AMENDMENT SUMMARY

Amendment No. 208 incorporates additions/changes to:

a) EUR SUPPS, Part 1 – RAC concerning flight plans (3.1, 3.1.1, 3.1.1.1, 3.1.1.2, 3.1.2, 3.1.2.1, 3.1.2.2, 3.1.3, 3.1.4, 3.2, 3.2.1, 3.2.1.1, 3.2.2, 3.2.2.1, 3.2.3, 3.2.3.1, 3.2.3.2, 3.2.4, 3.2.4.1, 3.2.4.1.1, 3.2.4.1.2, 3.2.4.1.3, 3.2.4.1.4, 3.2.4.1.5, 3.2.4.2, 3.2.4.2.1, 3.2.4.2.2, 3.2.4.2.3, 3.2.4.2.4, 3.2.4.2.5, 3.3, 3.3.1, 3.3.2, 3.3.3, 3.4, 3.4.1, 3.4.2, 3.5, 3.5.1, 3.5.1.1, 3.5.1.2, 3.5.1.3, 3.5.1.4, 3.5.1.5, 3.5.2, 3.5.2.1, 3.5.2.2, 3.5.2.3, 3.5.2.4, 3.5.2.5); air traffic control clearance (7.2, 7.2.1, 7.2.2, 7.3, 7.3.1, 7.3.2); air traffic flow management (ATFM) (17.1, 17.1.1, 17.1.2, 17.1.3, 17.1.4, 17.1.5, 17.1.6, 17.1.7, 17.1.8, 17.2, 17.2.1, 17.2.2, 17.2.3, 17.3, 17.3.1, 17.3.2, 17.3.3, 17.3.4, 17.3.5, 17.3.6, 17.4, 17.4.1, 17.4.2, 17.4.3, 17.4.4, 17.5, 17.5.1, 17.5.1.1, 17.5.1.2, 17.5.2, 17.5.2.1, 17.5.3, 17.5.3.1, 17.5.4, 17.5.4.1, 17.5.5, 17.5.5.1, 17.6, 17.6.1, 17.6.1.1, 17.6.1.2, 17.6.2, 17.6.2.1, 17.6.3, 17.6.3.1, 17.6.4, 17.6.4.1, 17.6.5, 17.6.5.1); and procedures for area navigation (RNAV) operations (18.2.2).

   Delete existing page EUR/RAC-31 dated 16/3/04 and Appendix A to EUR/RAC, EUR/RAC-A1 to A11.

b) MID/ASIA SUPPS, Part 1 – RAC concerning special procedures for in-flight contingencies (5.1.1, 5.1.2, 5.1.3, 5.2.1.1, 5.2.2, 5.2.2.1, 5.2.2.2, 5.2.2.3, 5.2.3, 5.2.3.1, 5.2.3.2, 5.3.1.2, 5.3.2.2, 5.3.3, 5.3.4, 5.3.4.1, 5.3.4.2); separation of aircraft (7.1, 7.1.5, 7.1.5.1, 7.1.5.2, 7.1.6, 7 1.7, 7.1.8, 7.1.9, 7.2, 7.2.1, 7.2.2, 7.2.2.1, 7.2.2.2, 7.2.2.3, 7.2.2.4, 7.2.2.5).

c) NAT SUPPS, Part 1 – RAC concerning air-ground communications and in-flight reporting (5.4.1); separation of aircraft (9.2.2.1, 9.2.2.2, 9.2.3, 9.2.3.1, 9.2.4, 9.2.4.1, 9.2.5, 9.2.5.1); Part 3 – Meteorology concerning aircraft observations and reports (1.1, 1.2).

   Delete existing page NAT/RAC-19 dated 16/3/04.

d) PAC SUPPS, Part 1 – RAC concerning special procedures for in-flight contingencies (4.1.1, 4.1.2, 4.1.3, 4.2.1.1, 4.2.2, 4.2.2.1, 4.2.2.2, 4.2.2.3, 4.2.3, 4.2.3.1, 4.2.3.2, 4.3.1.2, 4.3.2.2, 4.3.3, 4.3.4, 4.3.4.1, 4.3.4.2) separation of aircraft (6.1, 6.1.2, 6.1.2.1, 6.1.2.2, 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.2, 6.2.2, 6.2.2.1, 6.2.2.2, 6.2.2.3, 6.2.2.4, 6.2.2.5)

as well as changes of an editorial nature. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No 207

16 March 2004

AMENDMENT SUMMARY

Amendment No. 207 incorporates additions/changes to:

a) AFI SUPPS, Part 1 – RAC concerning use of airborne collision avoidance systems (ACAS) (14.1.1, 14.2, 14.2.1, 14.2.2, 14.3, 14.3.1, 14.3.2).

b) EUR SUPPS, Part 1 – RAC concerning reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) (2.0, 2.1, 2.1.1, 2.1.2); special procedures applicable in designated airspaces (10.0, 10.1, 10.1.1, 10.1.1.1); procedures for area navigation (RNAV) operations (18.1, 18.1.1, 18.1.1.1, 18.1.1.2, 18.1.1.3, 18.1.2, 18.1.2.1, 18.1.2.2, 18.2, 18.2.1, 18.2.2, 18.3, 18.3.1, 18.4, 18.4.1, 18.4.2, 18.5, 18.5.1, 18.5.2, 18.5.3, 18.5.3.1, 18.5.3.2, 18.6, 18.6.1, 18.7, 18.7.1, 18.7.2, 18.7.3, 18.7.4, 18.7.5, 18.8, 18.8.1, 18.8.1.1, 18.8.1.2, 18.8.1.3, 18.8.1.4, 18.8.1.5, 18.8.2, 18.8.2.1, 18.8.2.2, 18.8.2.3, 18.8.2.3.1, 18.8.2.4, 18.8.2.4.1, 18.8.2.4.2, 18.9, 18.9.1, 18.9.1.1, 18.9.1.2, 18.9.2, 18.9.2.1, 18.9.2.1.1, 18.9.2.2, 18.9.2.2.1, 18.9.2.3, 18.9.2.3.1, 18.9.2.4, 18.9.2.4.1, 18.9.2.4.2, 18.9.2.4.3); use of airborne collision avoidance systems (ACAS) (20.1.1, 20.1.2, 20.2, 20.2.1, 20.2.2, 20.3, 20.3.1, 20.3.2).

c) MID/ASIA SUPPS, Part 1 – RAC concerning action in the event of air-ground communication failure (4.0, 4.1, 4.2, 4.2.1, 4.3, 4.3.1); special procedures for in-flight contingencies (5.0, 5.1, 5.1.1, 5.1.2, 5.1.3, 5.1.3.1, 5.1.4, 5.1.4.1, 5.1.4.2, 5.1.4.3, 5.2, 5.2.1, 5.2.1.1, 5.2.2, 5.2.2.1, 5.2.2.2, 5.2.3, 5.2.3.1, 5.2.3.2, 5.2.4, 5.2.5, 5.3, 5.3.1, 5.3.1.1, 5.3.1.2, 5.3.1.3, 5.3.1.4, 5.3.2, 5.3.2.1, 5.3.2.2, 5.3.2.3, 5.3.2.4, 5.3.3, 5.3.3.1, 5.3.3.2, 5.4, 5.4.1, 5.4.1.1, 5.4.1.2, 5.4.1.3, 5.4.2, 5.4.2.1, 5.4.2.2, 5.4.3, 5.4.4, 5.4.4.1, 5.4.4.2); separation of aircraft (7.5, 7.5.1, 7.5.1.1, 7.5.2, 7.5.2.1, 7.5.3, 7.5.3.1, 7.5.4, 7.5.4.1, 7.5.5, 7.5.5.1, 7.5.6, 7.5.6.1, 7.5.7, 7.5.7.1, 7.5.8, 7.5.8.1, 7.5.8.1.1); use of airborne collision avoidance systems (ACAS) (8.1.1, 8.1.1.1, 8.1.2, 8.2, 8.2.1, 8.2.2, 8.3, 8.3.1, 8.3.2); special procedures applicable in designated airspaces (9.3, 9.3.1, 9.3.2).

d) NAT SUPPS, Part 1 – RAC concerning special procedures for in-flight contingencies (7.3.2.1, 7.3.3.2, 7.5, 7.5.1, 7.5.2); use of airborne collision avoidance systems (ACAS II) (15.1.1, 15.2, 15.2.1, 15.3, 15.3.1, 15.3.2).

e) PAC SUPPS, Part 1 – RAC concerning use of airborne collision avoidance systems (ACAS) (8.0, 8.1, 8.1.1, 8.1.1.1, 8.2, 8.2.1, 8.2.2, 8.3, 8.3.1, 8.3.2); special procedures applicable in designated airspaces (9.3, 9.3.1, 9.3.2).

as well as changes of an editorial nature. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

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(English, Spanish)

27/2/04

Corrigendum No. 2

1. Insert replacement page SAM/RAC-5.

2. Record the entry of this corrigendum on page (ii).

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REGIONAL SUPPLEMENTARY PROCEDURES

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Amendment No. 206

26 September 2003

Amendment summary

Amendment No. 206 incorporates additions/changes to:

a) AFI/SUPPS, Part 1 – RAC use of secondary surveillance radar (SSR) (13.1, 13.1.1 13.1.2);

b) EUR/SUPPS, Part 1 – RAC use of secondary surveillance radar (SSR)(9.1, 9.1.1, 9.1.2, 9.1.2.1, 9.1.3, 9.1.3.1, 9.1.3.2, 9.1.4 , 9.1.4.1 , 9.1.5, 9.1.5.1 , 9.1.5.2 , 9.4);

c) MID/ASIA/SUPPS, Part 1 – RAC use of secondary surveillance radar (SSR) (7.1, 7.1.1, 7.1.2, 7.1.2.1, 7.1.3, 7.1.3.1, 7.1.3.2, 7.1.4, 7.1.4.1, 7.1.4.2, 7.1.4.2.1, 7.1.4.3, 7.1.4.4, 7.1.4.4.1, 7.1.4.4.2, 7.4) as well as Part 3-Meteorology (1.1, 1.2, 1.3);

d) NAM/SUPPS, Part 1 – RAC separation of aircraft (1.2.1);

and:

e) deletion of PAC/SUPPS, Part 3 – MET aircraft observation and reports (1.0, 1.1)

as well as changes of an editorial nature. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

CHECKLIST

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 205

4 April 2003

Amendment summary

Amendment No. 205 incorporates additions/changes to:

a) AFI/SUPPS, Part 1 — RAC concerning identification of ATS routes (12.1.1) and Part 2 — Communications concerning radio frequencies (3.1).

b) EUR/SUPPS, Part 1 — RAC concerning special procedures for in-flight contingencies (6.0, 6.1, 6.1.1, 6.1.1.1, 6.1.1.2, 6.1.2, 6.1.2.1, 6.1.2.2, 6.1.2.3, 6.2, 6.2.1, 6.2.1.1, 6.2.1.2, 6.2.1.3, 6.2.2, 6.2.2.1, 6.2.2.2, 6.2.2.3, 6.2.2.4, 6.2.3, 6.2.3.1, 6.2.3.2, 6.2.3.3, 6.2.3.4, 6.2.4, 6.2.4.1, 6.2.4.2), as well as editorial re-numbering of sections (7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0 and 14.0).

