EASA
European Union Aviation Safety Agency

Practical scenario 2

Note: this document complements the core guidelines on the "role of operators' management systems in the COVID-19 recovery phase".

Revision record

Issue	Date of issue	Summary of changes
01	17.07.2020	Initial issue

1. Foreword

The scenario mainly addresses the air operators, when identifying and addressing the safety hazards associated with the return to normal operations (RNO) following the COVID-19 pandemic.

The practical scenario has been developed with the support of subject-matter experts from air operators, international associations and national competent authorities.

From a safety risk management's perspective, the scenario only provides guidelines for consideration.

The list of "hazards", "threats", "consequences" and "mitigation measures" is **not exhaustive**.

The air operator will have to assess whether these proposed elements are relevant and effective. In no case, the proposed elements pretend to be sufficient or be the right approach to control the risks to an acceptable level.

There is no full risk assessment proposed as such: the comprehensive risk assessment for each identified hazard and consequently the determination of the needed mitigation measures, remain the ultimate responsibility of the air operator, as the context may widely vary from one airline to another.

It can be also useful to consider the other EASA-developed scenarios, which provide with a different list of hazards adapted to the nature of the scenario, but may remain a source of inspiration. For instance, this scenario does not address the risks of limited Ground Handling Service Provider services at the destination or flights to airports just re-opening , which have been actually addressed by "practical scenario 1".

The national competent authorities can also use these guidelines in the course of their surveillance activities.

Comments, suggestions and improvement can be addressed to safety.management@easa.europa.eu.

2. Desciption of the practical scenario

Context:

This scenario applies to an air operator restarting their usual types of operations with the need to review its business model during the return to normal operations.

Explanation:

- A charter / CAT air operator is resuming its standard point to point activity.
- Since the activity is still limited, the air operator decides to fly cargo transportation in passenger cabin to increase the commercial offer.
- All the organizational areas within the air operator will be affected by the change.
- Due to the limited activities, part of the airline staff are on unpaid leave and the crew are selected on a rotating basis.
- Only minimum staff are available

3. Proposed list of identified hazards with hyperlinks

Instructions: activate the hyperlinks to access the proposed "threats", "consequences" and "mitigation measures" for each hazard listed below

From an ORGANISATIONAL perspective

- Staff psychological stress
- Inadequate management of change following introduction of a new business
- Reduction of safety resources

From FLIGHT OPERATIONS perspective

- Flight Crew (Cockpit & Cabin) with reduced recent experience
- Insufficient number of pilots and cabin crew to cope with demand
- Non adherence to SOP
- Reduced reporting of safety issues and non-compliances
- Crew not familiar with cargo operations during flight preparation
- Improper operational measures for Covid-19 during passenger flights
- Inadequate introduction of new SOP for Cargo transport in cabin

From a TRAINING perspective

- Insufficient crew training staff availability during the restart of operations
- Insufficient crew training planning considering the new business plan
- Training department with limited volume of activities in the last 6 months
- Inadequate training on new procedures (SOP) for cargo transport in cabin

From an OPERATION CONTROL CENTER's and CREW SCHEDULE DEPARTMENT perspective

- Inadequate crew rostering
- Reduced staff
- OCC and Crew Scheduling department with reduced recent experience
- Inadequate training of OCC/Crew Scheduling and other air operator staff about new SOP's

From the GROUND DEPARTMENT perspective

- Not all ground staff and service is available from external parties

- Inaccurate loading procedure
- Sanitary procedures not followed by the GHSP staff

From a CAMO and MAINTENANCE perspective

- Insufficient maintenance planning
- Lack of availability of maintenance and engineering staff (internally or third party)
- More time needed for maintenance inspection(s)
- Limited availability of maintenance staff
- Reduced size of the CAMO
- Prolonged period of parking (long storage)

