	Support a progressive and coordinated restart of operations.		X	X
3.	Ensure that the build-up of activity matches operational context capability			X
4.	Through risk analysis assess the safety threats relating to all operations.	X	X	X
5.	Ensure cost pressures do not unduly reduce acceptable safety levels	X	X	X
6.	Consider possible culture change as the company or organization goes into financial survival thinking	X	X	X
7.	Ensure staffing levels are commensurate with the actual level of operations	X	X	X
8.	Promote the continued application of SMS in all operations:			X
	<ul style="list-style-type: none"> Carry out a progressive risk analysis prior to re-opening routes. 			
	<ul style="list-style-type: none"> Be cautious that the risk levels of each flight may change from locality to locality and with each type of operation due to the state of the crisis resolution. 	X	X	X
	<ul style="list-style-type: none"> Consider the threat of increased risk acceptance (get the job done, save the airline, less loss of jobs). 	X	X	X
	<ul style="list-style-type: none"> Consider the risk of missed or reduced safety or quality assurance (audits, etc) 	X	X	X
	<ul style="list-style-type: none"> Share risk assessments and experiences with other operators 	X	X	X
9.	Ensure effective internal communication, external communication and information exchange with all personnel notably COVID - 19 related information.	X	X	X
10.	Ensure continued facility access for staff (i.e., expiry of access badges, pass codes etc.)	X	X	X

11.	Engage staff in the process of improvement	X	X	X
12.	Organize Training			X
	<ul style="list-style-type: none"> Carry out training needs assessment based on the prevailing operational context. 			
	<ul style="list-style-type: none"> Ensure build-up of activity matches personnel availability and competence. 			X
	<ul style="list-style-type: none"> Carry out capacity building due to increased demand in the aftermath of a crisis. 			X
	<ul style="list-style-type: none"> Use any down time for internal capacity building to ensure skills retention and improvement. 	X	X	
	<ul style="list-style-type: none"> Adopt alternative practical means for training delivery (tele-conference, online, OJT). 	X	X	X
	<ul style="list-style-type: none"> Consider training frequency depending on staff experience 	X	X	X
13.	Optimize opportunities provided by reduction or shutdown of operations		X	
	<ul style="list-style-type: none"> Utilize time for development and training 			
	<ul style="list-style-type: none"> Development and revision of procedures, documentation and regulations. 		X	
	<ul style="list-style-type: none"> Upgrade/Maintenance of aircraft, ground equipment, airport equipment, infrastructure and ANS installations and facilities. 		X	
14.	Review contingency plans to include provisions for significant financial and human resource shortages.	X		
15.	Consider human/crew resource management	X		
	<ul style="list-style-type: none"> Modify rostering of teams to meet changing operating environment and demands. 			
	<ul style="list-style-type: none"> Ensure adequate social distancing by creating non-overlapping teams without compromising smooth shift hand-overs/transition. 	X		
16.	Consider IT systems	X	X	X
	<ul style="list-style-type: none"> Ensure critical software and hardware is updated and functional 			

	<ul style="list-style-type: none"> • Maintain adequate and reliable IT back-up systems. 	X	X	X
	<ul style="list-style-type: none"> • Ensure build-up of activity matches system capability 			X
	<ul style="list-style-type: none"> • Carry out critical path analysis 			X
	<ul style="list-style-type: none"> • Prioritize critical software and hardware updates 	X	X	
	<ul style="list-style-type: none"> • Prioritize critical software and hardware updates in the early phases of re-establishing operations 			X
17.	Enhance and maintain communication channels for safety information sharing and exchange amongst industry players.		X	X
18.	Consider level of staff turnover	X	X	X
19.	Consider delays or cancellations to planned major infrastructure improvements			X

4.2 HUMAN FACTORS

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
1.	Consider reduced performance of staff and increased risk in the system due to	X	X	X
	<ul style="list-style-type: none"> • Psychological factors (fear, stress, anxiety, depression etc) 			
	<ul style="list-style-type: none"> • Increased workload and pressure due to changing work environment (fatigue) 	X	X	X
	<ul style="list-style-type: none"> • Distraction 	X	X	X
	<ul style="list-style-type: none"> • Complacency 	X	X	X
	<ul style="list-style-type: none"> • Physiological factors 	X	X	X

