

Review of Aviation Safety Issues Arising from the war in Ukraine Version 1 – April 2022



1 A Collaborative Approach to Identifying and Managing Risks

The Russian Federation's invasion of Ukraine has resulted in new safety issues and has strengthened pre-existing ones. EASA has developed a safety risk portfolio to identify safety issues affecting commercial aviation stemming from or associated with this conflict.

To proactively identify new or emerging safety issues resulting from the war in Ukraine, EASA surveyed its safety partners comprising the Member States' regulators and industry. From the many useful candidate safety issues provided by Stakeholders, EASA has created a list of **20** safety issues. Each safety issue has a title and description. Where they are already available, mitigating actions are provided alongside the safety issue.

In some cases, the information provided was not very complete, however an attempt has been made to augment the information as far as possible.

2 The Importance of Being Able to Manage Risks Effectively

Organisations, as well as the EU and associated MS should evaluate the applicability of the listed safety issues to their own situation and, where applicable, consider in their oversight activities.

Due to the specifics of the crisis, many safety issues are related to airspace management and air navigation service provision, such as airspace infringements by military drones. Other issues relate to security, such as cyber-attacks, and there are potential continuing airworthiness issues due to the sanctions. Human performance aspects such as skills and knowledge degradation also appear as the conflict follows on from problems created during the COVID-19 pandemic.

3 List of Identified Safety Issues

The list of identified safety issues is provided below and has been categorised under the following headings:

1. Security
2. Infrastructure and Equipment
3. Air traffic management and navigation service provision
4. Human Performance
5. Management Systems
6. Energy crisis impact
7. Health and environment

The issues are ordered from high to low risk within each heading. However, they have been ordered from an EASA perspective, with reference to all Member States and aviation domains. A local or organisational prioritisation of these safety issues may well be different. The order reflects an evaluation of the priorities based on the known mitigating actions and hence the order is likely to change over time.

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4 Security

4.1 Cyber attacks

An increase in cyber-attacks associated with the conflict.

4.2 Separation with unidentified aircraft

Between Finnish and Estonian territorial waters there is a narrow corridor of neutral waters providing Russia with access to the Baltic Sea and Kaliningrad. Unidentified aircraft using these routes can conflict with other traffic, rendering it important that they are using their transponders, have filed flight plans, and communicate with air traffic control (ATC). Such flights over neutral waters have increased significantly, increasing ATC workload, and imposing an effect on the flight profiles of civilian aircraft.

4.3 Errors of civil aircraft identification by ground military forces and airborne assets outside the conflict zone

As shown by previous wars, misidentification is easy in confused arenas of warfare. The development of this risk is common to all combatants. If we add in the likelihood of jamming of electronic aids that may be involved with navigation and / or a/c identification tools, then it is easy to see the potential for innocent aircraft being subject to missiles or radar laid weapons.

4.4 GPS signal manipulation leading to navigation or surveillance degradation

Due to military use of electronic warfare systems, the GPS signal may be disturbed in countries adjacent to the conflict zones and affect the operation of aircraft en-route, during approach and departure and/or while operating at airports. The GPS interference may be only temporary, and pilots should be aware of this risk and the contingency procedures for loss of GNSS should be included in flight planning.

Mitigation: [EASA SIB 2022-02 "Global Navigation Satellite System Outage Leading to Navigation / Surveillance Degradation"](#)

5 Infrastructure and Equipment

5.1 Continuing airworthiness related issues due to sanctions

Due to the sanctions, aircraft manufacturers are unable to support their fleets in Russia, which will have an impact on the safety standards of the affected aircraft. That includes maintenance support, customer service, technical assistance, and parts. Type Certificate Holders will not receive information from Russian operators regarding failures, malfunctions, defects, or other occurrences, which cause or might cause adverse effects on the continuing airworthiness of the product.

5.2 Transition of a civilian airport to mixed civil-military operations

In the event of an increase in the number of military operations using civilian airports, there may be increased risks stemming from mixed civil-military operations, especially during the transition period.



5.3 Leased aircraft captured by the Russian Federation

The new law of the Russian Federation that provides for the transfer of leased aircraft onto their register will allow these aircraft to continue operating. However, the sanctions imply that there is no access to/supply of spare parts for aircraft maintenance. This may lead to parts being cannibalised, a non-compliance with airworthiness directives, and a non-traceable aircraft maintenance history. This may result in operation of unairworthy aircraft.

