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WORKING PAPER

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FOURTEENTH AIR NAVIGATION CONFERENCE

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Agenda Item 3: Air navigation system performance improvement
3.2: Phasing out legacy systems

SUSPENSION OF RUNWAY IDENTIFIER UPDATES

(Presented by the Netherlands)

EXECUTIVE SUMMARY

This paper presents one immediate consequence that arises from the foreseen global transition to True North. It is becoming clear that the regular updating of runway identifiers, to keep them aligned with magnetic north, is no longer necessary or could at least be postponed, awaiting the outcome of the decisions based on the work of the ICAO True North Advisory Group. This changed practise will lead to very considerable cost savings. Nevertheless, care must be taken that such decision to refrain from renumbering the identifiers should in no way compromise aviation safety.

1. INTRODUCTION

1.1 In State letter AN 11/65-IND/24/1, the Secretary General of ICAO announces the establishment of the True North Advisory Group (TRUE-AG). This Advisory Group will assist ICAO in developing the framework and the concept of operations (CONOPS) for the transition to True North as the reference system for heading and tracking in air operations, and to be the replacement of the current magnetic reference system.

1.2 The outcome of the ICAO global survey on True North illustrated that the proposed system will bring several benefits to the aviation community in the medium to long term. The transition to a True North system is however quite comprehensive, and it will take a number of years to be completed. In the meantime, aviation applications are expected to take into account the consequences of the constantly – albeit slow – changing magnetic field of the earth. This includes adapting publications, databases and flight procedures to the updated magnetic values.

2. DISCUSSION

2.1 Perhaps the most visible consequence of the magnetic reference is the runway identifier, often referred to as runway number. This runway number is painted on the tarmac and is also included in all procedures and references to the runway. In a present-day airport, this number may well be present in hundreds of subsystems and applications. Changing the runway number to remain compliant with the local value of the magnetic field of the earth, is a recurring and costly undertaking. Airfields have reported costs

of many thousands to even millions of dollars for changing and testing all data and systems associated with one runway.

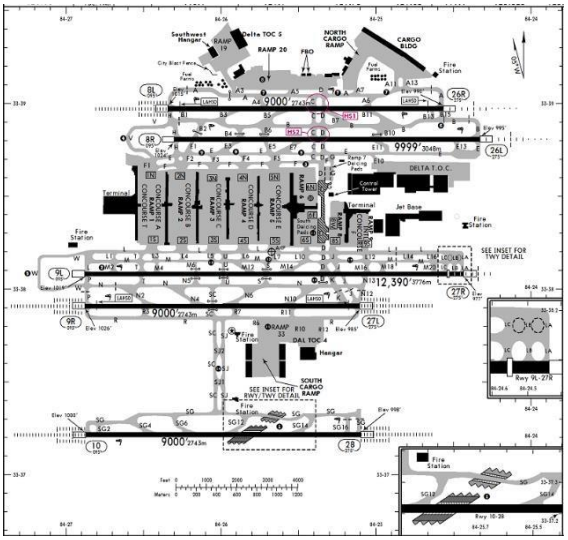
2.2 With an eye on the expected change to True North, it can be argued that it is not always needed or relevant for airports to spend a large amount of effort and money on updating runway numbers. In fact, in the countries where magnetic variation is currently relatively close to zero, it could be seen as a waste of effort and capital to change runway numbers now, only to change them all back again in a couple of years when we revert to the true headings system.

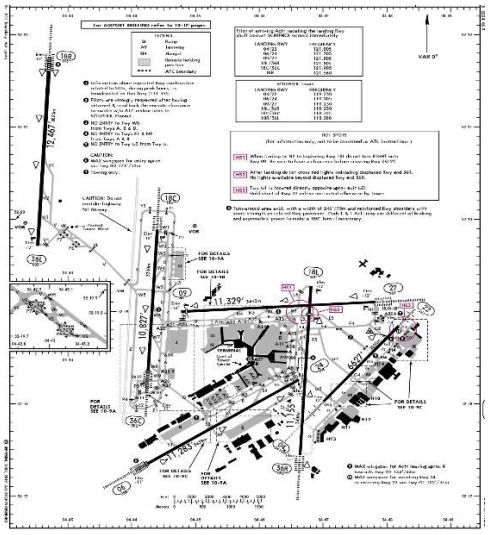
2.3 Next to cost savings, there may also be safety gains by refraining from unnecessary runway identifier updates. It is not always clear to the airport owners, air navigation services providers (ANSPs), airline operators and other parties involved, in which subsystems the runway number is present and how it should be updated. When we look at the global situation, it becomes clear that a substantial number of runway identifiers are presently not aligned with the current magnetic values. The exact reasons for this situation are unknown. Nevertheless, it seems clear that this status quo has not led to accidents, and it appears to be an acceptable situation from an operational point of view. A recent study has shown that around twenty percent of runways in any continent are not aligned to the nearest magnetic direction.

3. EXAMPLES

3.1 This paragraph shows two examples of large airports with runway numbering which is not aligned with the current magnetic values. On the left, Hartsfield-Jackson Atlanta (United States) is an airport with five runways. For operational reasons, the majority of the runway identifiers are currently not aligned with the nearest magnetic direction.

3.2 On the right, Amsterdam Airport Schiphol (Netherlands) is an airport with six runways in different directions. The Netherlands National Supervisory Authority has issued a waiver in March 2024, stalling runway identifier updating with magnetic directions to 2030, awaiting the initiative of the ICAO planned transition to True North.





4. CONCLUSION

4.1 By many, the runway identifier is seen as only a name, which should indeed be consistent over all related maps, signs and information systems. But its connection to magnetic direction is only a loose one, and there is no operational need to keep it exactly aligned to the nearest magnetic value. Especially on airfields with just one runway, which are the large majority, there could hardly be any confusion even if the runway identifier is one or two dozen off from magnetic direction – as long as its magnetic and true directions along with its WGS-84 coordinates are published and used accurately. For airports with more than one runway, a sound safety study should demonstrate whether (temporary) deviation from magnetic alignment is considered possible and acceptable for some or all runway ends.

4.2 States and aerodromes should be free to use opportunities for suspension of runway identifier updates – while making sure not to compromise the safety of air navigation in any way.

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