AREA	ORGANISATIONAL (Staff wellbeing, Commercial & financial pressure, etc.)		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Job instability/uncertainty Financial distress	**Staff psychological stress**	Staff and crew (un)well-being Psychological pressure Errors / lapses Fatigue Diminution of alertness Increased risk-taking	Explanation: During the period of unprecedented job instability and cost-savings, staff are facing psychological pressure and stress with possible consequences on their safety performance. Productivity gains from crews will involve extending maximum working hours allowed in a duty period, reducing rest periods during duties. Overhaul of pay and benefits may be central. Mitigation: - Clear communication with the staff on airline strategy (business recovery plan): it is important that there is a robust and centrally coordinated communication strategy in place to prevent rumor and misinformation that will create more uncertainty and stress. Such communication should provide up to-date and reliable information to employees and customers. - Staff resource plan timely adapted to the short, mid and long term operation outlook - Access to mental wellbeing support programs such as pilot peer support (see EPPSI[1]) – see also Commission Regulation (EU) 2018/1042[2] - Direct Management Contact with Staff highlighting the importance of the safety and wellbeing of all colleagues as a top priority and outlining the employee supports available (e.g. Employee Assistance Programmes (EAP). - Remind the employees of the organisation's Just Culture

[1] European Pilot Peer Support Initiative at http://eppsi.eu/

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1591935555034&uri=CELEX:32018R1042

AREA	ORGANISATIONAL (Staff wellbeing, Commercial & financial pressure, etc.)		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Commercial pressure Financial distress	**Inadequate management of change following introduction of a new business**	Ineffective identification of critical area Poor review of airline documentation Poor planning Non compliances Insufficient resources	Explanation: Following the decision to change the business model an air operator should develop a robust management of change in order to early identify areas that will need more attention during the implementation phase. Mitigation: - Develop a management of change - Involve all the department in the management of change exercise - Perform a gap analysis to identify the critical areas

AREA	ORGANISATIONAL (Staff wellbeing, Commercial & financial pressure, etc.)		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Financial distress	**Reduction of safety resources**	Reduced effectiveness of safety and compliance staff / department Ineffective monitoring of management system key processes such as the hazard identification and risk assessment process. Backlog in audit plan / decreased performance Dismissal or furlough of key staff Loss of competence due to cost-saving measures Increased workload due to COVID-19 management of change activities (downsizing, COVID-19 contingency measures, re-start of operations)	Explanation: During the commercial and financial difficulties, air operators may be tempted to significantly cut the resources in the whole organisation. Safety and compliance may be affected by these cost-saving measures. Organisations have to rely on safety and compliance monitoring function during the critical phases of the re-start. Therefore organisations should avoid any cost-saving measures in this area. Mitigation: - Clear business plan to restart operations and manage changes considering short/medium/long term communication; transparency on the recovery plan towards all employees and towards the overseeing authorities - Identification of critical tasks and prioritization of tasks - Strengthen safety and compliance monitoring capabilities - Adapt the frequency of the SRB meeting and SAG if appropriate - Procedure to monitor the wellbeing of staff / cell where to report any concerns in an anonymous and non-punitive (sanction-free) manner - Promote internal (just) reporting culture to facilitate the identification of possible negative safety trends - Compliance is paramount

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Staff unemployed following a rotation scheme	**Flight Crew (Cockpit & Cabin) with reduced recent experience**	Degradation of Handling Skills Exceeding operating limits (Max flap speed, MMO, Max extended gear speed) Unstable approaches Handling errors Disrupted Flow Pattern Runway excursion Tail strike (during take-off and/or landing) Hard landing upset Recovery skills incorrect A/C configuration Error in performance calculation	Explanation: The air operator, due to cost-saving policiesand reduction of activities, may have opted for having crew employed on a rotation scheme [e.g. one month on duty and one month furloughed). This may have had an impact on pilot flying skills. Mitigation: - Consideration should be given for pilots with limited flying experience should be given when considering training requirements before returning to duty after inactivity. - Consider developing specific briefings for LTCs and TRIs during RNO to address specific reduced experience-related issues. - Avoid any amendment to SOP during the crew rotation scheme periods. - Roster, when possible, crew with recent flying / duty activity - Consider the possibility to plan the roster of pilot returning on duty after furlough with a line training captain or a TRI - Consider the possibility to plan the roster of cabin crew returning on duty after furlough with a cabin trainer or with an experienced in-charge crew member. - When there is no option available other than rostering together crew after returning from furlough, consider applying operational limitations [e.g. reduction of maximum crosswind component, increased operational minima etc.]

