International Civil Aviation Organization

Twenty-Sixth Meeting of the Regional Airspace Safety Monitoring Advisory Group (RASMAG/26)

Video Teleconference, 20 – 23 September 2021

Agenda Item 5: Airspace Safety Monitoring Activities/Requirements in the Asia/Pacific Region

NARMO LONG TERM HEIGHT MONITORING BURDEN

(Presented by NAARMO)

SUMMARY

This paper provides an assessment of the monitoring burden associated with the long-term height monitoring requirements for airframes for which the NAARMO is the responsible Regional Monitoring Agency (RMA). NAARMO approvals and global monitoring records as of **05 April 2021** were used to assess the monitoring burden.

1. INTRODUCTION

1.1 The North American Approvals Registry and Monitoring Organization (NAARMO), a service provided by the U.S. Federal Aviation Administration's William J. Hughes Technical Center, has served since 2003 as the Regional Monitoring Agency (RMA) for the airspace covering the United States, Canada and Mexico.

1.2 As part of the duties of a Regional Monitoring Agency (RMA), outlined in ICAO Doc 9937 (Reference 1), the NAARMO performs regular checks of the operator compliance with State approval requirements within the Pacific and North East airspace. The purpose of these checks is to identify non-approved operators and aircraft using the RVSM airspace to ensure the safety of the airspace.

1.3 To meet the ICAO Annex 6 Long Term Height Monitoring (LTHM) requirements, NAARMO maintains a database of approvals and height monitoring history for aircraft registered within States under NAARMO responsibility (Canada, Mexico, and the United States.) This paper provides the NAARMO monitoring burden based on the approvals contained within the NAARMO approvals database and global monitoring data available as of **05 April 2021.**

2. DISCUSSION

2.1 The NAARMO approvals database as of **05 April 2021** was examined to determine the current NAARMO monitoring burden. First, compiled the approvals for the countries under NAARMO responsibility (Canada, Mexico, and the United States). Subsequently, grouping the U.S. aircraft by Operator(s) derived from aggregating corresponding Designators in the Letters of Authorization (LOA). Then, each airframe having a current full approval was paired with the appropriate monitoring category by applying the most current version of the Minimum Monitoring Requirements (**MMR**) table (as of **August 2020**).

2.2 Any aircraft types missing from the current MMR table were assigned to MMR Category3: RVSM Monitoring Non-Group Aircraft. Finally, each airframe was then paired to its last successful monitoring (if it exists) occurring within the past 2 years from **05 April 2019** to **05 April 2021**. NAARMO is investigating the use of U.S. Flight Plan data as a tool to gauge monitoring compliance, particularly in the IGA Fleet.

2.3 The total number of unique airframes identified as having a full RVSM approval from a state of registry under NAARMO responsibility as of **05 April 2021** was **22,453**, with a resultant monitoring burden of **14,781** and a total of **774** aircraft not successfully monitored within the past two years (or 1,000 flight hours, whichever interval was longer). **Table 1** provides a summation by State of Registry of airframes that require monitoring due to having no successful monitoring record within two years as of **05 April 2021**.

State	Total # of Approved Airframes	Resultant Monitoring Burden(# Airframes)	Total # of Airframes NotMonitored within two years as of 05 April 2021
CANADA	1453	880	134
MEXICO	670	324	56
US – Section 3	20,330	13,577	584
NAARMO Total	**22,453**	**14,781**	**774**

Table 1: Summary of NAARMO monitoring burden

2.4 Each airframe having a current full RVSM approval was categorized under either Commercial or IGA operations. **Table 2** presents NAARMO monitoring burden summaries by type of operator and State of Registry. To preserve the uniqueness of these airframes, each was grouped and counted under Commercial operations.

- As of **05 April 2021**, there are **13,060** unique U.S. IGA airframes operated by **10,244** unique operators. The remainder of airframes to be monitored is **583** operated by uniqueoperators.
- As of **05 April 2021**, there are **7,270** unique U.S. commercial airframes operated by **54** unique operators. The remainder of airframes to be monitored is **1**.

CANADA	Total #of Approved Airframes	Resultant Monitoring Burden (# Airframes)	Total # of Airframes NotMonitored within two years as of 05 April 2021
IGA	570	570	110
Commercial	883	310	24
Total Canada	***1,453***	***880***	***134***
MEXICO	**Total # of Approved Airframes**	**Resultant Monitoring Burden (# Airframes)**	**Total # of Airframes NotMonitored within two years as of 05 April 2021**
IGA	97	97	16
Commercial	573	227	40

Total Mexico	***670***	***324***	***56***
US	**Total # of Approved Airframes**	**Resultant Monitoring Burden (# Airframes)**	**Total # of Airframes NotMonitored within two years as of 05 April 2021**
IGA	13,060	13,060	583
Commercial	7,270	517	1
Total US	***20,330***	***13,577***	***584***
NAARMO Total	***22,453***	***14,781***	***774***

Table 2: Itemized NAARMO monitoring burden

2.5 Sampling of ASE by group allows the potential for specific airframes to remain unmonitored over long durations. IGA aircraft that take several years to complete 1000 flight hours also will have longer periods between monitoring.

3. CONCLUSION

3.1 The NAARMO is implementing a new process for the traffic compliance check. More frequent compliance checks will help identify repeat operations that file an RVSM approval without having an approval

3.2 The meeting is invited to:

a) note and review the contents of the NAARMO traffic scrutiny workpresented in this paper; and

b) provide any relevant updates on the records contained within the results.

References

1. *Doc 9937 - Operating Procedures and Practices for Regional Monitoring Agencies in Relation to the Use of a 300 m (1000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive*, International Civil Aviation Organization, First Edition - 2010.

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