2.	Provide staff support	X	X	X
	<ul style="list-style-type: none"> • Activate staff, peer support programs or company community for mutual support 			
	<ul style="list-style-type: none"> • Activate in house human factor management 	X	X	X
	<ul style="list-style-type: none"> • Encouragement interdepartmental coordination and support in safety related activities. 	X	X	X
	<ul style="list-style-type: none"> • Human resources department to spearhead staff welfare plans 	X	X	X
	<ul style="list-style-type: none"> • Consider extending staff support to furloughed or redundant staff 	X	X	X
3.	Consider personal relationships among staff retained and those furloughed or made redundant	X	X	X
4.	Create awareness of	X	X	X
	<ul style="list-style-type: none"> • The mental health state of the staff 			
	<ul style="list-style-type: none"> • The potential for special cases amongst the work force 	X	X	X
	<ul style="list-style-type: none"> • Reduced quality of crew rest 	X	X	X
	<ul style="list-style-type: none"> • Potential reduction in general fitness levels leading to reduced performance 	X	X	X
	<ul style="list-style-type: none"> • The long-term physiological and psychological consequences of the crisis 	X	X	X
	<ul style="list-style-type: none"> • The effects of staff anxiety on behaviour and performance 	X	X	X
5.	Promote just culture within the organization	X	X	X
6.	Involve staff in “company thinking”	X	X	X
7.	Consider impact of disruption of work patterns and routine.		X	X
8.	Prepare teams to adapt and restore normal operations (high workload).			X

4.3 FLIGHT OPERATIONS

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/ Cessation</i>	<i>Re-established</i>
PERSONNEL				
1.	Ensure staff are available to operate growing schedule albeit: <ul style="list-style-type: none"> • Possible prolonged staff loss due to sickness or other reasons • Possible staff loss due to financial constraints 			X
2.	Ensure staff are available to operate reduced schedule or ad-hoc flights even with the possibility of prolonged staff loss due to sickness.		X	
3.	Pay particular attention to potential for increased risk due to lack of currency			X
4.	Evaluate compliance with regulatory requirements for: <ul style="list-style-type: none"> • Simulator availabilities • Medical certificates • Operators Proficiency Check – Licence Proficiency Check • Licence validities 			X
5.	Consider and plan for skills, knowledge and qualification distribution across the route network.	X	X	X
6.	Assess impact of interrupted initial and recurrent training		X	X
7.	Increase flight data monitoring to identify precursors for unsafe events	X	X	X
8.	Ensure availability of adequately trained check flight crews	X	X	X
9.	Consider use of enhanced crew complements to help maintain currency		X	
10.	Avoid management pressures to operate on minimum fuel and other operational constraints.	X	X	
11.	Ensure crew currency and knowledge of available airfields		X	X

12.	Consider physiological requirements for crews at airports and on layovers (hotels, food, etc)	X	X	X
13.	Establish and maintain effective fatigue risk management	X	X	X
14.	Consider effects of increased pressure on the remaining crews to service the program as more crews isolate	X	X	
15.	Consider risks from handling aircraft at very light weights (over-speeds, altitude busts etc.)	X	X	X
PROCESS: PRE-FLIGHT				
16.	Pay increased attention to the accuracy and currency of NOTAMS	X	X	X
17.	Proactively assess risk associated with routes and destinations and organize airport analysis and risk assessment.	X	X	X
18.	Consider creating semi-permanent crew pairings.	X	X	X
19.	Consider the use of an out-and-back policy for flights to avoid stays at outstations where practicable without compromising safety.	X	X	X
20.	Ensure timely processing of required regulatory approvals.	X	X	
21.	Adjust turn-around and initial report times as appropriate.			X
22.	Consider processing of exemptions as applicable	X	X	X
23.	Consider development of SOPs for airlines that do not routinely operate cargo only	X	X	
24.	Enhance aircraft maintenance contingency measures by inclusion of flight engineers on board.	X	X	
25.	Consider mutual support to facilitate movement of cargo aircrews when passenger flight schedules are reduced.	X	X	
26.	Consider mitigations for insufficient flight training device capacity to maintain crew currency.	X	X	X
27.	Consider availability of medical examiners and potential impact on licensing	X		X
28.	Consider levels of experience when scheduling and pairing flight crew.			X

