International Civil Aviation Organization

A42-WP/478[1]
TE/188
29/7/25

WORKING PAPER

ASSEMBLY — 42ND SESSION

TECHNICAL COMMISSION

Agenda Item 25: Other issues to be considered by the Technical Commission

AIR AMBULANCE FLIGHTS USING NIGHT VISION GOGGLES (NVG) IN ROTARY-WING AND FIXED-WING AIRCRAFT

(Presented by Colombia and sponsored by LACAC Member States[2])

EXECUTIVE SUMMARY

This working paper presents operational, regulatory and safety considerations associated with the use of night vision goggles (NVG) in fixed-wing and rotary-wing aircraft in air ambulance flights.

The absence of a specific global regulatory framework on various operational, technical, legal, and human aspects of NVG operations in this kind of flight poses risks to the interoperability, safety, and efficiency of night medical services.

Colombia proposes that ICAO develop specific standards or recommendations to civil aviation authorities and civil aircraft operators related to these specialized operations, which are carried out at night, in marginal and low-visibility conditions that pose a critical challenge to crew and patient safety

Action: The Assembly is invited to instruct the Secretariat to develop standards, recommended practices, or guidance material for approval by the relevant body, including:

a) minimum requirements for the use of NVG in fixed-wing and rotary-wing aircraft when flying in air ambulance mode;
b) Standards that ensure that night vision goggles are compatible with on-board medical equipment, and that cabins are compatible with NVG equipment, and that include specific authorizations for on-board medical personnel, as well as NVG approach procedures in areas without the appropriate infrastructure;
c) operational and airworthiness certification procedures; and
d) safety management of NVG air ambulance flights

Strategic Goals:	This working paper relates to *Every Flight is Safe and Secure* and *Aviation Delivers Seamless, Accessible, and Reliable Mobility for All.*
Financial implications:	
References:	Annex 6 - *Operation of Aircraft* Annex 8 — *Airworthiness of Aircraft* Doc 9859, *Safety Management Manual* RAC 135 Ap. 20, RAC 121

[1] Spanish version provided by Colombia.

[2] Belize, Bolivia (Plurinational State of), Cuba, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela (Bolivarian Republic of).

1. INTRODUCTION

1.1 In regions with complex geographical conditions, particularly in difficult or unlit terrain – characteristic of our Colombian topography, which presents diversity of scenarios, low coverage of land infrastructure, and urgent health needs – air ambulance operations have become an essential tool.

1.2 In a large part of Colombian territory, night flights are necessary to ensure equitable access to emergency services.

1.3 Night vision goggles (NVG) improve the pilot´s situational awareness and allow for a larger window of operation for these missions, resulting in better medical care response times.

2. DISCUSSION

2.1 The Colombian Civil Aviation Authority evaluates and authorizes operations in air ambulance mode, by both fixed-wing and rotary-wing aircraft, under strict training, maintenance, and operational supervision, but with restrictions applicable to night operations.

2.2 The adoption of NVG in air ambulance operations has shown the following benefits:

a) reduction of accidents and incidents related to loss of visibility object;

b) increased operational capability during night or marginal conditions (night visual flight rules);

c) better medical response during emergencies in rural or remote areas; and

d) support for search and rescue operations (SAR) and medical evacuations (MEDEVAC) in adverse scenarios, such as in Colombian geography.

2.3 Despite their benefits, these operations lack a globally harmonized regulatory framework, resulting in challenges related to:

a) technical approvals of NVG equipment and aircraft modification;

b) NVG crew training and rating;

c) modification of cabin and external lights;

d) coordination with medical services and air traffic control teams; and

e) night risk assessment and contingency plans.

2.4 The Federal Aviation Administration (FAA) and the European Union Aviation Safety Agency (EASA) have implemented specific guidelines for emergency helicopter operators, which could be adapted to the Colombian model in a way that minimizes operational risks.

2.5 There are no standards or recommended practices in ICAO annexes related to the use of NVG in air medical services.

3. CONCLUSION

3.1 Night air-ambulance operations in fixed-wing and rotary-wing aircraft using NVG allow for better emergency medical care in remote and hard-to-reach areas in Colombia, as well as aeromedical evacuations (MEDEVAC), thereby reducing morbidity and mortality typically associated with a lack of timely medical care. As such, there is a need for clear, globally harmonized standards to regulate these operations.

3.2 Colombia reiterates its readiness to continue playing an active role in the development of technical and regulatory guidelines on this matter within ICAO, ensuring a safe and harmonized implementation of international standards.

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