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 204

28 August 2002

Amendment summary

Amendment No. 204 incorporates additions/changes to:

a) AFI/SUPPS, Part 1-RAC, Appendix A (Reference 7.3).

b) EUR/SUPPS, Part 1-RAC concerning reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) (2.1.1, 2.1.2) and special procedures applicable in designated airspaces (9.1.1.1); Part 4-MET concerning aircraft observation and reports (1.1, 1.2) and special observations, special reports and selected special reports (2.0, 2.1);

c) NAM/SUPPS, Part 1-RAC concerning separation of aircraft (1.3, 1.3.1, 1.3.2, 1.3.2.1, 1.3.2.2, 1.3.3, 1.3.3.1, 1.3.4, 1.3.4.1, 1.3.5, 1.3.5.1, 1.3.6, 1.3.6.1, 1.3.7, 1.3.7.1);

d) NAT/SUPPS, Part 1-RAC concerning special procedures for in-flight contingencies (7.6, 7.6.1, 7.6.1.1, 7.6.1.2, 7.6.1.3, 7.6.2, 7.6.2.1, 7.6.2.2, 7.6.3, 7.6.3.1, 7.6.3.2, 7.6.3.3, 7.6.4, 7.6.4.1, 7.6.4.2).

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 203

20 February 2002

Amendment summary

Amendment No. 203 *incorporates additions/changes to:*

a) Table of Contents — General (European (EUR) Regional Supplementary Procedures (Part 3 — Aerodrome Operations and Part 4 — Meteorology);

b) AFI/SUPPS, Part 1-RAC concerning special procedures for in-flight contingencies (4.0, 4.1 4.1.1, 4.1.2, 4.2, 4.2.1, 4.2.1.1 4.2.1.2, 4.3, 4.3.1, 4.3.1.1, 4.3.2, 4.3.2.1, 4.3.2.2, 4.3.3, 4.3.3.1, 4.3.3.2, 4.3.4, 4.3.4.1, 4.3.5, 4.3.5.1, 4.4, 4.4.1, 4.4.1.1, 4.5, 4.5.1, 4.5.1.1, 4.5.1.2, 4.5.1.3, 4.5.2, 4.5.2.1, 4.5.2.2, 4.5.3, 4.5.3.1, 4.5.3.2, 4.5.3.3, 4.5.4, 4.5.4.1, 4.5.4.2);

c) EUR/SUPPS, Part 1-RAC concerning action in the event of air-ground communication failure (5.0, 5.1, 5.2, 5.2.1, 5.3, 5.3.1) and special procedures applicable in designated airspaces (9.1.1.1) and Part 3-AOP (1.0, 1.1, 2.0, 2.1, 2.1.1, 2.1.1.1, 2.1.1.2, 2.1.1.3, 2.1.1.4, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 3.0, 3.1, 3.1.1, 3.2, 3.2.1, 4.0, 4.1, 4.1.1, 4.1.2, 4.2, 4.2.1, 4.3, 4.3.1, 5.0, 5.1, 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.2, 5.2.1, 5.3, 5.3.1) and Part 4-MET;

d) MID/ASIA/SUPPS, Part 1-RAC concerning separation of aircraft (6.2.1, 6.5.3.1, 6.5.7.1);

e) PAC/SUPPS, Part 1-RAC concerning separation of aircraft (6.5.1.1, 6.5.3.1, 6.5.7.1);

f) SAM/SUPPS, Part 1-RAC concerning special procedures for in-flight contingencies (4.0, 4.1 4.1.1, 4.1.2, 4.2, 4.2.1, 4.2.1.1, 4.2.1.2, 4.3, 4.3.1, 4.3.1.1, 4.3.2, 4.3.2.1, 4.3.2.2, 4.3.3, 4.3.3.1, 4.3.3.2, 4.3.4, 4.3.4.1, 4.3.5, 4.3.5.1, 4.4, 4.4.1, 4.4.1.1, 4.5, 4.5.1, 4.5.1.1, 4.5.1.2, 4.5.1.3, 4.5.2, 4.5.2.1, 4.5.2.2, 4.5.3, 4.5.3.1, 4.5.3.2, 4.5.3.3, 4.5.4, 4.5.4.1, 4.5.4.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

CHECKLIST

Amendment summary

Amendment No. 202 incorporates additions/changes to:

a) AFI/SUPPS, Part 1-RAC concerning separation of aircraft (5.0, 5.1, 5.1.1, 5.1.2, 5.1.3, 5.1.3.1, 5.1.3.2, 5.1.3.3, 5.1.3.4, 5.1.3.5, 5.2, 5.2.1, 5.2.2, 5.2.2.1, 5.3. 5.3.1, 5.3.2, 5.3.2.1, 5.3.2.2, 5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.3.7, 5.3.7.1, 5.3.7.2, 5.3.8, 5.3.9, 5.3.9.1, 5.3.9.2);

b) EUR/SUPPS, Part 1-RAC concerning air traffic flow management (ATFM) (17.5, 17.5.1) and operations on ATS routes in the Middle East Region where an RNP type is specified (19.0, 19.1, 19.1.1, 19.1.2, 19.1.3, 19.1.4, 19.1.5, 19.2, 19.2.1, 19.3, 19.3.1, 19.4, 19.4.1, 19.5 19.5.1);

c) MID/ASIA/SUPPS, Part 1-RAC concerning separation of aircraft (6.0, 6.1, 6.1.5, 6.2, 6.2.1, 6.2.2) and operations on ATS routes in the Middle East Region where an RNP type is specified (14.0, 14.1, 14.1.1, 14.1.2, 14.1.3, 14.1.4, 14.1.5, 14.2, 14.2.1, 14.3, 14.3.1, 14.4, 14.4.1. 14.5, 14.5.1, 14.5.2, 14.5.3, 14.6, 14.6.1, 14.6.1.1, 14.6.1.2, 14.6.1.2.1, 14.7, 14.7.1, 14.7.1.1, 14.7.1.2, 14.7.2, 14.7.2.1, 14.7.2.2, 14.7.2.3, 14.7.3, 14.7.4, 14.7.4.1, 14.8, 14.8.1);

d) PAC/SUPPS, Part 1-RAC concerning separation of aircraft (6.0, 6.1, 6.1.2, 6.2, 6.2.1, 6.2.2);

e) SAM/SUPPS, Part 1-RAC concerning separation of aircraft (6.0, 6.1, 6.1.1, 6.1.1.1, 6.1.1.2, 6.1.2, 6.1.2.1, 6.1.2.2, 6.1.2.3, 6.1.2.4, 6.1.2.5, 6.2, 6.2.1, 6.2.2, 6.2.2.1, 6.2.2.2, 6.3, 6.3.1, 6.3.2, 6.3.2.1, 6.3.2.2, 6.3.3, 6.3.4, 6.3.5, 6.3.6, 6.3.7, 6.3.7.1, 6.3.7.2, 6.3.8, 6.3.9, 6.3.9.1, 6.3.9.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

CHECKLIST

Amendment summary

Amendment No. 201 incorporates additions/changes to:

a) EUR/SUPPS, Part 1 concerning carriage and operation of ACAS II (19.1.2);

b) MID/ASIA/SUPPS, Part 1 concerning carriage and operation of ACAS II (8.1.2);

c) NAM/SUPPS, Part 3 concerning aircraft observations and reports (1.1);

d) NAT/SUPPS, Part 1 concerning reduced vertical separation minimum (2.0, 2.1, 2.1.1, 2.1.2, 2.1.3), minimum navigation performance specifications (MNPS) (3.0, 3.1, 3.1.1, 3.2, 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5), flight plans (4.1.5.1, 4.1.5.2) and vertical separation (9.3.1, 9.3.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended. References to the PANS-RAC will be updated to correspond to the PANS-ATM as pages are amended.

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 200

12 December 2000

Amendment summary

Amendment No. 200 incorporates additions/changes to:

EUR/SUPPS, Part 1-RAC concerning instrument flight rules (IFR) (1.1, 1.1.1.1, 1.1.1.2), area of applicability (2.1.1, 2.1.2, 2.2.1), use of repetitive flight plans (RPLs) (3.1.1.2), indication in the flight plan of RVSM approval status (3.5, 3.5.1, 3.5.1.1, 3.5.1.2, 3.5.1.3, 3.5.1.4, 3.5.1.5, 3.5.2, 3.5.2.1, 3.5.2.2, 3.5.2.3, 3.5.2.4, 3.5.2.5), ATC clearance into the EUR RVSM airspace (6.3, 6.3.1, 6.3.2), vertical separation (7.4, 7.4.1, 7.4.2), provisions for the transition of aircraft to/from the EUR RVSM airspace (9.1, 9.1.1, 9.1.1.1, 9.1.2, 9.1.2.1, 9.1.2.2, 9.1.3, 9.1.3.1, 9.1.3.2, 9.1.3.3, 9.1.4, 9.1.4.1, 9.1.4.2, 9.1.4.3, 9.1.4.4), European/North Atlantic (NAT) interface — non-RVSM approved aircraft (9.2, 9.2.1, 9.2.2, 9.2.3), computer-assisted coordination process (13.2.3.1), special procedures for in-flight contingencies involving a loss of vertical navigation performance required for flight within the EUR RVSM airspace (14.0, 14.1, 14.1.1, 14.1.2, 14.1.3, 14.2, 14.2.1, 14.2.2, 14.2.3, 14.2.4), severe turbulence — not forecast (14.3, 14.3.1, 14.3.2, 14.3.3, 14.3.4), severe turbulence — forecast (14.4,14.4.1, 14.4.2), phraseology related to RVSM operations in the EUR RVSM airspace (15.0, 15.1, 15.2), the renumbering of existing paragraphs 14.0, 15.0, 16.0 and 17.0, as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

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Amendment summary

Amendment No. 199 incorporates additions/changes to:

a) the Index to application of supplementary procedures (page ix). In the list of EUR FIRs, Genève and Zürich have been deleted and Switzerland has been added;

b) EUR/SUPPS, Part 1-RAC concerning the procedures for operation on RNAV routes (16.6, 16.6.1, 16.6.2, 16.6.3, 16.6.4, 16.6.5, 16.6.5.1, 16.6.6, 16.6.6.1, 16.6.6.1.1, 16.6.6.1.2, 16.6.6.1.3);

c) NAM/SUPPS, Part 1-RAC concerning the establishment of a 300 m (1 000 ft) vertical separation minimum (VSM) transition area (2.1.1) and characteristics of an RVSM transition area (2.2.1); and

d) NAT/SUPPS, Part 1-RAC concerning minimum navigation performance specifications (MNPS) (2.1.4, 2.1.5, 2.1.6), the use of satellite communications (SATCOM) (5.5, 5.5.1), special procedures for in-flight contingencies (6.0, 6.1, 6.1.1, 6.1.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.2.6, 6.3.1, 6.3.2.1, 6.3.3, 6.3.3.1, 6.3.3.2, 6.3.3.3, 6.3.3.4, 6.3.4.1, 6.3.4.2, 6.3.4.3, 6.3.4.3.1, 6.3.4.3.2, 6.3.4.3.3, 6.3.4.4, 6.3.4.4.1, 6.3.4.4.2, 6.4.1.1, 6.4.2, 6.4.2.1, 6.4.2.2, 6.4.2.3, 6.5, 6.5.1) and mandatory carriage of organized track system (OTS) message (10.2, 10.2.1, 10.3, 10.3.1, 10.4, 10.4.1, 10.5, 10.5.1, 10.5.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

