



Agenda Item 7: Operational implementation of new ATM automated systems and integration of the existing systems

PROPOSED UPDATES TO THE AUTOMATION SYSTEM IN THE MONTEVIDEO ACC

(Presented by Uruguay)

| SUMMARY | |
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| <p>This working paper contains the proposed updates to the automation system (AirCon 2000) in the Montevideo ACC for the implementation of Amendment 1 to the 15th Edition of the PANS-ATM (Doc 4444) of the SAM Region, for their review.</p> | |
| <p>References:</p> <ul style="list-style-type: none">• Conclusion SAM/IG/4-11• Report of the CNS/ATM/SG/1 meeting (Lima, Peru, 14-19 March 2010);• Report of the SAM/IG/5 meeting (Lima, Peru, 10-14 May 2010) | |
| <p>ICAO Strategic Objectives:</p> | <p><i>A – Safety</i> <i>D – Efficiency</i></p> |

1. **Introduction**

1.1 Uruguay has an automated air traffic control system (AirCon 2000) since 2000, provided by Indra, which was updated in 2006 for the implementation of RVSM in the SAM Region. This system will have to be updated for the implementation of Amendment 1 to the 15th Edition of the PANS-ATM (Doc 4444), in order to maintain the existing level of automation.

2. **Analysis**

2.1 The implementation of the new flight plan format entails many changes, and air traffic controllers must handle a significant amount of information and parameters when performing their tasks.

2.2 Consequently, automated systems must be updated in order to avoid a combined operation (automated and manual) that might eventually involve a change in the operating capacity of the sectors.

2.3 It should also be noted that the automated system alert (RAM) should be re-engineering according to the requirements of the airspaces flown by the aircraft.

2.4 Another requirement that involves a substantial change in flight plan management is the storage and update of flight plans up to 120 hours in advance of the time of the flight.

2.5 Appendix A to this paper contains the “*REQUIREMENTS FOR THE UPDATE OF THE AIRCON2000 SYSTEM ACCORDING TO AMENDMENT 1 TO THE 15TH EDITION OF THE ICAO PANS ATM (DOC. 4444). (DINACIA – URUGUAY)*”

3. **Suggested action**

3.1 The Meeting is invited to take note of the above and to carry out the assessment and contributions it may deem appropriate for improving the requirements so that automated systems may respond properly, from the operational point of view, to the implementation of Amendment 1 to the 15th Edition of the PANS-ATM (Doc 4444) in the SAM Region.

APPENDIX A

REQUIREMENTS FOR THE UPDATE OF THE AIRCON 2000 SYSTEM SOFTWARE, ACCORDING TO AMENDMENT 1 TO THE 15TH EDITION OF THE ICAO PANS ATM (DOC. 4444). (DINACIA – URUGUAY)

| REQUIREMENT | PROCESSING IN THE AUTOMATED SYSTEM |
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| <p>Will not be filed more than 120 hours before the estimated off-block time of a flight.</p> <p>The date of departure of the flight will be inserted in box 18 of the flight plan.</p> | <ul style="list-style-type: none"> • Accept, validate and store the flight plan • During the 120 hour period, allow the FPL to be updated with DLA, CHG, CNL, and other messages. • Activate the FPL according to the date indicated in BOX 18, DOF/. • Validation of the flight plan by: EFFECTIVE DATE, IDENTIFICATION, ORIGIN, EOBT and DESTINATION. (The possibility of including the 5 items to validate an FPL will solve some problems arising with an aircraft that conducts consecutive local flights.) |
| <p>BOX 7 - AIRCRAFT IDENTIFICATION (MAXIMUM 7 CHARACTERS)</p> | <ul style="list-style-type: none"> • Identification of the aircraft with alphanumeric characters, without hyphens or symbols |
| <p>BOX 8: FLIGHT RULES AND TYPE OF FLIGHT (ONE OR TWO CHARACTERS)</p> <p>Specify flight status in BOX 18 following the STS indicator if a specific ATS handling is required.</p> | <ul style="list-style-type: none"> • Process the flight rule changes included in BOX 15, Route • Show in the flight display the changes in the flight rules (e.g. colour of the label, etc.) • Include in BOX 18 STS/ information about the flight progress strip • Include it in the tabular displays (LIST) of the system. |
| <p>BOX 10: EQUIPMENT AND CAPABILITIES (radio communications and navigation and approach aids).</p> | <ul style="list-style-type: none"> • Accept and validate the alphanumeric characters with the new meanings, as well as that established in the corresponding notes. • Display of the letter R in a preferential place in the LIST; supplementary information listed in BOX 18 must be displayed (PBN/ descriptors). • The letter R must appear in the flight label and in the paper flight progress strip. • The STCA MTCA and RAM alerts that result from the inclusion of the letter R in the flight plan shall contemplate the different RNAV route compliance requirements (route or TMA). |
| <p>BOX 10: EQUIPMENT AND CAPABILITIES (surveillance)</p> | <ul style="list-style-type: none"> • Accept and validate the alphanumeric characters with the new meanings, as well as that established in the corresponding notes. • Accept and validate the additional surveillance applications listed in BOX 18 following the SUR/ indicator. |
| <p>BOX 13 Aerodrome and time of departure (8 characters).</p> | <ul style="list-style-type: none"> • When the aerodrome of origin is ZZZZ, present in the flight progress strip and in the tabular display (List) that established in BOX 18 in DEP/. (Name and location and/or the first point of the route or the radiobeacon.) |
| <p>BOX 15 Route</p> | <ul style="list-style-type: none"> • Define a point, with bearing and distance from a significant point; this point shall accept from 2, 3, 5 to 6 characters, plus 3 figures for magnetic degrees, plus 3 figures for the nautical miles. Although the amendment refers to a “significant point” that currently has a maximum of 5 letters, consideration is being given to the possibility of increasing significant point identification to 6 letters. Accordingly, it would be advisable to have this modification already in place. |
| <p>BOX 16: DESTINATION AERODROME AND TOTAL EXPECTED DURATION (8 characters). ALTERNATE DESTINATION AERODROMES</p> | <ul style="list-style-type: none"> • When the destination aerodrome is ZZZZ, present in the flight progress strip, in the tabular display (List) and in the FPL window, that established in BOX 18 under DEST/. • When the alternate aerodrome is ZZZZ, present in the FPL window of the system that established in BOX 18 in ALTN/. |

