International Civil Aviation Organization

Fourteenth Meeting of the APANPIRG ATM/AIS/SAR Sub-group (ATM/AIS/SAR/SG/14)

Bangkok, 28 June – 2 July 2004

Agenda Item 8: Any other business

PROPOSED AMENDMENT TO THE ICAO REGIONAL SUPPLEMENTARY PROCEDURES, DOC 7030 ATC CONTINGENCY PROCEDURES DURING FAILURE OF DATA LINK SYSTEM

(Presented by Civil Aviation Bureau, Japan)

SUMMARY

This working paper presents a proposed amendment to the ICAO Regional Supplementary Procedures, Doc 7030, regarding ATC Contingency Procedures to be used during failure of datalink system over the Pacific.

1. BACKGROUND

1.1 The Informal Pacific ATC Co-ordinating Group (IPACG) has agreed to implement 50NM longitudinal separation minimum in the North and Central Pacific using datalink (ADS and CPDLC) system, and intend to further reduce the longitudinal separation minimum to 30NM in the future. The Informal South Pacific ATS Co-ordinating Group (ISPACG) also plans to implement the reduced longitudinal separation minima using datalink system in the South Pacific in the near future.

1.2 If the datalink system fails, the separation minima using the datalink system could not be applied and the standard separation using HF shall be applied. ICAO procedures for the application of 50NM and 30NM longitudinal separation minima using datalink are detailed in the PANS-ATM, Doc 4444. The procedures include ATC actions using an alternate means of communication when an ADS periodic or waypoint change event is not received within a certain time. (Ref: paragraph 5.4.2.6.4.3.3, PANS-ATM)

1.3 As mentioned above, when datalink system fails and if it is considered that there is a possibility of loss of separation and action is required to resolve potential conflict, alternate means of separation using HF shall be applied. Since the standard horizontal separation minima using HF are larger than the horizontal separation minima using datalink system, it is considered that the separation minima using HF could not immediately be applied in at all times, specifically in busy traffic environment.

1.4 Failure of the datalink system may occur for several reasons, including ground earth station (GES) failure, network failure and avionics failure. If a GES fails, aircraft will try to logon to another GES. According to a simulation conducted by the Electric Navigation Research Institute in Japan, it took, depending on the number of aircraft who try to logon, several dozen minutes to re-establish logon with another GES. While failure of avionics may affect only that aircraft, network failure would affect more than one aircraft.

1.5 The IPACG, at its 19th meeting, held in July 2003, agreed to develop ATC contingency procedures to be mutually applied within the Anchorage, Oakland and Tokyo FIRs during failure of datalink.

2. DISCUSSION

2.1 Draft ATC contingency procedures, developed by a small team of the IPACG members were presented to the IPACG/20 meeting held in October 2003. Since such contingency procedures should be mutually applied in the Pacific, draft procedures are proposed for amendment to the ICAO Regional Supplementary Procedures, Doc 7030. Following review at the IPACG/20 meeting, proposed amendment to Doc 7030 was updated and presented to the ISPACG/18 meeting in February 2004 in Fiji.

2.2 Following review and comments provided at the ISPACG/18 meeting, the Doc 7030 proposed amendment has been further updated. An updated version of the Doc 7030 proposed amendment procedures is in Appendix.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review and provide comments on the proposed amendment to Doc 7030 for ATC contingency procedures as shown in Appendix.

APPENDIX

PROPOSED AMENDMENT TO DOC 7030
DRAFT ATC CONTINGENCY PROCEDURES

Proposal for Amendment of
Regional Supplementary Procedures - Doc 7030/4
(Serial No. APAC-S xx/x)

a) **Regional Supplementary Procedures, Doc 7030/4:** MID/ASIA and PAC, as Amended No. 206 dated 26 September 2003

b) **Proposing State(s):** Japan

c) **Proposed Amendment:** 1. On page MID/ASIA/RAC-5 dated 13/2/00, *Add* the following additional paragraphs.