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Amendment summary

Amendment No. 198 incorporates additions/changes to:

a) NAT/SUPPS, Part 1-RAC concerning the carriage and operation of pressure-altitude reporting SSR transponders (9.1, 9.1.1) and the use of airborne collision avoidance systems (ACAS II) (14.0, 14.1, 14.1.1, 14.2, 14.2.1, 14.3, 14.3.1, 14.3.2); and

b) SAM/SUPPS, Part 1-RAC concerning special procedures for in-flight contingencies (4.0, 4.1, 4.1.2, 4.2, 4.2.1, 4.2.1.1, 4.2.1.2, 4.3, 4.3.1, 4.3.1.1, 4.3.2, 4.3.2.1, 4.3.2.2, 4.4, 4.4.1, 4.4.1.1, 4.5, 4.5.1, 4.5.1.1, 4.5.1.2, 4.5.1.3, 4.5.2, 4.5.2.1, 4.5.2.2, 4.5.3, 4.5.3.1, 4.5.3.2, 4.5.3.3, 4.5.4, 4.5.4.1) and separation of aircraft (6.0, 6.1, 6.1.1, 6.1.2, 6.1.2.1, 6.1.2.2, 6.1.2.3, 6.1.2.4, 6.2, 6.2.1, 6.2.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 197

2 May 2000

Amendment summary

Amendment No. 197 incorporates additions/changes to:

a) EUR/SUPPS, Part 1-RAC concerning reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) (2.0, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.2.4); and

b) NAT/SUPPS, Part 1-RAC concerning flight rules (1.1.1.1) and minimum navigation performance specifications (MNPS) (2.1.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

CHECKLIST

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 196

13 February 2000

Amendment summary

Amendment No. 196 incorporates additions/changes to:

a) MID/ASIA/SUPPS, Part 1 – RAC concerning special procedures for in-flight contingencies (4.1.1, 4.1.2, 4.1.3, 4.2, 4.2.1, 4.2.1.1, 4.2.2, 4.2.2.1, 4.2.2.2, 4.2.2.3, 4.2.2.4, 4.3.3 and sample phraseology, 4.3.3 c) 2) and 3)), vertical separation (6.5, 6.5.1, 6.5.1.1, 6.5.2, 6.5.2.1, 6.5.3, 6.5.3.1, 6.5.4, 6.5.4.1, 6.5.5, 6.5.5.1, 6.5.6, 6.5.6.1, 6.5.7, 6.5.7.1, 6.5.8, 6.5.8.1, 6.5.8.1.1), carriage and operation of pressure-altitude reporting SSR transponders (7.3, 7.3.1, 7.3.1.1, 7.3.2, and 7.3.2.1) and use of airborne collision avoidance systems (ACAS) (8.0, 8.1, 8.1.1, 8.1.1.1, 8.2, 8.2.1, 8.2.2, 8.3, 8.3.1, and 8.3.2); and

b) PAC/SUPPS, Part 1 – RAC concerning special procedures for in-flight contingencies (4.1.1, 4.1.2, 4.1.3, 4.2, 4.2.1, 4.2.1.1, 4.2.2, 4.2.2.1, 4.2.2.2, 4.2.2.3, 4.2.2.4, 4.3.3 and sample phraseology, 4.3.3 c) 2) and 3)), vertical separation (6.5, 6.5.1, 6.5.1.1, 6.5.2, 6.5.2.1, 6.5.3, 6.5.3.1, 6.5.4, 6.5.4.1, 6.5.5, 6.5.5.1, 6.5.6, 6.5.6.1, 6.5.7, 6.5.7.1, 6.5.8, 6.5.8.1, 6.5.8.1.1), carriage and operation of pressure-altitude reporting SSR transponders (7.2, 7.2.1, 7.2.1.1, 7.2.2, and 7.2.2.1) and use of airborne collision avoidance systems (ACAS) (8.0, 8.1, 8.1.1, 8.1.1.1, 8.2, 8.2.1, 8.2.2, 8.3, 8.3.1, and 8.3.2);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

CHECKLIST

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 195

28 October 1999

Amendment summary

Amendment No. 195 incorporates additions/changes to:

a) EUR/SUPPS, Part 1-RAC, concerning phraseology to be used in airspace where 8.33 kHz channel spacing is used (3.2, 3.2.1, 3.3, 3.3.1, 3.4, 3.4.1, 3.4.1.1, 3.4.1.2) and promulgation by the central flow management unit (CFMU) of multinational information concerning air traffic flow management (ATFM) measures (14.5, 14.5.1, 14.5.1.1, 14.5.1.2, 14.5.2, 14.5.2.1, 14.5.3, 14.5.3.1, 14.5.4, 14.5.4.1, 14.5.5, 14.5.5.1);

b) the Foreword;

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

CHECKLIST

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 194

5 May 1999

Amendment summary

Amendment No. 194 incorporates additions/changes to:

a) EUR/SUPPS, Part 1-RAC, concerning carriage and operation of SSR Mode S airborne equipment (7.5, 7.5.1, 7.5.2, 7.5.3, 7.5.4);

b) MID/ASIA SUPPS, Part 1-RAC, concerning air-ground communications and in-flight reporting (3.5, 3.5.1, 3.5.2);

c) MID/ASIA SUPPS, Part 3-MET, concerning aircraft observations and reports (1.0, 1.1);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

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CAR

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CAR/RAC-13	26/10/93
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CAR/COM-1	15/10/90

EUR

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EUR/RAC-5	5/5/99
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EUR/RAC-8	5/5/99
EUR/RAC-9	5/5/99
EUR/RAC-10	5/5/99
EUR/RAC-11	5/5/99
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NAM

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NAT

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NAT/RAC-13	5/2/97
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PAC

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SAM

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Corrigendum No. 1

1. Insert replacement page (ix) — Index to application of supplementary procedures.

2. Record the entry of this corrigendum on page (ii).

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 193

22 June 1998

Amendment summary

Amendment No. 193 incorporates additions/changes to:

a) Index to application of supplementary procedures (page (ix));

b) Procedure for the amendment of regional supplementary procedures, Introduction (1.2), amendments proposed by a Contracting State (or group of States) (2.2, 2.3, 2.5), amendments proposed by international organizations (3, 3.1), consequential amendments (4, 4.1, 4.2, 4.3, 4.4), and promulgation of approved amendments (5, 5.1).

c) AFI/RAC SUPPS concerning the use of secondary surveillance radar (SSR) (12.0, 12.1, 12.2, 12.2.1, 12.2.2);

d) MID/ASIA SUPPS concerning the use of secondary surveillance radar (7.0, 7.1.3.5, 7.1.3.5.1);

e) MID/ASIA SUPPS concerning special procedures for in-flight contingencies (4.2.2, 4.2.3, and all of Section 4.3);

f) PAC SUPPS concerning special procedures for in-flight contingencies (4.2.2, 4.2.3, and all of Section 4.3);

as well as changes of an editorial nature. Please note the change in format which will be implemented gradually as chapters are amended.

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CAR

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CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
CAR/RAC-5	5/2/97
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EUR

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EUR/RAC-9	17/2/98
EUR/RAC-10	17/2/98
EUR/RAC-11	17/2/98
EUR/RAC-12	17/2/98
EUR/RAC-13	17/2/98
EUR/RAC-14	17/2/98
EUR/RAC-15	17/2/98
EUR/RAC-16	17/2/98
EUR/RAC-17	17/2/98
EUR/RAC-18	17/2/98
EUR/RAC-19	17/2/98
EUR/RAC-20	17/2/98
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EUR/RAC-A8	17/2/98
EUR/RAC-A9	17/2/98
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NAM

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NAM/COM-1	22/9/88
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NAT

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NAT/RAC-1	5/2/97
NAT/RAC-2	5/2/97
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	12/6/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
NAT/RAC-18	5/2/97
NAT/RAC-19	12/6/97
NAT/RAC-20	12/6/97
NAT/RAC-21	12/6/97
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NAT/RAC-23	17/2/98
NAT/RAC-24	17/2/98
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
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PAC

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PAC/RAC-5	22/6/98
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PAC/RAC-8	22/6/98
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SAM

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SAM/RAC-7	15/5/89
SAM/RAC-8	26/10/93
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SAM/COM-1	15/10/90

Amendment summary

Amendment No. 192 incorporates additions to:

a) EUR/RAC SUPPS concerning indication in the flight plan of 8.33 kHz channel spacing capable radio equipment (2.3, 2.3.1, 2.3.2 and 2.3.3) and mandatory carriage of 8.33 kHz channel spacing capable radio equipment (3.1, 3.1.1, 3.1.2 and 3.1.3);

b) MID/ASIA/MET SUPPS concerning aircraft observation and reports (1.0, 1.1 and 1.2); and

c) NAT/RAC SUPPS concerning special procedures for manned balloon flights (10.4, 10.4.1 and 10.4.2);

as well as changes of an editorial nature.

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AFI/RAC-6	26/10/93
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AFI/RAC-6B	19/8/97
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CAR

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CAR/RAC-1	2/2/87
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CAR/RAC-13	26/10/93
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EUR

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EUR/RAC-10	17/2/98
EUR/RAC-11	17/2/98
EUR/RAC-12	17/2/98
EUR/RAC-13	17/2/98
EUR/RAC-14	**17/2/98**
EUR/RAC-15	17/2/98
EUR/RAC-16	17/2/98
EUR/RAC-17	17/2/98
EUR/RAC-18	17/2/98
EUR/RAC-19	17/2/98
EUR/RAC-20	17/2/98
EUR/RAC-21	17/2/98
EUR/RAC-22	17/2/98
EUR/RAC-A1	17/2/98
EUR/RAC-A2	17/2/98
EUR/RAC-A3	17/2/98
EUR/RAC-A4	17/2/98
EUR/RAC-A5	17/2/98
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MID/ASIA

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MID/ASIA/RAC-7	17/9/96
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MID/ASIA/RAC-9	17/9/96
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MID/ASIA/RAC-12	17/9/96
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MID/ASIA/RAC-15	17/9/96
MID/ASIA/RAC-16	17/9/96
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NAM

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NAM/RAC-1	5/2/97
NAM/RAC-2	5/2/97
NAM/COM-1	22/9/88
NAM/MET-1	2/2/87

NAT

NAT-1	12/6/97
NAT/RAC-1	5/2/97
NAT/RAC-2	**5/2/97**
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	12/6/97
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NAT/RAC-16	5/2/97
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NAT/RAC-23	17/2/98
NAT/RAC-24	17/2/98
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
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PAC

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PAC/RAC-3	15/3/94
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PAC/RAC-5	12/3/97
PAC/RAC-6	12/3/97
PAC/RAC-7	17/9/96
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SAM

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SAM/RAC-6	9/10/92
SAM/RAC-7	15/5/89
SAM/RAC-8	26/10/93
SAM/RAC-9	26/10/93
SAM/RAC-10	15/5/89
SAM/RAC-11	2/2/87
SAM/RAC-12	2/2/87
SAM/COM-1	**15/10/90**

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 191
30 October 1997

Amendment summary

Amendment No. 191 incorporates additions to EUR SUPPS concerning procedures for area navigation (RNAV) operations (Chapter 15) and the use of airborne collision avoidance system (ACAS) (Chapter 16).