5.4 Spare parts shortages (other than aircraft)

The current crisis may lead to an increase in prices and/ or shortages of spare parts and other electronic equipment for the European aviation industry. This is especially valid if components are manufactured in countries directly affected by the crisis or geopolitically aligned with Russia.

6 Air traffic management and navigation service provision

6.1 Increased risk of airspace infringements by military drones or aircraft spilling over from conflict zones

Military drones and aircraft operating in the conflict zone may inadvertently infringe adjacent civil airspace, leading to losses of separation and a general disruption to operations.

6.2 Non-standard operational air traffic routings, reservation of military areas outside the conflict zone

Ad hoc requests to establish Temporary Segregated Areas (transit corridors) and the reservation of military areas outside of the normal operational hours published in the AIP may lead to additional workload as the requests must be coordinated with all parties involved.

6.3 Unplanned/unexpected military flights, more due regard flights

The regional response to the war in Ukraine may result in all EASA MS experiencing an increase in unexpected military exercises, and unexpected 'due regard' flights (movement of military aircraft from one air base to another). This could increase risks to commercial operations in certain areas. Unusual traffic types such as formation flights, aircraft refuelling, and others may increase in certain areas. Overall, this will increase sector workload.

6.4 Non-standard military activities like drones patrolling or surveillance conducted bordering the conflict zone

Non-standard military activities, such as an increased activity of unmanned aircraft patrolling or conducting surveillance bordering the conflict zone, can lead to an increase in ATCO coordination/communication workload. The extra work will affect capacity and increase the risk of airborne collision between civil traffic and unmanned aircraft.

6.5 Civilian traffic unknowingly entering prohibited/restricted airspace

Civilian traffic may unknowingly infringe prohibited/restricted airspace along the Ukrainian border that has been allocated for military operations. Such an infringement may be explained by Air Traffic Control (ATC) having had no up-to-date information on military actions/areas resulting in clearing a civilian flight unintentionally into a military area.

6.6 Flight route congestion (hotspots)

The reduction of available airspace (due to military activity) creates a corresponding increase in traffic in the remaining available airspace. This may lead to congestion or high levels of traffic on certain routes, with consequences such as: Increased ATCO/crew workload; more frequent turbulence and wake turbulence; an increased risk of injury to passengers and crew during avoiding manoeuvres, phraseology issues and an increased risk of loss of separation.

7 Human Performance

7.1 Skills and knowledge degradation due to lack of recent practice

The downturn in traffic due to the COVID-19 pandemic has been prolonged by the war in Ukraine. The continuing downturn of demand can be explained in part increased prices for flights (increased fuel prices in combination with longer routes causing the overall cost of flights to rise). The documented COVID-19 effect of being away from the operational environment for long periods of time causes skills and knowledge to degrade, especially so for more complex tasks. This also means that personnel returning from furlough into a more complex operating environment will need additional training and support.

Guidance on how to address this issue is available here:

<https://www.easa.europa.eu/community/topics/skills-and-knowledge-degradation>

7.2 Crew fatigue caused by longer routes due to the need to avoid Russian airspace and conflict zones

The longer routes caused by the need to avoid Russian airspace and the conflict zone may lead to crew fatigue, for both pilots and cabin crew. Fatigue risks associated with extended duty times should be identified and addressed via organisations' management systems, including FRMS where applicable.

8 Management Systems

8.1 Intermediate destination stops increasing exposure to risk

Intermediate destination stops increase exposure to risk due to a possible unfamiliarity with the approach to some airports and other procedures at those aerodromes. Take-off and landing are critical phases of flight, therefore additional take offs and landings add to existing flight-safety risks.

8.2 Less commonly known diversions

The need to use new routes (or to reinstate routes not used for some decades) will mean that the diversions and alternates are less well known to crews.

9 Energy crisis impact

9.1 A long-lasting crisis may lead to further financial strain on organizations after the COVID-19 pandemic situation

Should the crisis last a long time, this could create further and increased financial strain on organisations, particularly due to reduced demand, distorted traffic flows or new investments on security measures.



10 Health and environment

10.1 Cosmic radiation threat associated with new (polar) routes

Working on very long flights (due to longer routes), flights at high latitudes close or over the poles contribute to the amount of cosmic radiation that crewmembers are exposed to.