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Staff unemployed following a rotation scheme Financial distress Aggressive cost-saving policy	**Insufficient number of pilots and cabin crew to cope with demand**	Inadequate crew pairing Fatigue Inadequate rest Greater pressure to 'pass' pilots during test or simulator sessions Delay or Flight cancelation Commercial pressure on the crew	Explanation: Many organizations may have opted to furlough pilots and cabin crew on a rotation scheme. As demand picks up quicker than anticipated, there will be increased strain on available resources. Mitigation: - Clear business plan to restart operations and manage changes considering short/medium/long term communication accompanied by transparency for the employees and the overseeing authority with respect to all elements of a recovery plan - Consider crew pairing and adequate rostering - Monitor the different stages of the pandemic and review the business plan in a dynamic manner.

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Commercial pressure Non-adequate communication on documentation changes	**Non adherence to SOP**	Exceeding operating limits (Max flap speed, MMO, Max extended gear speed) Unstable approaches Disrupted Flow Pattern Runway excursion Tail strike (during T/O and/or landing) Hard landing incorrect A/C configuration Error in performance calculation Rush pre flight Unsafe decision making Take off abort Ineffective CRM Poor communication between crew leading to errors	Explanation: Due to commercial pressure induced by the current situation or self-induced by the pilots, the strict adherence to SOP may be jeopardized. The non-adherence to SOP may also be generated by poor organisational communication on changes in the documentation. Mitigation: - Monitor SOP adherence of crew with FDM to early capture negative trends that may lead to occurrences with safety impact - Ensure that the way the organisation communicates with the staff does not create a self-induced commercial pressure needs - Verify that official manuals have been amended to include latest revisions and staff receive adequate information or training - Make sure that training staff verifies adherence to SOP during training sessions

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Commercial pressure Job insecurity / instability Negative just culture Lack of management commitment	**Reduced reporting of safety issues and non-compliances**	Ineffective organisation (S)MS Undetected damages / exceedance [flap overspeed; hard landing etc.]	Explanation: Due to the current situation of financial distress and job instability, experience demonstrates that crew willingness to report events is impaired and outweighed by the fear of negative repercussion. An effective management system relies on a good reporting culture to collect occurrences and identify negative trends. Mitigation: - Monitor reporting trends compared to other means of collecting safety data [e.g. FDM] to early detect negative trends in pilot reporting culture; - Ensure that the level of trust to the organisation among the crew on reporting remains at the expected level supported by an appropriate communication approach and commitment by the senior management. - Remind the employees of organisation's Just Culture principles, including protection of the reporter and no sanctions for reporting - Remind the employees of the Regulation (EU) No 376/2014 on reporting, analysis and follow-up of occurrences in civil aviation, including fatigue as mandatory reporting item, and encourage them to report. - Senior management shall re-enforce the just-culture measures, considering the current situation.

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
New business model not properly communicated. New procedures not adequately implemented Lack of crew experience on transportation of cargo	**Crew (cockpit &cabin) not familiar with cargo operations during flight preparation**	Wrong fuel decision Not realizing possible mistakes in flight planning/calculation Cargo not properly secured Cargo not properly checked before commencing the flight Incorrect A/C configuration Load sheet errors Loading instructions not clearly defined and notified to the crew Position of extra emergency equipment not clearly marked Cabin crew duties during cargo flight not clearly defined Inadequate A/C preparation Ineffective walkaround Take off abort Uncertainty about declaration/status of A/C (passenger or cargo A/C) and respective Dangerous	Explanation: Following the airline's decision to adopt a new business model, the crew may lack necessary experience on transportation of cargo. Moreover, the current situation may reduce the possibility to deliver appropriate training and the required implementation of procedures. Mitigation: - Air operators may consider reviewing the time allocated for the flight preparation and briefing - Air operators have to amend procedures to adapt to the new business activity - Air operator may consider the need for a refresher course on dangerous goods and cargo, when relevant. - Ensure that the crews are familiar with the new extra emergency equipment's location. - Ensure that the ground staff are familiar with the weight & balance as well as ground procedures. - Ensure adequate crew information package specifying applicable operation/regulation