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AFI

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AFI/RAC-1	26/10/93
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AFI/RAC-6	26/10/93
AFI/RAC-6A	19/8/97
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AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

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CAR/RAC-1	2/2/87
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CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
CAR/RAC-5	5/2/97
CAR/RAC-6	5/2/97
CAR/RAC-7	26/10/93
CAR/RAC-8	26/10/93
CAR/RAC-9	5/2/97
CAR/RAC-10	26/10/93
CAR/RAC-11	26/10/93
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CAR/RAC-14	26/10/93
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EUR

EUR-1	30/10/97
EUR/RAC-1	26/10/93
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EUR/RAC-5	1/2/96
EUR/RAC-6	1/2/96
EUR/RAC-7	1/2/96
EUR/RAC-8	1/2/96
EUR/RAC-9	1/2/96
EUR/RAC-10	1/2/96
EUR/RAC-11	5/2/97
EUR/RAC-12	5/2/97
EUR/RAC-12A	5/2/97
EUR/RAC-12B	5/2/97
EUR/RAC-12C	5/2/97
EUR/RAC-12D	5/2/97
EUR/RAC-12E	5/2/97
EUR/RAC-12F	30/10/97
EUR/RAC-12G	30/10/97
EUR/RAC-12H	30/10/97
EUR/RAC-13	30/10/97
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EUR/RAC-21	6/3/92
EUR/RAC-22	6/3/92
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MID/ASIA

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MID/ASIA/RAC-1	26/10/93
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MID/ASIA/RAC-3	15/10/90
MID/ASIA/RAC-4	15/10/90
MID/ASIA/RAC-5	12/3/97
MID/ASIA/RAC-6	4/4/97
MID/ASIA/RAC-7	17/9/96
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MID/ASIA/RAC-9	17/9/96
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MID/ASIA/RAC-14	17/9/96
MID/ASIA/RAC-15	17/9/96
MID/ASIA/RAC-16	17/9/96
MID/ASIA/RAC-17	17/9/96
MID/ASIA/COM-1	1/2/96
MID/ASIA/MET-1	2/2/87

NAM

NAM-1	5/2/97
NAM/RAC-1	5/2/97
NAM/RAC-2	5/2/97
NAM/COM-1	22/9/88
NAM/MET-1	2/2/87

NAT

NAT-1	12/6/97
NAT/RAC-1	5/2/97
NAT/RAC-2	5/2/97
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	12/6/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
NAT/RAC-18	5/2/97
NAT/RAC-19	12/6/97
NAT/RAC-20	12/6/97
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NAT/RAC-22	12/6/97
NAT/RAC-23	12/6/97
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
NAT/MET-1	15/3/94

PAC

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PAC/RAC-4	15/3/94
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PAC/RAC-6	12/3/97
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PAC/RAC-8	17/9/96
PAC/RAC-9	17/9/96
PAC/RAC-10	17/9/96
PAC/RAC-11	17/9/96
PAC/RAC-12	17/9/96
PAC/COM-1	1/2/96
PAC/MET-1	15/3/94

SAM

SAM-1	15/10/90
SAM/RAC-1	15/5/89
SAM/RAC-2	15/5/89
SAM/RAC-3	15/5/89
SAM/RAC-4	15/5/89
SAM/RAC-5	15/5/89
SAM/RAC-6	9/10/92
SAM/RAC-7	15/5/89
SAM/RAC-8	26/10/93
SAM/RAC-9	26/10/93
SAM/RAC-10	15/5/89
SAM/RAC-11	2/2/87
SAM/RAC-12	2/2/87
SAM/COM-1	15/10/90

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 190
19 August 1997

Amendment summary

Amendment No. 190 incorporates additions to AFI SUPPS concerning the use of secondary surveillance radar (SSR) (12.0, 12.1, 12.1.1 and 12.1.2) and the use of airborne collision avoidance systems (ACAS) (13.1, 13.1.1, 13.2, 13.2.1, 13.2.2, 13.3, 13.3.1 and 13.3.2), as well as changes of an editorial nature.

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AFI

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AFI/RAC-1	26/10/93
AFI/RAC-2	15/5/89
AFI/RAC-3	15/5/89
AFI/RAC-4	15/5/89
AFI/RAC-5	26/10/93
AFI/RAC-6	26/10/93
AFI/RAC-6A	19/8/97
AFI/RAC-6B	19/8/97
AFI/RAC-7	15/5/89
AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

CAR-1	26/10/93
CAR/RAC-1	2/2/87
CAR/RAC-2	5/2/97
CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
CAR/RAC-5	5/2/97
CAR/RAC-6	5/2/97
CAR/RAC-7	26/10/93
CAR/RAC-8	26/10/93
CAR/RAC-9	5/2/97
CAR/RAC-10	26/10/93
CAR/RAC-11	26/10/93
CAR/RAC-12	26/10/93
CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
CAR/COM-1	15/10/90

EUR

EUR-1	5/2/97
EUR/RAC-1	26/10/93
EUR/RAC-2	15/3/94
EUR/RAC-3	15/3/94
EUR/RAC-4	1/2/96
EUR/RAC-5	1/2/96
EUR/RAC-6	1/2/96
EUR/RAC-7	1/2/96
EUR/RAC-8	1/2/96
EUR/RAC-9	1/2/96
EUR/RAC-10	1/2/96
EUR/RAC-11	5/2/97
EUR/RAC-12	5/2/97
EUR/RAC-12A	5/2/97
EUR/RAC-12B	5/2/97
EUR/RAC-12C	5/2/97
EUR/RAC-12D	5/2/97
EUR/RAC-12E	5/2/97
EUR/RAC-12F	5/2/97
EUR/RAC-13	5/2/97
EUR/RAC-14	15/3/94
EUR/RAC-15	6/3/92
EUR/RAC-16	6/3/92
EUR/RAC-17	6/3/92
EUR/RAC-18	6/3/92
EUR/RAC-19	6/3/92
EUR/RAC-20	6/3/92
EUR/RAC-21	6/3/92
EUR/RAC-22	6/3/92
EUR/RAC-23	6/3/92
EUR/RAC-24	6/3/92
EUR/COM-1	2/2/87
EUR/MET-1	15/10/90

MID/ASIA

MID/ASIA-1	17/9/96
MID/ASIA/RAC-1	26/10/93
MID/ASIA/RAC-2	15/3/94
MID/ASIA/RAC-3	15/10/90
MID/ASIA/RAC-4	15/10/90
MID/ASIA/RAC-5	12/3/97
MID/ASIA/RAC-6	4/4/97
MID/ASIA/RAC-7	17/9/96
MID/ASIA/RAC-8	17/9/96
MID/ASIA/RAC-9	17/9/96
MID/ASIA/RAC-10	17/9/96
MID/ASIA/RAC-11	17/9/96
MID/ASIA/RAC-12	17/9/96
MID/ASIA/RAC-13	17/9/96
MID/ASIA/RAC-14	17/9/96
MID/ASIA/RAC-15	17/9/96
MID/ASIA/RAC-16	17/9/96
MID/ASIA/RAC-17	17/9/96
MID/ASIA/COM-1	1/2/96
MID/ASIA/MET-1	2/2/87

NAM

NAM-1	5/2/97
NAM/RAC-1	5/2/97
NAM/RAC-2	5/2/97
NAM/COM-1	22/9/88
NAM/MET-1	2/2/87

NAT

NAT-1	12/6/97
NAT/RAC-1	5/2/97
NAT/RAC-2	5/2/97
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	12/6/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
NAT/RAC-18	5/2/97
NAT/RAC-19	12/6/97
NAT/RAC-20	12/6/97
NAT/RAC-21	12/6/97
NAT/RAC-22	12/6/97
NAT/RAC-23	12/6/97
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
NAT/MET-1	15/3/94

PAC

PAC-1	17/9/96
PAC/RAC-1	15/3/94
PAC/RAC-2	15/3/94
PAC/RAC-3	15/3/94
PAC/RAC-4	15/3/94
PAC/RAC-5	12/3/97
PAC/RAC-6	12/3/97
PAC/RAC-7	17/9/96
PAC/RAC-8	17/9/96
PAC/RAC-9	17/9/96
PAC/RAC-10	17/9/96
PAC/RAC-11	17/9/96
PAC/RAC-12	17/9/96
PAC/COM-1	1/2/96
PAC/MET-1	15/3/94

SAM

SAM-1	15/10/90
SAM/RAC-1	15/5/89
SAM/RAC-2	15/5/89
SAM/RAC-3	15/5/89
SAM/RAC-4	15/5/89
SAM/RAC-5	15/5/89
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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 189
12 June 1997

Amendment summary

Amendment No. 189 incorporates changes in NAT/RAC SUPPS concerning minimum lateral separation (8.1.1 and 8.1.2) and horizontal separation minima relating to airspace reservations (8.5, 8.5.1, 8.5.1.1, 8.5.1.2, 8.5.2, 8.5.2.1, 8.5.3, 8.5.3.1, 8.5.4 and 8.5.4.1), as well as changes of an editorial nature.

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AFI

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AFI/RAC-1	26/10/93
AFI/RAC-2	15/5/89
AFI/RAC-3	15/5/89
AFI/RAC-4	15/5/89
AFI/RAC-5	26/10/93
AFI/RAC-6	26/10/93
AFI/RAC-7	15/5/89
AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

CAR-1	26/10/93
CAR/RAC-1	2/2/87
CAR/RAC-2	5/2/97
CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
CAR/RAC-5	5/2/97
CAR/RAC-6	5/2/97
CAR/RAC-7	26/10/93
CAR/RAC-8	26/10/93
CAR/RAC-9	5/2/97
CAR/RAC-10	26/10/93
CAR/RAC-11	26/10/93
CAR/RAC-12	26/10/93
CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
CAR/COM-1	15/10/90

EUR

EUR-1	5/2/97
EUR/RAC-1	26/10/93
EUR/RAC-2	15/3/94
EUR/RAC-3	15/3/94
EUR/RAC-4	1/2/96
EUR/RAC-5	1/2/96
EUR/RAC-6	1/2/96
EUR/RAC-7	1/2/96
EUR/RAC-8	1/2/96
EUR/RAC-9	1/2/96
EUR/RAC-10	1/2/96
EUR/RAC-11	5/2/97
EUR/RAC-12	5/2/97
EUR/RAC-12A	5/2/97
EUR/RAC-12B	5/2/97
EUR/RAC-12C	5/2/97
EUR/RAC-12D	5/2/97
EUR/RAC-12E	5/2/97
EUR/RAC-12F	5/2/97
EUR/RAC-13	5/2/97
EUR/RAC-14	15/3/94
EUR/RAC-15	6/3/92
EUR/RAC-16	6/3/92
EUR/RAC-17	6/3/92
EUR/RAC-18	6/3/92
EUR/RAC-19	6/3/92
EUR/RAC-20	6/3/92
EUR/RAC-21	6/3/92
EUR/RAC-22	6/3/92
EUR/RAC-23	6/3/92
EUR/RAC-24	6/3/92
EUR/COM-1	2/2/87
EUR/MET-1	15/10/90

MID/ASIA

MID/ASIA-1	17/9/96
MID/ASIA/RAC-1	26/10/93
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MID/ASIA/RAC-3	15/10/90
MID/ASIA/RAC-4	15/10/90
MID/ASIA/RAC-5	12/3/97
MID/ASIA/RAC-6	4/4/97
MID/ASIA/RAC-7	17/9/96
MID/ASIA/RAC-8	17/9/96
MID/ASIA/RAC-9	17/9/96
MID/ASIA/RAC-10	17/9/96
MID/ASIA/RAC-11	17/9/96
MID/ASIA/RAC-12	17/9/96
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MID/ASIA/RAC-17	17/9/96
MID/ASIA/COM-1	1/2/96
MID/ASIA/MET-1	2/2/87

NAM

NAM-1	5/2/97
NAM/RAC-1	5/2/97
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NAT

NAT-1	12/6/97
NAT/RAC-1	5/2/97
NAT/RAC-2	5/2/97
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	12/6/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
NAT/RAC-18	5/2/97
NAT/RAC-19	12/6/97
NAT/RAC-20	12/6/97
NAT/RAC-21	12/6/97
NAT/RAC-22	12/6/97
NAT/RAC-23	12/6/97
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
NAT/MET-1	15/3/94

PAC

PAC-1	17/9/96
PAC/RAC-1	15/3/94
PAC/RAC-2	15/3/94
PAC/RAC-3	15/3/94
PAC/RAC-4	15/3/94
PAC/RAC-5	12/3/97
PAC/RAC-6	12/3/97
PAC/RAC-7	17/9/96
PAC/RAC-8	17/9/96
PAC/RAC-9	17/9/96
PAC/RAC-10	17/9/96
PAC/RAC-11	17/9/96
PAC/RAC-12	17/9/96
PAC/COM-1	1/2/96
PAC/MET-1	15/3/94

SAM

SAM-1	15/10/90
SAM/RAC-1	15/5/89
SAM/RAC-2	15/5/89
SAM/RAC-3	15/5/89
SAM/RAC-4	15/5/89
SAM/RAC-5	15/5/89
SAM/RAC-6	9/10/92
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SAM/COM-1	15/10/90

REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 188
4 April 1997

Amendment summary

Amendment No. 188 incorporates changes in MID/ASIA SUPPS concerning separation of aircraft (6.1.1, 6.1.2, 6.1.3 and 6.1.4).