29.	Ensure build-up of activity matches system capability e.g. training resources			X
30.	Consider altering the limitations on crew if the currency or training is significantly deferred:			X
	• limit the number of aircraft types on which a pilot can act as PIC			
	• reduction in crew day duty time			X
	• higher weather minima			X
	• crew pairing			X
	• airport selection			X
31.	Consider weight and balance issues due to unusual load factors	X	X	X
	• Cabin safety for passenger main decks			
	• Consider emergency equipment for carrying cargo in passenger cabins	X	X	X
32.	Ensure compliance with Dangerous Goods Regulations and policy	X	X	X
33.	Foster coordination between network planning, flight ops and maintenance when de-storing aircraft.			X
34.	Consider processes for roundtrip flights, e.g. rest possibilities, increased crew, food, water and toilet capability, etc	X		
35.	Arrange for availability of maintenance and ground support at outstations.	X		
36.	Where possible consider planning for spare aircraft on ground at outstation.	X		
PROCESS- FLIGHT				
37.	Confirm the available air traffic service level.	X	X	X
38.	Confirm the availability of en-route and destination diversions.	X	X	X
39.	Conduct risk analysis and processes for non-normal/non-routine operations, e.g. mixed passenger/cargo.	X	X	X
40.	Consider the validity of the following processes;	X	X	X

	<ul style="list-style-type: none"> limiting crew exposure during turn around, 			
	<ul style="list-style-type: none"> limiting crew walk-arounds, 	X	X	X
	<ul style="list-style-type: none"> limiting access to aircraft by ground staff for non-essential activities, 	X	X	X
	<ul style="list-style-type: none"> Availability of transport and hotels, 	X	X	X
	<ul style="list-style-type: none"> Management and nature of ferry flights for aircraft positioning. 			X
41.	Consider raising crew awareness of last-minute changes to loads for example no shows, rebookings from other airlines	X	X	
42.	Ensure availability of maintenance at outstations		X	
43.	Consider spare aircraft planning/availability for 'aircraft on ground' at outstation		X	
44.	Arrange for availability of maintenance and ground support at outstations.		X	
45.	Where possible consider planning for spare aircraft on ground at outstation.		X	
TECHNICAL				
46.	Confirm technical flight capability and availability.			X
47.	Ensure appropriate aircraft storage plan for short, medium and long-term and it should be noted that rolling short-term storage may breach Aircraft Maintenance Manual requirements.		X	
48.	Ensure maintenance plan reflects expected flying rates.		X	
49.	Ensure all software, firmware, navigation and terrain databases are up to date.			X
50.	Ensure validity of fuel statistics.			X
51.	Confirm that all required ground services are available.	X	X	X
52.	Ensure that the fuel service meets regulatory standards.	X	X	X

53.	Ensure that the de-icing service meets regulatory standards.	X	X	X
54.	Ensure transport back to base for crew having delivered aircraft to maintenance bases for shutdowns.		X	

4.4 REGULATORS

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
PERSONNEL				
1.	Ensure sufficient number of staff are available to handle regulatory system demands.	X	X	X
2.	Consider skills, experience, knowledge and qualification distribution across shifts notwithstanding possible prolonged staff loss due to sickness.	X	X	X
3.	Consider reduced staffing levels and increasing workloads when considering the rigour of audit response times etc (i.e., do not unnecessarily increase pressure on organisations).	X	X	X
4.	Ensure sensitivity to the challenges faced by personnel as normal operation are re-established.			X
5.	Encourage personnel to be flexible and adaptable to the new normal.			X
6.	Ensure that operators maintain adequate safety resources	X	X	X
PROCESS				
7.	Consider proportionate oversight during phased return to normal operation			X
8.	Consider granting exemptions.	X	X	X
9.	Consider granting waivers on applicable charges.	X	X	X