		goods regulation to be applied (e.g. dangerous goods Cargo A/C only)	

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Covid-19 New or additional COVID-driven procedures (e.g. specific announcements, use of PPE, Sanitation requirements)	**Improper operational measures for Covid-19 during passenger flights**	Aircraft contaminated with infectious disease. Below standard execution of procedures Unruly passenger Crew health safety being impaired Additional workload Confusion Fatigue stress leading to lapses and errors	Explanation: The air operator may have not implemented in the most effective way the procedures to cope with the pandemic due to the highly changing situation. Mitigation: - Additional cleaning requirements - Procedures and provision of anti-bacterial hand wipes and surface wipes to clean & pre-prepare all contact surfaces or any other sanitary means - Air operator shall verify the appropriateness of procedures for staff to access the aircraft during turnaround. - The air operator may review the “unruly passenger” policy and procedure to better address the additional COVID-19 peculiarities. - consider EASA /ECDC Aviation Health Safety Protocol[3]; latest revision of SIB 2020-025; and the EASA guidance on “Management of crew members” and “Aircraft cleaning and disinfection”

[3] https://www.easa.europa.eu/newsroom-and-events/news/passenger-health-safety-updated-measures-summer-2020

AREA	FLIGHT OPERATIONS		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Cargo transportation: Unfamiliar new type of operation (cargo) Improper introduction of new policies and procedures	**Inadequate introduction of new SOP for cargo transport in cabin**	Crew confusion on task allocation Unsafe transportation of cargo Below standard execution of procedures Errors Inadequate CRM Increased workload Cabin Crew duties not clearly defined , cabin crew not specifically trained for emergency procedures (e.g. firefighting) in cargo configuration	Explanation: Due to time pressure, the air operator may not have properly implemented and distributed procedures on cargo transportation. Mitigation: - Ensure proper communication with the crews to highlight the new procedures related to transport of cargo - Ensure that the crew (cockpit & cabin) receive the proper training -

AREA	TRAINING		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Restart Operation: Lack of, or reduced training crew (instructors/examiners) (Resource Management HFACS)	**Insufficient crew training staff availability during the restart of operations**	Unavailability of crew Delay in the implementation of the training plan Cancelation of training events Decreased training efficiency Reduced effectiveness of training Unsafe aircraft operations Fatigue and increased stress for pilots who fly	Explanation: Due to the cost-saving policy and the inadequate plan of activities, the air operator may face a reduction of training staff availability. This may have an impact on the timely delivery of training. Mitigation: - Review the training programme to evaluate the number of trainers needed to deliver the training needs in a timely manner. - Review the operational needs to ensure that the impact of reduced training capability will not negatively affect the pilots currently qualified for the operations - Ensure the prioritization of training based on the operational needs

AREA	TRAINING		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Commercial pressure Inadequate business plan implementation	**Insufficient crew training planning considering the new business plan**	Lack of trained crews Difficulties in implementing the new business plan and demands The senior management may generate pressure to meet business plan Insufficient instructors availability Non availability of third party training providers/simulators Degradation of crew training standards	Explanation The air operator may have not properly evaluated the consequences of the new business plan on the crew training needs. Mitigation - Review the planning and assess the operational impact [assess the number of trained pilots needed]; - Ensure the prioritization of training based on the operational needs for the new business plan - Consider new training service providers Amend the crew training planning and subsequently the programme to ensure the availability of trained crew to perform the expected flights