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AFI

Page	Date
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AFI/RAC-4	15/5/89
AFI/RAC-5	26/10/93
AFI/RAC-6	26/10/93
AFI/RAC-7	15/5/89
AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

Page	Date
CAR-1	26/10/93
CAR/RAC-1	2/2/87
CAR/RAC-2	5/2/97
CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
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CAR/RAC-6	5/2/97
CAR/RAC-7	26/10/93
CAR/RAC-8	26/10/93
CAR/RAC-9	5/2/97
CAR/RAC-10	26/10/93
CAR/RAC-11	26/10/93
CAR/RAC-12	26/10/93
CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
CAR/COM-1	15/10/90

EUR

Page	Date
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EUR/RAC-4	1/2/96
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EUR/RAC-6	1/2/96
EUR/RAC-7	1/2/96
EUR/RAC-8	1/2/96
EUR/RAC-9	1/2/96
EUR/RAC-10	1/2/96
EUR/RAC-11	5/2/97
EUR/RAC-12	5/2/97
EUR/RAC-12A	5/2/97
EUR/RAC-12B	5/2/97
EUR/RAC-12C	5/2/97
EUR/RAC-12D	5/2/97
EUR/RAC-12E	5/2/97
EUR/RAC-12F	5/2/97
EUR/RAC-13	5/2/97
EUR/RAC-14	15/3/94
EUR/RAC-15	6/3/92
EUR/RAC-16	6/3/92
EUR/RAC-17	6/3/92
EUR/RAC-18	6/3/92
EUR/RAC-19	6/3/92
EUR/RAC-20	6/3/92
EUR/RAC-21	6/3/92
EUR/RAC-22	6/3/92
EUR/RAC-23	6/3/92
EUR/RAC-24	6/3/92
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NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	5/2/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
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PAC

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PAC/RAC-6	12/3/97
PAC/RAC-7	17/9/96
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SAM

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REGIONAL SUPPLEMENTARY PROCEDURES

Doc 7030/4
Amendment No. 187
12 March 1997

Amendment summary

Amendment No. 187 incorporates changes in:

a) MID/ASIA SUPPS concerning air traffic control clearances (5.3, 5.3.1); and

b) PAC SUPPS concerning air traffic control clearances (5.4, 5.4.1);

as well as changes of an editorial nature.

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AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

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CAR/RAC-1	2/2/87
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CAR/RAC-4	2/2/87
CAR/RAC-5	5/2/97
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CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
CAR/COM-1	15/10/90

EUR

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EUR/RAC-10	1/2/96
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EUR/RAC-12	5/2/97
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EUR/RAC-12B	5/2/97
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EUR/RAC-15	6/3/92
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MID/ASIA

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MID/ASIA/RAC-9	17/9/96
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NAT

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NAT/RAC-2	5/2/97
NAT/RAC-3	5/2/97
NAT/RAC-4	5/2/97
NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	5/2/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
NAT/RAC-18	5/2/97
NAT/RAC-19	5/2/97
NAT/RAC-20	5/2/97
NAT/RAC-21	5/2/97
NAT/RAC-22	5/2/97
NAT/RAC-23	5/2/97
NAT/COM-1	6/3/92
NAT/COM-2	15/10/90
NAT/MET-1	15/3/94

PAC

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PAC/RAC-1	15/3/94
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PAC/RAC-5	12/3/97
PAC/RAC-6	12/3/97
PAC/RAC-7	17/9/96
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PAC/RAC-9	17/9/96
PAC/RAC-10	17/9/96
PAC/RAC-11	17/9/96
PAC/RAC-12	17/9/96
PAC/COM-1	1/2/96
PAC/MET-1	15/3/94

SAM

SAM-1	15/10/90
SAM/RAC-1	15/5/89
SAM/RAC-2	15/5/89
SAM/RAC-3	15/5/89
SAM/RAC-4	15/5/89
SAM/RAC-5	15/5/89
SAM/RAC-6	9/10/92
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SAM/RAC-10	15/5/89
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SAM/COM-1	15/10/90

Amendment summary

Amendment No. 186 incorporates changes in:

a) CAR/RAC SUPPS concerning flight plans (2.1.2.1) and air traffic control clearance (5.1.2, 5.2.1);

b) EUR/RAC SUPPS concerning special procedures applicable in designated airspaces (8.0, 8.1, 8.1.1, 8.2, 8.2.1);

c) NAM/RAC SUPPS concerning special procedures applicable in designated airspaces (2.0, 2.1, 2.1.1, 2.2, 2.2.1); and

d) NAT/RAC SUPPS concerning minimum navigation performance specifications (2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.2.1), approval status and aircraft registration (3.1.5.1, 3.1.5.2), special procedures for in-flight contingencies (6.0, 6.1), general procedures (6.2, 6.2.1), subsequent action (6.3.3.1, 6.3.3.2), en-route diversion across the prevailing NAT air traffic flow (6.3.4.2, 6.3.4.3.1, 6.3.4.3.2, 6.3.4.4.1), vertical separation (8.3.1, 8.3.2), composite separation (8.4, 8.4.1, 8.4.2), information on application of separation minima (8.5, 8.5.1) and operation of SSR equipment and displays (10.1.2);

as well as changes of an editorial nature.

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AFI/RAC-5	26/10/93
AFI/RAC-6	26/10/93
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AFI/COM-1	15/10/90

CAR

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CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
CAR/COM-1	15/10/90

EUR

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NAT

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NAT/RAC-5	5/2/97
NAT/RAC-6	5/2/97
NAT/RAC-7	5/2/97
NAT/RAC-8	5/2/97
NAT/RAC-9	5/2/97
NAT/RAC-10	5/2/97
NAT/RAC-11	5/2/97
NAT/RAC-12	5/2/97
NAT/RAC-13	5/2/97
NAT/RAC-14	5/2/97
NAT/RAC-15	5/2/97
NAT/RAC-16	5/2/97
NAT/RAC-17	5/2/97
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NAT/RAC-19	5/2/97
NAT/RAC-20	5/2/97
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PAC

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PAC/RAC-9	17/9/96
PAC/RAC-10	17/9/96
PAC/RAC-11	17/9/96
PAC/RAC-12	17/9/96
PAC/COM-1	1/2/96
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SAM

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SAM/RAC-5	15/5/89
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SAM/COM-1	15/10/90

Amendment summary

Amendment No. 185 incorporates changes in:

a) MID/ASIA SUPPS concerning separation of aircraft (6.1.5, 6.1.5.1, 6.2, 6.2.1, 6.2.2, 6.2.2.1, 6.2.2.2 and 6.2.2.3 refer);

b) PAC SUPPS concerning separation of aircraft (6.1.2, 6.1.2.1, 6.2, 6.2.1, 6.2.2, 6.2.2.1, 6.2.2.2 and 6.2.2.3 refer);

as well as changes of an editorial nature.

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AFI/RAC-4	15/5/89
AFI/RAC-5	26/10/93
AFI/RAC-6	26/10/93
AFI/RAC-7	15/5/89
AFI/RAC-8	2/2/87
AFI/COM-1	15/10/90

CAR

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CAR/RAC-1	2/2/87
CAR/RAC-2	26/10/93
CAR/RAC-3	26/10/93
CAR/RAC-4	2/2/87
CAR/RAC-5	26/10/93
CAR/RAC-6	26/10/93
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CAR/RAC-8	26/10/93
CAR/RAC-9	26/10/93
CAR/RAC-10	26/10/93
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CAR/RAC-12	26/10/93
CAR/RAC-13	26/10/93
CAR/RAC-14	26/10/93
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EUR

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EUR/RAC-8	1/2/96
EUR/RAC-9	1/2/96
EUR/RAC-10	1/2/96
EUR/RAC-11	1/2/96
EUR/RAC-12	1/2/96
EUR/RAC-12A	15/3/94
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EUR/RAC-12C	15/3/94
EUR/RAC-12D	15/3/94
EUR/RAC-13	15/3/94
EUR/RAC-14	15/3/94
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EUR/RAC-16	6/3/92
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EUR/RAC-18	6/3/92
EUR/RAC-19	6/3/92
EUR/RAC-20	6/3/92
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EUR/RAC-22	6/3/92
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MID/ASIA/RAC-4	15/10/90
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MID/ASIA/RAC-8	17/9/96
MID/ASIA/RAC-9	17/9/96
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MID/ASIA/RAC-17	17/9/96
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NAT/RAC-2	1/2/96
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NAT/RAC-5	1/2/96
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NAT/RAC-7	10/6/96
NAT/RAC-8	10/6/96
NAT/RAC-9	10/6/96
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NAT/RAC-19	10/6/96
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NAT/RAC-21	10/6/96
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PAC/RAC-4	15/3/94
PAC/RAC-5	15/3/94
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Amendment summary

Amendment No. 184 incorporates changes in:

a) NAT/RAC SUPPS concerning common procedures for radio communication failure of aircraft operating in or intending to operate in the NAT region (5.0 refers);

b) NAT/RAC SUPPS concerning lateral separation of aircraft (7.0, 7.1, 7.1.1 and 7.1.2 refer) and longitudinal separation (7.2, 7.2.2, 7.2.3, 7.2.3.1, 7.2.4 and 7.2.4.1 refer);

as well as changes of an editorial nature.

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Amendment summary

Amendment No. 183 incorporates changes in:

a) EUR/RAC SUPPS concerning departure slot monitoring (5.2 refers);

b) MID/ASIA/RAC SUPPS concerning lateral separation of aircraft (6.1.1, 6.1.2, 6.1.3 and 6.1.4 refer) and longitudinal separation of aircraft (6.2.1 and 6.2.1.1 refer);

c) MID/ASIA/COM SUPPS concerning the technical aspects of AFTN rationalization (2.1.2 refers);

d) NAT/RAC SUPPS concerning the method of application of minimum navigation performance specifications — MNPS (2.1.1 refers) and inclusion in flight plans of approval status and aircraft registration (3.1.5 refers);

e) PAC/COM SUPPS concerning the technical aspects of AFTN rationalization (2.1 refers);

as well as changes of an editorial nature.

