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**Economic Commission for Europe****Inland Transport Committee****Working Party on Rail Transport****Group of Experts on Permanent Identification of Railway Rolling Stock****Second session**

Geneva, 14–15 December 2020

Item 3 (c) of the provisional agenda

**Development of the Unique Rail Vehicle****Identification System: Technological component****Comparing different systems and registries for the permanent marking of mobile machinery:  
The International Registry for Aircraft****Note by the secretariat\*****I. Introduction**

1. At its first session, the Group of Experts on Permanent Identification of Railway Rolling Stock (the Group) discussed the various technological systems currently in place in support of other registries for the permanent marking of mobile machinery. The Group decided that a comparison of other systems and technology would be useful for further discussions at future meetings. One of the registries identified as being relevant to the discussion was the International Registry for Aircraft (the Registry) and the secretariat was requested to contact the Registry to find out more on how they operate.

2. This briefing note gives a summary of the information provided by the International Registry for Aircraft on the processes, best practices and challenges related to the running of the registry and the identification systems used in the aviation industry.

**II. The identification system in the aviation industry**

3. The aviation industry uses two identification systems (more details in ECE/TRANS/SC.2/PIRRS/2020/5). A national aircraft registry issues an aircraft identifier, known as a tail number, when an aircraft is registered with it. However, tail numbers will change if an aircraft owner changes and it wishes to register the aircraft in another national registry. The other way of identifying aircraft is through a serial number. The former identification number is used for safety and operational requirements while the latter, amongst other things, is used for financing requirements. As the Registry was established to

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\* This document was scheduled for publication after the standard publication date owing to circumstances beyond the secretariat's control.

facilitate more efficient financing, it uses serial numbers. Although serial numbers are reliable in a highly regulated industry with a relatively low number of assets (at least compared to rail), some uncertainty can arise. For instance, some aircraft engine manufacturers change the serial number if the engine undergoes a power upgrade. Notwithstanding this type of fringe issue, serial numbers have proven to be reliable for identification purposes in the Registry.

4. The registrar believes that identification numbers should be no longer than required to avoid the chance of human error during data entry and notes that in many transactions, a person might be required to enter many identification numbers (possibly hundreds), which further increases the chances of errors. The longer they are, the more chance there is for error.

5. The tail numbers are marked on the exterior of the aircraft. The serial number is affixed on a plate on the engine and on the left-hand side of the doorway used to enter the aircraft.

6. Creditors often take a risk assessment approach and look at the country and its reputation, focusing on the reliability of the courts, what protections are given to creditors etc.

### **III. Technology used by the Registry**

7. The Registry has invested heavily on technology, especially on cyber security, in which all staff has been certified. The yearly budget to develop software is about two million US dollars. The infrastructure set up could run a much larger registry than they are currently running. Much of the processing power is used for security. The current system is on premises, however the Registry plans to move to a cloud-based system in the next iteration.

8. About five years ago, the Registry looked at utilizing blockchain technology. However, they found that the technology would not add any value or solve any of the issues arising from the legal liabilities and responsibilities the Registry has. In addition, the Registry uses cryptographic methods anyway. The Registry has not looked at blockchain in connection with issuing numbers, as the Registry does not issue identification numbers. Following extensive evaluation with specialist consultants, the Registry could see no benefit in adopting blockchain technology.

### **IV. Suggestions for URVIS**

9. Based on their experience, the Registry made some suggestions that the Group may wish to consider in developing the Unique Rail Vehicle Identification System (URVIS). Suggestions include:

- Keep the numbering system simple. An option could be that a manufacturing company can request a three-digit code and the company controls that block of numbers and issues them on newly produced equipment.
- Existing identifications could be mapped to the registry number. In this way new markings on carriages may not be needed.
- Adopt a numbering system that is based on existing (United Nations) standards.
- Consider the costs of the system. The cheaper, the better.

### **V. Conclusion**

10. The Registry has found that creditors tend to drive the behaviour and the working of the system by simply insisting certain things happen before they move the money. However, the Registry is always looking for the easiest answer and simplest way of doing things, while focusing on technology and ensuring that it is secure, up-to-date and efficient.