

SAFETY INFORMATION	 АВИАЦИОННАЯ АДМИНИСТРАЦИЯ КАЗАХСТАНА
SAFE PERFORMANCE OF WORK ON AIRCRAFT OXYGEN EQUIPMENT	
Date: 18.09.2026	№: F-NI 2026-0001
Fire/Smoke (Non-Impact)	Revision: 00

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1. PURPOSE

This Safety Information is issued to draw the attention of aircraft operators, maintenance organizations and ground handling organizations (hereinafter referred to as the “organizations”) to the risk of fire when performing work on aircraft oxygen systems and oxygen cylinders.

This document is intended to prevent similar occurrences by ensuring compliance with aircraft manufacturers’ maintenance documentation, established maintenance procedures and occupational safety and health requirements, as well as by ensuring that personnel are properly trained and authorized.

2. BACKGROUND

On 16 June 2015, a fire occurred during maintenance work on a Boeing 737 aircraft at Aktau International Airport. According to the available information, the fire was caused by the rupture (explosion) of an oxygen cylinder and resulted in significant damage to the aircraft.

On 28 August 2026, a localized fire also occurred during scheduled maintenance work on an Airbus A320 aircraft at Almaty International Airport. The fire was extinguished, and the aircraft was temporarily withdrawn from service to assess the damage and carry out the necessary repair work. At the time of preparation of this Safety Information Bulletin, the cause of the fire was being determined as part of the ongoing investigation.

These occurrences highlight the need to pay particular attention to risk management when performing work on aircraft oxygen systems, strict compliance with applicable maintenance documentation and established procedures, personnel training requirements, the condition of the equipment used, and the organization of a safe work area.

3. RECOMMENDED ACTIONS

Oxygen is not a flammable gas; however, it supports combustion. Contact between pressurized oxygen and oils, lubricants, contaminated tools or other combustible substances may result in ignition and fire. It should also be noted that rapid pressurization of oxygen may generate high temperatures. The primary mechanism of such heating is adiabatic compression, which occurs when oxygen pressure increases rapidly, for example, when a cylinder valve or regulator is opened abruptly. The resulting short-term localized temperature may be sufficient to ignite oils, lubricants and other combustible contaminants even in the absence of an open flame.

Organizations are advised to take the following actions:

3.1. Compliance with Maintenance Documentation

Work involving the filling, replacement, removal, installation, transportation and storage of oxygen cylinders should be performed in strict accordance with the applicable maintenance documentation issued by the aircraft and component manufacturers, including the Aircraft Maintenance Manual (AMM).

If the AMM only provides instructions for the replacement of an oxygen cylinder, filling the cylinder while it is installed on the aircraft must not be performed. Oxygen cylinder valves and regulators should be opened slowly and smoothly to prevent a rapid increase in oxygen pressure that could result in localized heating and ignition of contaminants within the oxygen system.

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3.2. Personnel Training and Authorization

Work on oxygen equipment should only be performed by personnel who have received appropriate training and occupational safety and health instruction and who hold the required task authorization. The scope and frequency of personnel training should be determined taking into account the best practices reflected in EASA Part-145 and FAA 14 CFR Part 145 requirements regarding the qualifications of maintenance personnel.

Organizations are advised to periodically assess personnel knowledge and conduct practical training on the safe performance of work on oxygen equipment and the actions to be taken in the event of an abnormal situation.

3.3. Prevention of Contamination

Contact of oxygen equipment, connections, tools, personnel clothing and hands with oils, lubricants, fuel and other combustible substances should be prevented.

Only clean, serviceable tools, adapters, hoses and other equipment intended for use with oxygen systems should be used. Lubricants, seals and gaskets used during such work should be oxygen-compatible and approved by the aircraft or component manufacturer. Hydrocarbon-based lubricants must not be used.

3.4. Work Area Organization

Before commencing work, organizations should ensure:

- the absence of open flames, ignition sources, sparks and smoking within the work area;
- the removal of combustible materials and sources of contamination;
- the availability of serviceable firefighting equipment;
- restricted access for unauthorized persons;
- adequate lighting and ventilation within the work area; and
- adequate separation from other work being performed simultaneously.

Work involving fuel, oils, lubricants, welding equipment or other potential ignition sources should not be performed simultaneously in the vicinity of oxygen equipment.

3.5. Equipment and Transportation

Oxygen cylinders should be protected against falling, impact, heat and mechanical damage. Serviceable purpose-built trolleys or other approved means should be used for their transportation. Oxygen cylinders should be stored and transported in an upright position, securely restrained and fitted with a protective valve cap, which should only be removed immediately before work begins.

Before commencing work, the condition of the cylinder, valve, protective cap, connections, hoses, adapters and other equipment to be used should be checked.

3.6. Risk Assessment and Internal Procedures

Organizations are advised to:

- conduct a risk assessment for work involving oxygen equipment;
- review their existing internal procedures and task cards;
- establish procedures for performing such work at base and outstations;
- consider maintaining an adequate stock of serviceable oxygen cylinders.

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- establish the actions to be taken by personnel in the event of an oxygen leak, fire or equipment damage; and
- communicate the results of the risk assessment and the established safety measures to all personnel involved.

3.7. Occurrence Reporting

Occurrences, hazards, damage and identified deficiencies related to the operation or maintenance of oxygen equipment should be reported in accordance with established procedures through the mandatory or voluntary safety reporting systems. The information received may be used to support timely action, identify causes and contributing factors, assess risks and develop preventive measures aimed at preventing the recurrence of similar occurrences.

Additional technical information on fire initiation mechanisms in aircraft oxygen systems is provided in the EASA document “Oxygen Fire Hazard in Gaseous Oxygen Systems” (RMT.0458), FAA Advisory Circular AC 25-20 “Pressurization, Ventilation, and Oxygen Systems Assessment”, and the applicable Aircraft Maintenance Manuals and Component Maintenance Manuals (AMM/CMM) issued by the relevant manufacturers.