10.	Encourage stakeholders to apply safety management principles in all their operations.	X	X	X
11.	Consider flight time limit alleviations	X	X	X
12.	Consider availability of medical examiners and potential impact on licensing	X		X
13.	Consider the use of waivers rather than extensions to meet periodic licence and training requirements.			X
14.	Consider extending the training intervals.	X	X	X
15.	Ensure rapid alignment at the political level so that operational clearances can be set in place rapidly.	X	X	
16.	Provide guidelines for the protection of critical teams for example cargo crew in the short-term.	X	X	
17.	Consider crisis management and emergency response of the different stakeholders.	X	X	
18.	Consider developing a “go to” plan of short-term rules for such events (i.e., no one except crews on a cargo aircraft)		X	
19.	Consider a global waiver on some current security procedures e.g. cabin and flight crews hand sanitizer and other essential safety materials	X	X	
20.	Provide guidelines to ground handlers on the minimum level of services to be provided during a crisis situation.	X	X	
21.	Provide guidelines for allowing more crew rations food/water through security screening	X		
22.	Provide guidelines for continued compliance with all applicable regulations.			

4.5 AIR TRAFFIC SERVICES

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
PERSONNEL				
1.	Consider increased risk due to the potential for lack of currency			X
2.	Consider and plan for skills, experience, knowledge and qualification distribution across shifts notwithstanding possible prolonged staff loss due to sickness or other constraints.	X	X	X
3.	Consider reduced operating hours rather than reduced staffing levels if controller availability is low.	X	X	
4.	Maintain up to date training requirements, records and expiry dates.		X	X
5.	Identify and manage the risks associated with low staffing situations including single point human failure.		X	
6.	Consider continuous training of personnel including OJT, simulator refresher training.			X
7.	Where possible consider enhanced sanitization mechanisms including using different sets of equipment for each shift.	X		X
8.	Consider availability of medical examiners and potential impact on licensing	X		X
9.	Consider confinement of entire shifts (or group of personnel), if necessary, to ensure the continuation of service and to prevent the spread of infection	X		X
	<ul style="list-style-type: none"> • Organisation: Ensure sufficient food and drinks supplies 			
	<ul style="list-style-type: none"> • Organisation: Provide accommodation, beddings, cots 	X		X
	<ul style="list-style-type: none"> • Individuals: Change of clothes, personal hygiene items 	X		X

10.	Consider capacity imbalances and unusual traffic patterns at regional and/or network level			X
11.	Consider need to manage increased volume of training flights			X
12.	Consider possible threats of increased number of incidents for example runway incursions/excursions due to procedural drift for returning staff.			X
13.	Consider possible conflicts/confusion/lack of situational awareness due to unusual ground movements and taxi routes.			X
14.	Consider potential malfunctioning of systems for example aeronautical information inadequacies, unserviceability of equipment due to crisis-related changes or staff shortages.			X
PROCESS				
15.	Ensure accuracy, currency and timely transmission of NOTAMs	X	X	X
16.	Consider suspending all routine group training activities	X	X	X
17.	Consider alternative means of training, e.g. remote access	X		X
18.	Ensure safety assessments of any traffic pattern changes are performed	X	X	X
19.	Consider establishing crisis information flow channels with adjacent ATC units, airports in your airspace and emergency services	X	X	X
20.	Consider sectorisation plans	X		X
21.	Consider existing procedures and 'Letters of Agreement'	X	X	X
22.	Consider development of plans in case adjacent ATC units close down	X	X	X
23.	Ensure regular risk analyses conducted		X	
24.	Consider preparation of a service recovery plan			X
25.	Consider work in extended teams (an extra pair of eyes) as traffic levels increase			X
TECHNICAL				

26.	Ensure adequate availability of qualified manpower for technical resilience	X	X	X
27.	Consider limiting maintenance activities to essential tasks	X		X
28.	Ensure availability and maintenance of a spare ops room and remote/mobile towers	X		X
29.	Consider only essential maintenance activities should be carried out		X	
30.	Ensure availability and maintenance of a spare ops room and remote/mobile towers		X	
31.	Ensure all equipment is up to date and functioning			X
32.	Consider equipment resources required to support new working patterns			X
33.	Consider unexpected behaviour of decision-support tools due to unusual traffic patterns			X
34.	Consider flight plan inconsistencies due to multiple AIRAC changes			X
35.	Consider potential increase in airspace infringements due to lack of general aviation traffic pilot recency			X
36.	Consider unserviceability of CNS facilities and equipment		X	X