AREA	TRAINING		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Covid-19	**Training department with limited volume of activities in the last 6 months**	Ineffective training Ineffective evaluation of trainee's performance Inappropriate use of the grading system	Explanation: The Covid-19 situation and the consequent reduced flight activity impact the training department, reducing significantly the training activities Mitigation: - Air operator may consider introducing a refresher and standardization training for all the instructors during the restarting phase - Air operator may consider reviewing its training grading system and perform an instructor's refresher course

AREA	TRAINING		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Introduction of new procedures with limited training resources New type of operation (cargo) requirements and restrictions, policy (SOP's), destination (s)	**Inadequate training on new procedures (SOP) for cargo transport in cabin**	Inappropriate training of instructors Inadequate training of crew (cockpit & cabin) Below standard execution of procedures and confusion. Crew and staff confusion Errors	Explanation: With the introduction of new business activities a need for training is foreseen. Following the significant reduction of operational and training activities and the inability to perform classroom training some of the new procedures may have not been trained properly. Moreover, instructors may have not received appropriate training on new SOP. Mitigation: - Air operator may consider to introduce a refresher and standardization training for all the instructors during the restarting phase - Refresh training to all crew involved in the new type of operation

AREA	OPERATION CONTROL CENTER and CREW SCHEDULE DEPARTMENT		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Restart Operation: Lack of, or reduced number of crew	Inadequate crew rostering	Crew exceed FTL limitation Crew fatigue Unsafe aircraft operation Flight delay Flight cancelled Increase in FDP, use of exemptions	Explanation: Cost-saving measures and reduced activity may have affected the availability of crew during the restart phase. This may have an impact on the correct and safe execution of a flight. Mitigation: – Air operator to review the rostering procedure to ensure an efficient & safe management of crew as well as mitigate fatigue – Air operator to enhance its Fatigue Risk Management (FRM) processes & set up / involve the Fatigue Safety Action Group (FSAG) – FTL limitations to be fully applied by the operator (= as a basic line of defence to underpin FRM) – Operator to encourage crew to report fatigue to allow detecting fatigue hazards & set up mitigations

AREA	OPERATION CONTROL CENTER and CREW SCHEDULE DEPARTMENT		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Commercial pressure / labor laws (e.g. short time work regulations)	**Reduced staff**	Inaccurate flight planning, including route, fuel, and alternate planning (e.g. firefighting capacity required might have changed) No update information Error Erosion of experience High workload as demand picks-up Fatigue and crew fatigue	Explanation: Cost-saving measures may affect all staff, including OCC staff and Crew schedule department. This may affect the quality of the flight planning and flight preparation and ultimately safety. Mitigation: - Plan the flight considering contingency plan – on several levels and for different scenarios. - Develop specific GM / Check-Lists / What-to-do Lists for every scenario and train the crews on the way those should be applied. - Organise a special team of experts available for the Crews for instant remote contact – with a task to support the crews - especially if those crews are already in the air. - Plan to restart the operations on a step-by-step basis. Plan enough time for Q&A. Try to learn on every occasion what is hampering the new developed SOPs – what is working and what is not. - Crew scheduling: enhance Fatigue Risk Management (FRM) processes, set up / involve the Fatigue Safety Action Group (FSAG), encourage reporting.

AREA	OPERATION CONTROL CENTER and CREW SCHEDULE DEPARTMENT		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Restart operations: Reduce flight activity Staff unemployed scheme	**OCC and Crew Scheduling department with reduced recent experience**	Inaccurate flight planning, including route and fuel No update information Error Uncertainty about declaration/status of A/C (passenger or cargo A/C) and respective Dangerous goods regulation to be applied (e.g. dangerous goods Cargo A/C only)	Explanation: Due to the reduced flight activity during the recent months there could be a higher probability of errors in OCC and scheduling department. Mitigation: - Review planning and rostering procedure to verify adequacy during the restart of operation - Monitor quality of flight planning and crew rostering to early identify negative trend - Enhance Fatigue Risk Management (FRM) processes, set up / involve the Fatigue Safety Action Group (FSAG), encourage reporting. - Develop clear guidance and respective OCC training