| REQUIREMENT | PROCESSING IN THE AUTOMATED SYSTEM |
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| <p>BOX 18 Other data</p> | <ul style="list-style-type: none"> • Given the importance that Amendment 1 assigns to this BOX, due to the large amount of additional information that it provides, it is absolutely necessary for this information to be visible on the system flight plan window. Furthermore, a careful selection must be made of the information to be included in the paper flight progress strips, in the tabular display (List), in the system FPL window and in the flight labels, as well as its direct incidence, when so required, on STCA, MTCA y RAM (Route Adherence Monitoring) alarms, which shall be selective based on the requirements of the route segments and/or approach being used by the aircraft. • STS/ accept and validate all the descriptors listed in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444), with the characteristics established therein, and accept and validate other reasons for special ATS handling, which will be listed under the RMK/ designator. • PBN/ accept and validate all the descriptors listed in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444), with the characteristics established therein (using a maximum of 8 entries, no more than 16 characters in total). • NAV/ accept and validate navigation equipment data not specified in PBN/ and indicate GNSS augmentation, leaving a space between two or more augmentation methods. • COM/ accept and validate communication applications or capabilities not specified in BOX 10a. • DAT/ accept and validate data applications or capabilities not specified in BOX 10a. • SUR/ accept and validate surveillance applications or capabilities not specified in BOX 10b. • DEP/ accept and validate, when ZZZZ is inserted in BOX 13, according to that established in the AIP Uruguay, the pre-warning strip of the corresponding sector must display the name of the aerodrome of departure in plain language, the tabular display (List) and the system FPL window must show the coordinates or bearing and distance of a significant point, and the first point on the route, name or LAT/LONG or radiobeacon must be entered in BOX 15, Route. • DEST/ accept and validate, when ZZZZ is inserted in BOX 16, according to that established in the AIP Uruguay, the corresponding sector strip, the tabular display (List) and the system FPL window must show the place of destination in plain language, and the coordinates or bearing and distance from a significant point are entered in BOX 15 Route. • DOF/ accept and validate the date of departure of the flight in a 6-figure format (YYMMDD, where YY is the year, MM is the month, and DD is the day). The system must maintain, update and activate the FPL according to the date specified in this item. • REG/ accept and validate, according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). • EET/ accept and validate significant point designators or FIR boundaries and total expected duration from take-off to such points or FIR boundaries, when prescribed in regional air navigation agreements or by the appropriate ATS authority. • SEL/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). • TYP/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). This information must be visible in pre-warning strips, in the tabular display (LIST) and in the system FPL window. • CODE/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). • DLE/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). Furthermore, these values must have an impact on system route estimates. |

| REQUIREMENT | PROCESSING IN THE AUTOMATED SYSTEM |
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| | <ul style="list-style-type: none">• OPR/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444).• PER/ accept and validate according to that established in Amendment 1 to the 15th Edition of PANS ATM (DOC. 4444).• ORGN/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444).• ALTN/ accept and validate the location in LAT/LONG or the bearing and distance with respect to the closest significant point. This information must be visible on the system FPL window.• RALT/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). This information must be visible on the system FPL window.• TALT/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). This information must be visible on the system FPL window, printed in the TWR and APP pre-warning strip, and in the tabular display (LIST).• RIF/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444).• RMK/ accept and validate according to that established in Amendment 1 to the 15th Edition of ICAO PANS ATM (DOC. 4444). |

- **Repetitive flight plans (RPL)**

- BOX G Supplementary Data. In the cargo window of each repetitive flight, have a space available for entering the NAME and DETAILS of the appropriate contact at the organisation where the information of BOX 19, Supplementary Information, for that flight is available. This information must be of easy access for the operational controller.

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