4.6 AERODROMES AND GROUND AIDS

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
PERSONNEL				
1.	Consider increased risk due to the potential for lack of currency			X
2.	Consider skills, experience, knowledge and qualification distribution across shifts notwithstanding possible prolonged staff loss due to sickness.	X	X	X
3.	Consider risk of operational (RFFS, ramp) staff complacency due to growing activity levels			X

4.	Consider risk of operations staff complacency due to reduced operations.	X	X	
5.	Assess risk of staff work overload due to growing activity levels			X
6.	Consider risk of returning/current staff inability to perform their duties due to pandemic-related restrictions			X
7.	Consider potential for increased numbers of disruptive passengers			X
8.	Consider risk from staff working in unfamiliar or non-standard locations			X
PROCESS				
9.	Ensure accuracy, currency and timely transmission of NOTAMs	X	X	X
10.	Review Aerodrome Emergency Plans specifically provisions for Public Health emergencies.			
11.	Ensure maintenance of all aerodrome service requirements including active wildlife control measures, RFFS	X	X	X
12.	Ensure that all the equipment and airport infrastructure are serviceable and in safe condition			X
13.	Consider reduced or changed runway/taxiway availability due to parked aircraft.			X
14.	Consider airport security provision <ul style="list-style-type: none"> • Limitations in security provision resulting in an in-flight security incident 			X
	<ul style="list-style-type: none"> • Providers at high/moderate risk destinations not ready to operate 			X
	<ul style="list-style-type: none"> • Variable degradation of facilities and service provision 			X
15.	Consider risk of deviations from regulatory and/or organizational requirements, policies and procedures			X
16.	Ensure all services (e.g. fuel, de-icing, water) meet regulatory standards			X
17.	Consider efficiency of emergency response due to lack of exercises, parked aircraft, obstructed access roads, staff availability			X

18.	Ensure sufficient provision of ground handling services such as toilet cleaning and galley replenishment	X	X	
19.	Ensure that the airfield has a master parking plan and that standard and crisis level capacity are known		X	
20.	Consider potential risk from blocked runway/taxiway due to parked aircraft		X	
21.	Consider allowing more crew rations food/water through security screening	X		
22.	Ensure that the airfield has a master parking plan and that standard and crisis level capacity are known	X		
INFRASTRUCTURE AND EQUIPMENT				
23.	Ensure compliance with requirements to keep aerodrome facilities and services operational and including certified/licensed.	X	X	X
24.	Consider potential for pavement damage from long-term parking of aircraft		X	X
25.	Consider possible ground damage to aircraft during increase of ground activities			X
26.	Consider likelihood of delays or cancellations to planned infrastructure improvements			X
27.	Ensure that sufficient engine running capability exists			X
28.	Ensure proper management of fuel in tanks, vehicles and feeder lines	X		X
29.	Ensure proper management of potable water supplies	X		X
30.	Ensure proper management of all aerodrome services including RFFS,			X
31.	Ensure all delivery and storage equipment (e.g. fuel, de-icing, water) meets regulatory standards			X
32.	Ensure that sufficient engine running capability exists	X		

4.7 AIRWORTHINESS OF AIRCRAFT

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
PERSONNEL				
1.	Consider increased risk due to the potential for lack of currency <ul style="list-style-type: none"> Ensure adequate availability of line maintenance crews to deal with initial bow-wave of defects 			X
2.	Consider skills, experience, knowledge and qualification distribution across shifts <ul style="list-style-type: none"> Possible prolonged staff loss due to sickness 	X	X	X
3.	Ensure adequate training and documentation for maintenance personnel in de-storage activities			X
4.	Ensure enough qualified maintenance personnel are available for de-storage of aircraft		X	X
5.	Ensure adequate availability of line maintenance crews to deal with initial bow-wave of defects			X
6.	Consider training and checking requirements and expiry dates		X	
PROCESS				
7.	Consider possible reduced availability and timeliness of spare parts	X	X	X
8.	Consider the reliability of 'aircraft on ground' service levels	X	X	
9.	Consider potential for extended MEL/DDL ops	X	X	X
10.	Ensure coordination between network planning, flight ops and maintenance		X	