AREA	OPERATION CONTROL CENTER and CREW SCHEDULE DEPARTMENT		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Cargo transportation: New type of operation (cargo) requirements and restrictions, policy (SOP's), destination	**Inadequate training of OCC/Crew scheduling and other operator staff about new SOP's**	Inaccurate flight planning Error Inaccurate performance calculation Stress Wrong Operational Flight Plan Increased number of diversion Increased flight time Inappropriate ATC clearance Inaccurate fuel planning Wrong NOTAM Aerodrome closed Missing airspace restriction Wrong Flight Plan Inaccurate flight envelope preparation Uncertainty about declaration/status of A/C (passenger or cargo A/C) and respective Dangerous goods regulation to be applied (e.g.	Explanation: Due to the reduce capability of the training department OCC staff may not have received adequate training on the new type of operation or the new procedures. Mitigation: - Organize a dedicated training before the start of operation - Review adequacy of documentation and information provided to OCC and Crew rostering staff

		dangerous goods Cargo A/C only)	

AREA	GROUND		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Restart Operation: Airport and ground handling staff reduction	**Not all ground staff and service is available from external parties**	Flight Delay Flight Cancelations Loading error Cargo securing error Loadsheet error Concern that ground handling providers or airport operators, will return to operations with reduced safety margins. Security breach Ramp safety event Necessary ground equipment (loading) not available	Explanation: Non or limited service/support is available. In addition large turnover of GH SP staff is well known Mitigation: - Air operator has to consider possible contingency situation during flight planning. - Consider to perform a remote inspection [at least desk-top review of manuals and procedures] of the GH SP (oversight of the subcontracted activities) - Air operator has to identify the significant changes affecting the GH SP.

AREA	**GROUND**		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
New procedures New type of operation(s) Inadequate introduction of new SOP's for Cargo transport in cabin Inadequate training of new SOP's for Ground staff	**Inaccurate loading procedure**	Degradation in aircraft performance/out of trim condition Tail strike (TO and landing) Runway overrun Cargo not secured Cargo shift	Explanation: Due to the introduction of new types of operations or new configuration of the aircraft, ground handling can be impacted. Mitigation: - Amend ground operation manual procedures - Ensure proper equipment available at destination. - Contact destination aerodrome / airport and all subcontractors there before the flight - Monitor / check the cargo loading of the aircraft - Deliver adequate training

AREA	GROUND		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Spread of Covid19 Extra ground operational measures for Covid-19	**Sanitary procedures not followed by the GHSP staff**	Aircraft contaminated with infectious disease.	Explanation: Groun Handling Service Provider (GHSP) may have procedures different with the ones of the air operator to cope with the pandemic. Mitigation: - Additional cleaning requirements; consider EASA Safety Directives 2020-03[4] and 2020-04[5] - Verify the adequacy of the air operator's procedures with the GHSP - Consider EASA /ECDC Aviation Health Safety Protocol[6]; latest revision of SIB 2020-025 ; and the EASA guidance on "Management of crew members" and on "Aircraft cleaning and disinfection"

[4] https://ad.easa.europa.eu/ad/SD-2020-03
[5] https://ad.easa.europa.eu/ad/SD-2020-04
[6] https://www.easa.europa.eu/newsroom-and-events/news/passenger-health-safety-updated-measures-summer-2020