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REGIONAL SUPPLEMENTARY PROCEDURES

FOURTH EDITION — 1987

This edition incorporates Amendments 1 to 168 inclusive approved by the Council prior to 24 October 1986 and supersedes the Third Edition of Doc 7030

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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FOURTH EDITION — 1987

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

RECORD OF AMENDMENTS

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Application of the Regional Supplementary Procedures in certain areas of the world has been specified according to groups of flight information regions as shown on page (vii) and identified there by abbreviations chosen in reference to ICAO region designators. In addition to some material of general interest, this general table of contents lists the page numbers of the sets of SUPPS associated with each area of application. Each such section commences with a detailed table of contents.

FOREWORD

1. The ICAO Regional Supplementary Procedures (SUPPS) form the procedural part of the Air Navigation Plan developed by Regional Air Navigation (RAN) Meetings to meet those needs of specific areas which are not covered in the worldwide provisions. They complement the statement of requirements for facilities and services contained in the Air Navigation Plan publications. Procedures of worldwide applicability are included either in the Annexes to the Convention on International Civil Aviation as Standards or Recommended Practices, or in the "Procedures for Air Navigation Services (PANS)".

2. In the development of Regional Supplementary Procedures, the following criteria must be satisfied:

a) Regional Supplementary Procedures should indicate a mode of implementing procedural provisions in Annexes and PANS, as distinct from a statement or description of required facilities and services as published in the Air Navigation Plan publications. Regional Supplementary Procedures may also indicate permissible additions to provisions in Annexes and PANS, subject to the restrictions in b) and c).

b) Regional Supplementary Procedures must not be in conflict with the provisions contained in the Annexes or PANS. They must either specify detailed procedural regional options of those provisions or promulgate a regional procedure of justifiable operational significance, additional to existing provisions in Annexes or PANS.

c) In the drafting of Regional Supplementary Procedures, variations in the text of procedures with similar intent applicable to more than one area should be avoided.

3. The Regional Supplementary Procedures do not have the same status as Standards and Recommended Practices. The latter are **adopted** by Council in pursuance of Article 37 of the Convention on International Civil Aviation, subject to the full procedure of Article 90. PANS and SUPPS are **approved** by the Council, the PANS being recommended to Contracting States for worldwide use, whilst the SUPPS are recommended to Contracting States for application in the groups of flight information regions to which they are relevant.

4. PANS were originally developed from common recommendations of regional meetings and were given worldwide application by the ICAO Council after action thereon by ICAO Divisions. Subsequently, there has been a gradual evolution of procedures from the regional to the worldwide category as ICAO Divisions have been able to adapt regionally developed procedures to worldwide requirements. Concurrently, some of the worldwide procedures have been found suitable for classification as Standards or Recommended Practices and therefore are gradually being incorporated in the Annexes to the Convention.

5. Application of the Regional Supplementary Procedures in certain areas of the world has been specified according to groups of flight information regions (FIRs) as shown on page (ix). The abbreviations on the chart identifying the groups of flight information regions in which specific sets of SUPPS apply have been chosen in reference to ICAO region designators, but the limits of the areas of application do not necessarily coincide with the boundaries of the ICAO regions.

6. Whenever there is a specific relationship between a supplementary procedure and an Annex or PANS, such relationship has been indicated by reference to the parent document and relevant paragraph. These paragraph numbers appear above the text, together with the appropriate abbreviation as follows:

A — Annexes to the Convention

P — Procedures for Air Navigation Services

Examples: (A2 – 3.1.10) — Refers to paragraph 3.1.10 of Annex 2 — *Rules of the Air*

(P-RAC, Part III – 7 and 9) — Refers to paragraphs 7 and 9 in Part III of Doc 4444-RAC/501 — *Procedures for Air Navigation Services — Rules of the Air and Air Traffic Services.*

7. The degree of non-application of the Regional Supplementary Procedures or national differences are notified in Aeronautical Information Publications in accordance with the provisions of Annex 15 — *Aeronautical Information Services* (cf. 4.1.1, 4.1.2 c) and Appendix 1).

8. This document is maintained by amendments as required. Any errors or omissions should be brought to the attention of the Secretary General, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

PROCEDURE FOR THE AMENDMENT OF REGIONAL SUPPLEMENTARY PROCEDURES

(Approved by Council (25-2) 20/5/55, (84-5) 7/3/75, (153-3) 25/2/98)

1. INTRODUCTION

1.1 Regional supplementary procedures are normally formulated at regional air navigation meetings and become effective after review by the Air Navigation Commission and approval by the Council.

1.2 Amendments to regional supplementary procedures may be proposed by a Contracting State (or group of States) as set out in paragraph 2 below or by an international organization as set out in paragraph 3 below, or may become necessary as a consequence of action by Council in adopting or amending Standards and Recommended Practices or in approving or amending Procedures for Air Navigation Services as set out in paragraph 4 below.

1.3 The procedure outlined below has been evolved to provide a method of dealing with these categories of amendments.

2. AMENDMENTS PROPOSED BY A CONTRACTING STATE (OR GROUP OF STATES)

2.1 If any Contracting State (or group of States) of a region wishes to propose an amendment to regional supplementary procedures for that region, it should submit the proposal, adequately documented, to the Secretary General through the Regional Office accredited to that State. The proposal should include the facts that led the State to the conclusion that the amendment is necessary.

2.2 The Secretary General will circulate the proposal, adequately documented, with a request for comments to all provider and user States of the region considered affected, as well as to user States outside the region and international organizations that may be concerned with the proposal. If, however, the Secretary General considers that the proposed amendment conflicts with established ICAO policy or that it raises questions which the Secretary General considers should be brought to the attention of the Air Navigation Commission, the proposal will be first presented, adequately documented, to the Commission. In such cases, the Commission will decide the action to be taken on the proposal.

2.3 If, in reply to the Secretary General's inquiry to States and selected international organizations, no objection is raised to the proposal by a specified date, the Secretary General will circulate an amendment memorandum to Representatives on the Council and to Members of the Air Navigation Commission inviting each recipient to advise, normally within seven days*, whether formal discussion of the proposed amendment is desired. The memorandum will explain the proposed amendment, summarize the comments received and include Secretariat comments as appropriate. If, in reply to the Secretary General's inquiry to States and selected international organizations, any objection is raised and if the objection remains after further consultation, the matter will be documented for formal consideration by the Air Navigation Commission and appropriate recommendations of the Commission to the Council.

2.4 If, at the end of the seven-day period*, there has been no request for discussion of the amendment, it will be submitted to the President of the Council who is authorized to approve the amendment on behalf of the Council.

2.5 If, on the other hand, any Representative on the Council or Member of the Air Navigation Commission indicates a desire for formal discussion of the proposed amendment, the matter will be documented for formal consideration by the Commission and appropriate recommendations of the Commission to the Council.

3. AMENDMENTS PROPOSED BY INTERNATIONAL ORGANIZATIONS

3.1 Proposals for the amendment of regional supplementary procedures submitted by international organizations directly concerned with the operation of aircraft, which may be invited to attend suitable ICAO meetings and which attended the meeting(s) where the relevant procedures were prepared, will be dealt with in the same manner as those received from States, except that, before circulating a proposal to States and selected international organizations pursuant to 2.2 above, the Secretary General will ascertain whether it has adequate support from the State or group of States whose facilities,

* During recess, a period of three weeks will normally be allowed.

services and procedures will be affected. If such support is not forthcoming, the proposal will be presented to the Commission, and the Commission will decide on the action to be taken on the proposal.

4. CONSEQUENTIAL AMENDMENTS

4.1 In the event of an amendment to regional supplementary procedures becoming necessary as a consequence of action by Council in adopting or amending Standards and Recommended Practices or in approving or amending procedures for air navigation services, the amendment will be drafted by the Secretary General.

4.2 The Secretary General will circulate the amendment, together with relevant explanatory material, in a memorandum to each Member of the Air Navigation Commission inviting each recipient to notify him, normally within seven days*, whether formal discussion of the proposed amendment is desired.

4.3 If, at the end of the seven-day period*, there has been no request for discussion of the amendment, formal approval will be given by the Air Navigation Commission acting on behalf of the Council** or, if the Commission is in recess, by the President of the Council.

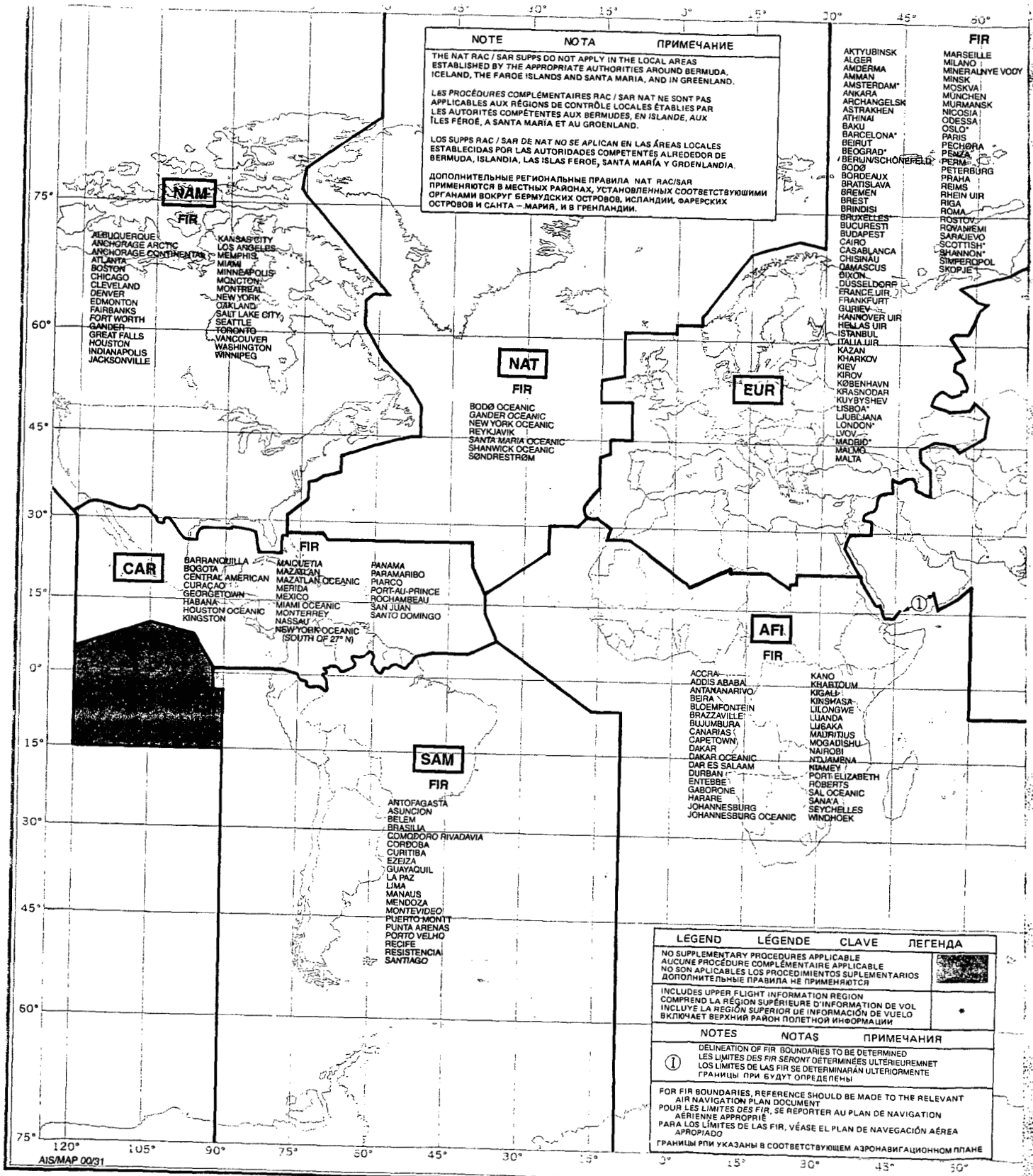
4.4 If any Commissioner indicates a desire for formal discussion of the amendment, the matter will be documented for formal consideration by the Air Navigation Commission. If the Commission concludes that the amendment is necessary, it is authorized to approve the amendment on behalf of the Council**, in its original form or in a modified version.