	for immediate availability and storage of aircraft and engines			
11.	Ensure coordination between network planning, flight ops and maintenance for de-storage of airplanes and engines			X
12.	Consider risks arising from long-term parking, including wildlife ingress		X	X
13.	Consider the process for de-storage of aircraft and engines			X
14.	Consider optimization of the maintenance and aircraft component checks			X
15.	Consider the reliability of 'aircraft on ground' service levels			X
16.	Consider adverse weather conditions when preparing long-term storage		X	
17.	Consider process for switching from short- to long-term storage		X	
18.	Ensure availability of sufficient equipment for aircraft storage, e.g. covers, plugs etc		X	
TECHNICAL				
19.	Ensure compliance with AMM for aircraft and engine de-storage			X
20.	Ensure all software, firmware, navigation and terrain databases are up to date			X
21.	Ensure that all "lifed" or life-limited items are in date	X		X
22.	Consider prioritizing calendar requirements			X
23.	Consider potential for delays in recalibrating tools and equipment			X
24.	Consider the need for technical flights in light of level and duration of storage			X
25.	Consider possible ground damage to aircraft during prolonged parking			X
26.	Ensure compliance with AMM for aircraft and engine shut down and storage		X	
27.	Ensure security of stored aircraft		X	
28.	Check for adequate and suitable parking positions for stored aircraft		X	
29.	Consider prioritizing calendar requirements		X	

30.	Consider potential for delays in recalibrating tools and equipment		X	
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4.8 GROUND OPERATIONS

ITEM	SAFETY ASPECTS	Status of Aviation Activities		
		<i>Continued</i>	<i>Reduced/Ce ssation</i>	<i>Re-established</i>
PERSONNEL				
31.	Consider increased risk due to the potential for lack of currency			X
32.	Consider skills, experience, knowledge and qualification distribution across shifts <ul style="list-style-type: none"> • Possible prolonged staff loss due to sickness 	X	X	X
33.	Consider risk of airside staff complacency during growing activity levels			X
34.	Consider risk of airside staff complacency due to reduced ramp activity levels	X	X	
35.	Consider risk of overload of staff due to growing activity levels			X
36.	Consider risk of returning/current staff inability to perform their duties due to pandemic-related restrictions			
37.	Consider risk from staff working in unfamiliar or non-standard locations			
38.	Consider risk of unfamiliar airlines and types with differing SOPs or standards			
PROCESS				
39.	Ensure a process for coordination between flight ops requirements and ground ops for de-storage of ground service equipment			X
40.	Consider de-storage and checks of ground equipment			X

41.	Consider airport security provision			X
	<ul style="list-style-type: none"> • Providers at high/moderate risk destinations not ready to operate • Variable degradation of facilities and service provision 			X
42.	Consider risk of deviations from regulatory and/or organizational requirements, policies and procedures			X
43.	Consider loading errors due to unaccounted ULDs on aircraft (e.g. ground staff unaware of ULDs stored on grounded aircraft)			X
44.	Ensure all services (e.g. fuel, de-icing, water) meet regulatory standards			X
45.	Ensure continuous availability of sufficient ground service equipment		X	
46.	Consider possible reduction in service levels such as load sheet preparation	X	X	
47.	Consider the process for storage and maintenance of ground service equipment		X	
TECHNICAL				
48.	Consider possible ground damage to aircraft during prolonged parking			X
49.	Ensure proper management of de-icing fluids			X
50.	Ensure proper management of fuel in tanks, vehicles and feeder lines			X
51.	Ensure proper management of potable water supplies			X
52.	Consider possible reduction in service levels such as de-icing, snow clearing,	X	X	

4.9 CONCLUSION

The identification of safety hazards related to the COVID-19 pandemic and the development of the appropriate detailed mitigation measures may be facilitated by the use of the Bow Tie tool to capture the information in a more logical and clearer form. Checklists to support this process are provided to allow a systematic approach for the Continued, reduced/cessation and re-establishing operations as indicated in the appendices to this Advisory Circular.

Civil Aviation Authority

Appendix 1:
Checklists