AREA	CAM (Continuing Airworthiness Management) / MAINTENANCE		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Staff unemployed scheme Cash flow out (Organisational process)	**Insufficient maintenance planning** **Lack of availability of maintenance and engineering staff (internally or third party)** Maintenance staff not familiar with cargo in passenger Airplane requirements/retrofits (could be a threat in its own)	Lack of maintenance oversight or execution Flight cancelation or delay Unsafe flight operation (aircraft in non-airworthy condition) Overdue maintenance tasks No or delayed parts or tooling availability Postponing maintenance tasks Maintenance actions /issues necessary in the cabin are overlooked/unknown leading to not airworthy aircraft	Explanation: Due to the cost-saving policy, the air operator's staff have been laid-off or furloughed. The lack of human resources (CAMO) impact the maintenance planning of the fleet. In addition, externally, the lack of resources with the contracted AMOs (Base and line maintenance as well as maintenance sub-contractors at the destination) impacts the planning of the maintenance tasks as well as the support for the engineering preparation of the maintenance work package(s) Mitigation: - The air operator has to review its procedures for maintenance planning to allow more time and adequately address any safety issues that may hinder the airworthiness of the fleet. - The air operator must ensure continuous line of communication with the maintenance entities providing engineering support to better schedule the maintenance slots and the nature of the maintenance tasks - Clear business plan to restart operations and manage changes considering short/medium/long term communication; transparency on the recovery plan towards all employees and towards the overseeing authorities - Ensure clear and amended maintenance documentation to reflect the changed configuration requirements - Ensure appropriate maintenance staff training

AREA	CAM (Continuing Airworthiness Management) / MAINTENANCE		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Reduced staff Lack of qualified personnel High number of engineering qualification overdue HF impact on Line or base Maintenance department due unforeseen workload Time pressure Psychological pressure and wellbeing High number of aircraft have been stored. Some on them have been parked away from the availability of a maintenance organisation	**More time needed for maintenance inspection(s)**	Aircraft not airworthy Damage or failure not detected or fixed Aircraft engaged beyond technical limits or not properly trouble-shooted Possible triggering of real or spurious warnings and indications Unclear technical status Significant number of deferred defects and open MEL items Delay Backlog of Aircraft Maintenance Programme (AMP) tasks Airworthiness exemptions (such as AMP tasks extension or ARC validity) Errors due to time or psychological pressure Flight Crew could be unaware of the fact that aircraft is not airworthy	Explanation: Because the aircraft did not fly for a long period of time, the number of maintenance tasks and inspections needed to re-store the aircraft back to operations will be higher and a longer time to complete them will be necessary. The nature of the inspections could be also altered. Unavailability of spare parts may impact the delivery of the aircraft. Mitigation: - Sufficient time should be given to the CAMO to re-assess the airworthiness status of the aircraft, especially when re-engaging the aircraft after de-storage and prepare the maintenance package for the Aircraft Maintenance Organisation(s) (AMO). - CAMO should plan sufficient time to let the AMO carry-out the maintenance package, keeping in mind that the de-storage of the aircraft will reveal defects, which will impact the duration of the maintenance check. CAMO and AMO should anticipate the availability of spare parts. - Coordination between the OCC, the CAMO and the AMO should be ensured to better plan the availability of the aircraft for the air operations. - The airworthiness status of the aircraft should be carefully followed-up and passed to the OCC for the flight preparation so that the crew are fully aware of the aircraft status, defects and open MEL items before (re)starting air operations - The OCC and CAMO in liaison with the AMO should double check the airworthiness status and the release to service of the aircraft with a

			special attention to the defects found during the checks or incomplete tasks. - Ensure adequate maintenance contract(s) and maintenance capabilities at the aerodrome where the aircraft has been stored. - Ensure that the availability and capability of maintenance organisations at the destination.