5. PROMULGATION OF APPROVED AMENDMENTS

5.1 Amendments to regional supplementary procedures that have been approved in accordance with the above procedure will be promulgated in Doc 7030, *Regional Supplementary Procedures.*

* During recess, a period of three weeks will normally be allowed.

** The Air Navigation Commission has been authorized [17-1, Doc 7328-1, (C/853-1)] to approve consequential amendments on behalf of the Council.


NOTE NOTA ПРИМЕЧАНИЕ
THE NAT RAC / SAR SUPPS DO NOT APPLY IN THE LOCAL AREAS ESTABLISHED BY THE APPROPRIATE AUTHORITIES AROUND BERMUDA, ICELAND, THE FAROE ISLANDS AND SANTA MARIA, AND IN GREENLAND.
LES PROCÉDURES COMPLÉMENTAIRES RAC / SAR NAT NE SONT PAS APPLICABLES AUX RÉGIONS DE CONTRÔLE LOCALES ÉTABLIES PAR LES AUTORITÉS COMPÉTENTES AUX BERMUDES, EN ISLANDE, AUX ÎLES FÉROÉ, A SANTA MARÍA ET AU GROENLAND.
LOS SUPPS RAC / SAR DE NAT NO SE APLICAN EN LAS ÁREAS LOCALES ESTABLECIDAS POR LAS AUTORIDADES COMPETENTES ALREDEDOR DE BERMUDA, ISLANDIA, LAS ISLAS FEROE, SANTA MARÍA Y GROENLANDIA.
ДОПОЛНИТЕЛЬНЫЕ РЕГИОНАЛЬНЫЕ ПРАВИЛА NAT RAC/SAR ПРИМЕНЯЮТСЯ В МЕСТНЫХ РАЙОНАХ, УСТАНОВЛЕННЫХ СООТВЕТСТВУЮЩИМИ ОРГАНАМИ ВОКРУГ БЕРМУДСКИХ ОСТРОВОВ, ИСЛАНДИИ, ФАРЕРСКИХ ОСТРОВОВ И САНТА – МАРИЯ, И В ГРЕНЛАНДИИ.
NAM FIR
ALBUQUERQUE
ANCHORAGE ARCTIC
ANCHORAGE CONTINENTAL
ATLANTA
BOSTON
CHICAGO
CLEVELAND
DENVER
EDMONTON
FAIRBANKS
FORT WORTH
GANDER
GREAT FALLS
HOUSTON
INDIANAPOLIS
JACKSONVILLE
KANSAS CITY
LOS ANGELES
MEMPHIS
MIAMI
MINNEAPOLIS
MONCTON
MONTREAL
NEW YORK
OAKLAND
SALT LAKE CITY
SEATTLE
TORONTO
VANCOUVER
WASHINGTON
WINNIPEG
NAT FIR
BODØ OCEANIC
GANDER OCEANIC
NEW YORK OCEANIC
REYKJAVIK
SANTA MARIA OCEANIC
SHANWICK OCEANIC
SØNDRESTRØM
EUR FIR
AKTYUBINSK
ALGER
AMDERMA
AMMAN
AMSTERDAM*
ANKARA
ARCHANGELSK
ASTRAKHEN
ATHINAI
BAKU
BARCELONA*
BEIRUT
BEOGRAD*
BERLIN/SCHÖNEFELD
BODØ
BORDEAUX
BRATISLAVA
BREMEN
BREST
BRINDISI
BRUXELLES*
BUCURESTI
BUDAPEST
CAIRO
CASABLANCA
CHISINAU
DAMASCUS
DIXON
DÜSSELDORF
FRANCE UIR
FRANKFURT
GURIEV
HANNOVER UIR
HELLAS UIR
ISTANBUL
ITALIA UIR
KAZAN
KHARKOV
KIEV
KIROV
KØBENHAVN
KRASNODAR
KUYBYSHEV
LISBOA*
LJUBLJANA
LONDON*
LVOV
MADRID*
MALMÖ
MALTA
MARSEILLE
MILANO
MINERALNYE VODY
MINSK
MOSKVA
MÜNCHEN
MURMANSK
NICOSIA
ODESSA
OSLO*
PARIS
PECHORA
PENZA
PERM
PETERBURG
PRAHA
REIMS
RHEIN UIR
RIGA
ROMA
ROSTOV
ROVANIEMI
SARAJEVO
SCOTTISH*
SHANNON*
SIMFEROPOL
SKOPJE
CAR FIR
BARRANQUILLA
BOGOTA
CENTRAL AMERICAN
CURAÇAO
GEORGETOWN
HABANA
HOUSTON OCEANIC
KINGSTON
MAIQUETIA
MAZATLAN
MAZATLAN OCEANIC
MERIDA
MEXICO
MIAMI OCEANIC
MONTERREY
NASSAU
NEW YORK OCEANIC (SOUTH OF 27° N)
PANAMA
PARAMARIBO
PIARCO
PORT-AU-PRINCE
ROCHAMBEAU
SAN JUAN
SANTO DOMINGO
AFI FIR
ACCRA
ADDIS ABABA
ANTANANARIVO
BEIRA
BLOEMFONTEIN
BRAZZAVILLE
BUJUMBURA
CANARIAS
CAPETOWN
DAKAR
DAKAR OCEANIC
DAR ES SALAAM
DURBAN
ENTEBBE
GABORONE
HARARE
JOHANNESBURG
JOHANNESBURG OCEANIC
KANO
KHARTOUM
KIGALI
KINSHASA
LILONGWE
LUANDA
LUSAKA
MAURITIUS
MOGADISHU
NAIROBI
NDJAMENA
NIAMEY
PORT ELIZABETH
ROBERTS
SAL OCEANIC
SANA'A
SEYCHELLES
WINDHOEK
SAM FIR
ARTOFAGASTA
ASUNCION
BELEM
BRASILIA
COMODORO RIVADAVIA
CORDOBA
CURITIBA
EZEIZA
GUAYAQUIL
LA PAZ
LIMA
MANAUS
MENDOZA
MONTEVIDEO
PUERTO MONTT
PUNTA ARENAS
PORTO VELHO
RECIFE
RESISTENCIA
SANTIAGO
LEGEND LÉGENDE CLAVE ЛЕГЕНДА
NO SUPPLEMENTARY PROCEDURES APPLICABLE
AUCUNE PROCÉDURE COMPLÉMENTAIRE APPLICABLE
NO SON APLICABLES LOS PROCEDIMIENTOS SUPLEMENTARIOS
ДОПОЛНИТЕЛЬНЫЕ ПРАВИЛА НЕ ПРИМЕНЯЮТСЯ
INCLUDES UPPER FLIGHT INFORMATION REGION
COMPREND LA RÉGION SUPÉRIEURE D'INFORMATION DE VOL
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LOS LÍMITES DE LAS FIR SE DETERMINARÁN ULTERIORMENTE
ГРАНИЦЫ ПРИ БУДУТ ОПРЕДЕЛЕНЫ
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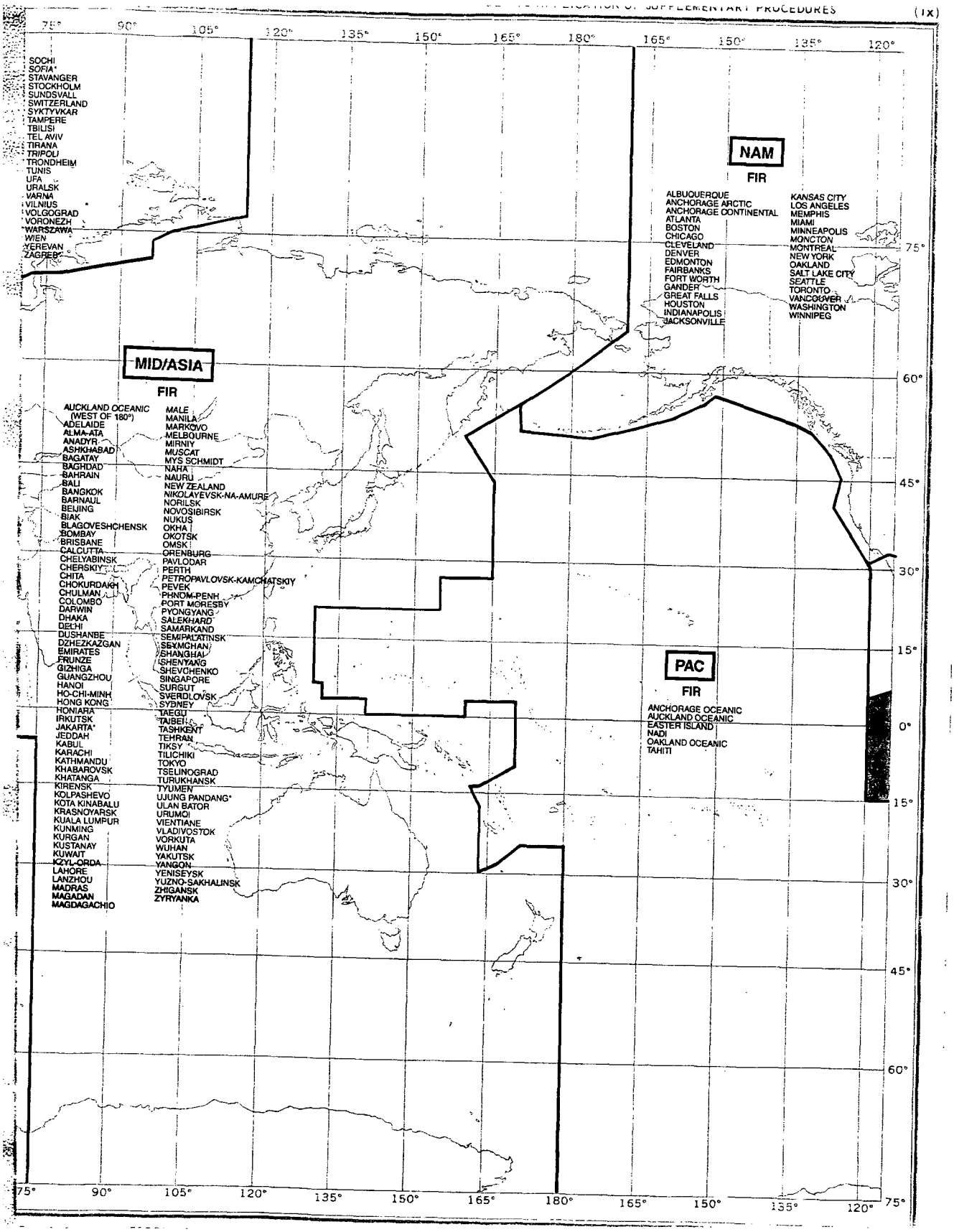
POUR LES LIMITES DES FIR, SE REPORTER AU PLAN DE NAVIGATION AÉRIENNE APPROPRIÉ
PARA LOS LÍMITES DE LAS FIR, VÉASE EL PLAN DE NAVEGACIÓN AÉREA APROPIADO
ГРАНИЦЫ РПИ УКАЗАНЫ В СООТВЕТСТВУЮЩЕМ АЭРОНАВИГАЦИОННОМ ПЛАНЕ
AIS/MAP 00/31