4.4 ATC contingency procedures to be used during failure of datalink in oceanic control airspace

4.4.1 When failure of datalink communication is recognized, ATC and pilot shall:

a) Try to establish communication with other means of communication.

b) If attempts to establish communication by other means of communication are unsuccessful, follow the provisions detailed in Section 4.0 COMMON PROCEDURES FOR RADIO COMMUNICATIONS FAILURE (total loss of communication procedures being proposed by Australia, Fiji, France, Japan, New Zealand, the Philippines and the United States).

c) If communication by other means of communication is established,

1) ATC shall apply an alternate means of separation.

2) If alternate means of separation cannot be applied immediately,

a. ATC shall:

i) Issue essential traffic information for all affected aircraft, and where appropriate,

ii) Assign speed to the pilot.

b. ATC may suggest that the pilot:

i) offset 10NM right of last assigned track, and

ii) if operating in an airspace where a 2000ft vertical separation minimum is applied, climb or descend 600 ft from the assigned level; or

iii) if operating in an airspace where a 1000 ft vertical separation minimum is applied, climb or descend 300 ft from the assigned level; or

iv) if operating in an airspace where composite separation is applied, remain at the assigned level.

2. On page PAC/RAC-5 dated 30/11/01, *Add* the following additional paragraphs.

4.4 ATC contingency procedures to be used during failure of datalink in oceanic control airspace

4.4.1 When failure of datalink communication is recognized, ATC and pilot shall:

a) Try to establish communication with other means of communication.

b) If attempts to establish communication by other means of communication are unsuccessful, follow the provisions detailed in Section 4.0 COMMON PROCEDURES FOR RADIO COMMUNICATIONS FAILURE (total loss of communication procedures being proposed by Australia, Fiji, France, Japan, New Zealand, the Philippines and the United States).

c) If communication by other means of communication is established,

1) ATC shall apply an alternate means of separation.

2) If alternate means of separation cannot be applied immediately,

a. ATC shall:

i) Issue essential traffic information for all affected aircraft, and where appropriate,

ii) Assign speed to the pilot.

b. ATC may suggest that the pilot:

i) offset 10NM right of last assigned track, and

ii) if operating in an airspace where a 2000ft vertical separation minimum is applied, climb or descend 600 ft from the assigned level; or

iii) if operating in an airspace where a 1000ft vertical separation minimum is applied, climb or descend 300 ft from the assigned level; or

iv) if operating in an airspace where composite separation is applied, remain at the assigned level.

d) **Proposer's reasons for amendment:**

a) ICAO procedures for the application of 50NM and 30NM longitudinal separation minima utilizing datalink system (ADS and CPDLC) are detailed in the PANS-ATM, Doc 4444. The procedures include ATC action using an alternate means of communication when an ADS periodic report or waypoint change event is not received within a certain time (paragraph 5.4.2.6.4.3.3, Doc 4444). Since the standard horizontal separation minima using other means of communication are larger than the minima using datalink system, it is considered that alternate means of separation may not immediately be applied at all times, specifically in a busy traffic environment.

b) Failure of datalink system may occur for several reasons, including ground earth station (GES) failure, network failure and avionics failure. If a GES fails, aircraft will try to logon to another GES. According to a simulation conducted by the Electric Navigation Research Institute in Japan, it took, depending on the number of aircraft who try to logon, several dozen minutes to re-establish logon with another GES.

c) There may be a case where an aircraft is transferred to the adjacent ACCs during datalink system failure with non-standard separation being applied. It is considered, therefore that ATC contingency procedures should mutually be applied in airspace where ATC datalink system is being utilized and reduced horizontal separation minima applied. Japan, the United States and other Pacific States plan to implement reduced horizontal separation minima using datalink system within their oceanic control airspace.

e) **Proposed implementation date of the amendment:**

Upon approval by the Council

f) **Proposal circulated to the following Sates and International Organizations:**

g) **Secretariat comments:**

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