AREA	CAM (Continuing Airworthiness Management) / MAINTENANCE		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Maintenance providers limit supported locations Financial distress of the maintenance organisations	**Limited availability of maintenance staff**	Aircraft in AOG Cancellation or delay of flights Commercial pressure to operate the aircraft with deferred items Extensive use of MEL Repair interval extension	Explanation: Air operators may face difficulties with the maintenance service provider that had to reduce the number of staff due to the consequences of the pandemic. Mitigation: - Establish a communication line with the maintenance providers to understand their capability to cope with the maintenance needs and plan aircraft use in coordination with the OCC - Prepare a contingency plan - Make sure that the crew clearly understands their remit and privileges related to the MEL items and associated maintenance actions. - Check the robustness of an internal policy on the dispatch of aircraft with open MEL. - Ensure the monitoring and analysis of repetitive defects by the CAMO in order to be proactive in the identification of possible hazards

AREA	CAM (Continuing Airworthiness Management) / MAINTENANCE		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Financial distress	**Reduced size of the CAMO**	Possible overruns on maintenance tasks Overdue Airworthiness Directive(s) (AD) or missed AD Inappropriate management of maintenance tasks and airworthiness status of the fleet Not appropriate evaluation and follow-up of technical log book entries Lack of competence due to laid-off personnel	Explanation: Due to the cost-saving policy, the air operator may decide to reduce the size of the CAMO to the minimum. Mitigation: - The air operator shall analyse the impact of this staff reduction and develop a robust procedure to ensure the airworthiness of the aircraft. - The air operator should develop an effective mapping of CAMO staff competences in order to ensure the continuing airworthiness monitoring function. - The air operator and its CAMO should ensure an effective line of communication with the maintenance organisation for a better coordination about the maintenance actions to take

AREA	CAM (Continuing Airworthiness Management) / MAINTENANCE		
THREAT	**HAZARD**	**CONSEQUENCES**	**DESCRIPTION and MITIGATIONS**
Reduce operational activity	**Prolonged period of parking (long storage)**	Degraded aircraft systems; numerous defects; operations with multiple open MEL items Aircraft in AOG; unavailability of spare parts Commercial pressure to operate the aircraft with deferred items Unknown failure of emergency or critical systems Clogged pitots, landing gear bay, APU exhausts, other Vents/Orifices damaged by wildlife Undetected damages to a/c systems such as leaking actuators, sealing, structure-'Sticky' Valves, Dried-Out Seals, Avionic faults, corrosion of metals etc. Low or high rejected T/O Unreliable high speed event In-flight failures. Spurious alarms	Explanation: The aircraft may have been parked for a long time. During prolonged parking, aircraft may have been damaged. These damages may have not been reported to the air operator. Because the aircraft did not fly for a long time, the number of maintenance tasks and inspections needed to re-store the aircraft back to operations will be higher and a longer time to complete them will be necessary. The nature of the inspections could be also altered. Unavailability of spare parts may impact the delivery of the aircraft Mitigation: - Sufficient time should be given to the CAMO to re-assess the airworthiness status of the aircraft, especially when re-engaging the aircraft after de-storage and prepare the maintenance package for the Aircraft Maintenance Organisation(s) (AMO). - CAMO should plan sufficient time to let the AMO carry-out the maintenance package, keeping in mind that the de-storage of the aircraft will reveal defects, which will impact the duration of the maintenance check. CAMO and AMO should anticipate the availability of spare parts. - As regards to exemptions: the air operator should avoid the compounding effect of cumulative exemptions granted in other domains [airworthiness exemptions with exemptions related to the lack of crew's recent experience]. Plan carefully the crew pairing. - The OCC and CAMO in liaison with the AMO should double check the airworthiness status and the release to service of the aircraft with a special attention to the defects found during the checks or incomplete tasks.

		Increase of workload for the pilots Fuel contamination Flight Crew could be unaware of the fact that aircraft is not airworthy AMP not adapted to the utilization of the fleet; reliability programme not anymore relevant.	- Ensure adequate maintenance contract(s) and maintenance capabilities at the aerodrome where the aircraft has been stored. - Ensure that the availability and capability of maintenance organisations at the destination. - The air operator has to develop a robust procedure to ensure that, after prolonged parking, the quality of fuel must be checked before the first next flight. In addition, with the possible contamination of fuel tanks at the aerodrome, the procedure can be extended to the following flights. - Review the adequacy of the AMP tasks and their frequency. - Consider the need for a test flight.