SOCHI
SOFIA*
STAVANGER
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SUNDSVALL
SWITZERLAND
SYKTYVKAR
TAMPERE
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WARSZAWA
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YEREVAN
ZAGREB*
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AUCKLAND OCEANIC (WEST OF 180°)
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ALMA-ATA
ANADYR
ASHKHABAD
BAGATAY
BAGHDAD
BAHRAIN
BALI
BANGKOK
BARNAUL
BEIJING
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BLAGOVESHCHENSK
BOMBAY
BRISBANE
CALCUTTA
CHELYABINSK
CHERSKIY
CHITA
CHOKURDAKH
CHULMAN
COLOMBO
DARWIN
DHAKA
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EMIRATES
FRUNZE
GIZHIGA
GUANGZHOU
HANOI
HO-CHI-MINH
HONG KONG
HONIARA
IRKUTSK
JAKARTA*
JEDDAH
KABUL
KARACHI
KATHMANDU
KHABAROVSK
KHATANGA
KIRENSK
KOLPASHEVO
KOTA KINABALU
KRASNOYARSK
KUALA LUMPUR
KUNMING
KURGAN
KUSTANAY
KUWAIT
KZYL-ORDA
LAHORE
LANZHOU
MADRAS
MAGADAN
MAGDAGACHIO
MALE
MANILA
MARKOVO
MELBOURNE
MIRNIY
MUSCAT
MYS SCHMIDT
NAHA
NAURU
NEW ZEALAND
NIKOLAYEVSK-NA-AMURE
NORILSK
NOVOSIBIRSK
NUKUS
OKHA
OKOTSK
OMSK
ORENBURG
PAVLODAR
PERTH
PETROPAVLOVSK-KAMCHATSKIY
PEVEK
PHNOM-PENH
PORT MORESBY
PYONGYANG
SALEKHARD
SAMARKAND
SEMIPALATINSK
SEYMCHAN
SHANGHAI
SHENYANG
SHEVCHENKO
SINGAPORE
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SVERDLOVSK
SYDNEY
TAEGU
TAIBEI
TASHKENT
TEHRAN
TIKSY
TILICHIKI
TOKYO
TSELINOGRAD
TURUKHANSK
TYUMEN
UJUNG PANDANG*
ULAN BATOR
URUMQI
VIENTIANE
VLADIVOSTOK
VORKUTA
WUHAN
YAKUTSK
YANGON
YENISEYSK
YUZNO-SAKHALINSK
ZHIGANSK
ZYRYANKA
PAC
FIR
ANCHORAGE OCEANIC
AUCKLAND OCEANIC
EASTER ISLAND
NADI
OAKLAND OCEANIC
TAHITI
75°
90°
105°
120°
135°
150°
165°
180°
60°
45°
30°
15°
0°

AFRICA-INDIAN OCEAN (AFI)
REGIONAL SUPPLEMENTARY PROCEDURES

TABLE OF CONTENTS — AFRICA-INDIAN OCEAN (AFI) SUPPS

AFI REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Part II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Visual flight rules (VFR)
(A2 – 4.7 and 4.8)

1.1.1 At selected aerodromes, only VFR flights to be operated within a control zone established at an aerodrome serving international flights and in specified portions of the associated terminal control area shall:

a) have two-way radio communications;

b) obtain clearance from the appropriate ATC unit; and

c) report positions, as required.

Note.— The phrase "specified portions of the associated terminal control area" is intended to signify at least those portions of the TMA used by international IFR flights in association with approach, holding, departure and noise abatement procedures.

1.2 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.— Annex 2, 2.2 permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.2.1 *Special application of instrument flight rules*

1.2.1.1 Flights shall be conducted in accordance with the instrument flight rules (even when not operating in instrument meteorological conditions) when operated above flight level 150.

1.3 Changes of flight levels
(A2 – 5.2.2)

1.3.1 All changes of flight levels required by transition from the system of designated cruising levels for flights along controlled routes to the semicircular system of cruising levels, or vice versa, shall be made at points within controlled airspace.

1.3.2 The specific points to be used for the changes of flight levels mentioned in 1.3.1 shall be the subject of coordination between the ATS units concerned, bearing in mind the need to avoid border points or other points where transfer of communications/transfer of responsibility would be adversely affected.

1.4 Air traffic advisory service
(P-ATM, 9.1.4)

Note.— The PANS-ATM leaves it to the discretion of the pilot whether or not to obtain air traffic advisory service when available. The following procedures make it compulsory to obtain such service under certain circumstances.

1.4.1 All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace.

2.0 FLIGHT PLANS

2.1 Contents of flight plans
(A2 – 3.3; P-ATM, 4.4.1 and Appendix 2)

2.1.1 *Route*

2.1.1.1 Whenever possible, flights should be authorized to fly direct between any two intermediate or terminal points of the AFI ATS route network. In this case, flight progress reports should be made in relation to the significant points defining the basic route.

2.1.2 *Mach number*

2.1.2.1 For turbo-jet aircraft intending to operate at or above FL 250 with FIR Canarias, the Mach number planned to be used shall be specified in Item 15 of the flight plan.

2.2 Presentation of flight plan
(A2 – 3.3.1.4)

2.2.1 The appropriate ATS authority exercising the Annex 2 provision, 3.3.1.4, to prescribe a lead-time other than 60 minutes before departure for the submission of a flight plan concerning a flight to be provided with air traffic control service, air traffic advisory service or flight information service shall, as far as practicable, prescribe a period of 30 minutes for that purpose.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3 and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Time or place of position reports
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.2.1 Position reports additional to those required by the general position-reporting procedures shall be made when entering or leaving controlled or advisory airspace.

3.3 Transmission of position reports
(P-ATM, 4.11)

3.3.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

4.1 Introduction

4.1.1 The following procedures are intended for guidance only and will be applicable within the EUR/SAM corridor. Although all possible contingencies cannot be covered, they provide for cases of:

a) inability to maintain assigned flight level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight;

b) loss of, or significant reduction in, the required navigation capability when operating in parts of the airspace where the navigation performance accuracy is a prerequisite to the safe conduct of flight operations; and

c) en-route diversion across the prevailing EUR/SAM traffic flow.

4.1.2 With regard to 4.1.1 a) and c) above, the procedures are applicable primarily when rapid descent, turnback, or both, are required. The pilot's judgement shall determine the sequence of actions to be taken, having regard to the specific circumstances. Air traffic control (ATC) shall render all possible assistance.

4.2 General procedures

4.2.1 The following general procedures apply to both subsonic and supersonic aircraft.

4.2.1.1 If an aircraft is unable to continue flight in accordance with its ATC clearance, and/or an aircraft is unable to maintain the navigation performance accuracy specified for the airspace, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using the distress or urgency signals as appropriate. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and the overall traffic situation.

4.2.1.2 If prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time and, until revised clearance is received, the pilot shall:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals, aircraft identification, flight level, aircraft position (including the ATS route designator or the track code) and intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) switch on the SSR transponder at all times; and

f) initiate such action as necessary to ensure the safety of the aircraft.

4.3 Subsonic aircraft

4.3.1 *Initial action*

4.3.1.1 If unable to comply with the provisions of 4.2 to obtain a revised ATC clearance, the aircraft should leave its assigned route or track by turning 90 degrees to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system (e.g. whether the aircraft is outside, at the edge of, or within the system). Other factors that may affect the direction of the turn are the direction to an alternative airport, terrain clearance and the flight levels allocated to adjacent routes.

4.3.2 *Subsequent action (RVSM airspace)*

4.3.2.1 In RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track and:

a) if above FL 410, climb or descend 300 m (1 000 ft); or

b) if below FL 410, climb or descend 150 m (500 ft); or

c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.2.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent level flight, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 410, or by 150 m (500 ft) if below FL 410.

4.3.3 *Subsequent action (non-RVSM airspace)*

4.3.3.1 In non-RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track and:

a) if above FL 290, climb or descend 300 m (1 000 ft); or

b) if below FL 290, climb or descend 150 m (500 ft); or

c) if at FL 290, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.3.2 An aircraft unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is mid-point from the adjacent parallel route or track; and

c) for the subsequent level flight, a level should be selected which differs from those normally used by 300 m (1 000 ft) if above FL 290 or by 150 m (500 ft) if below FL 290.

4.3.4 *En-route diversion across the prevailing SAT air traffic flow*

4.3.4.1 Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 4.3.1 or 4.3.2 or 4.3.3. However, if the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level as defined in 4.3.2.1 or 4.3.3.1 until a revised ATC clearance is obtained.

4.3.5 *Extended range operations by aeroplanes with two-turbine power-units (ETOPS)*

4.3.5.1 If these contingency procedures are employed by a twin-engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation reminding ATC of the type of aircraft involved, and request expeditious handling.

4.4 Supersonic aircraft

4.4.1 *Turnback procedures*

4.4.1.1 If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

a) when operating on an outer track of a multi-track system, turn away from the adjacent track;

b) when operating on a random track or on an inner track of a multi-track system, turn either left or right as follows:

1) if the turn is to be made to the right, the aircraft should attain a position 46 km (25 NM) to the left of the assigned track and then turn to the right into its reciprocal heading, at the greatest practical rate of turn;

2) if the turn is to be made to the left, the aircraft should attain a position 46 km (25 NM) to the right of the assigned track and then turn to the left into its reciprocal heading, at the greatest practical rate of turn;

c) while executing the turnback, the aircraft should lose height so that it will be at least 1 850 m (6 000 ft) below the level at which turnback was started, by the time the turnback is completed;

d) when turnback is completed, heading should be adjusted to maintain a lateral displacement of 46 km (25 NM) from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

Note.— For multi-track systems where the route spacing is greater than 93 km (50 NM), the mid-point distance should be used instead of 46 km (25 NM).

4.5 Weather deviation procedures

4.5.1 *General*

4.5.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions to be taken. ATC shall render all possible assistance.

4.5.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 4.5.4 below.

4.5.1.3 The pilot shall advise ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centre line of its cleared route.

4.5.2 *Obtaining priority from ATC when weather deviation is required*

4.5.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

4.5.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

4.5.3 *Actions to be taken when controller-pilot communications are established*

4.5.3.1 The pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

4.5.3.2 ATC takes one of the following actions:

a) if there is no conflicting traffic in the horizontal plane, ATC will issue clearance to deviate from track; or

b) if there is conflicting traffic in the horizontal plane, ATC separates aircraft by establishing appropriate separation; or

c) if there is conflicting traffic in the horizontal plane and ATC is unable to establish appropriate separation, ATC shall:

1) advise the pilot of inability to issue clearance for requested deviation;

2) advise the pilot of conflicting traffic; and

3) request the pilot's intentions.

SAMPLE PHRASEOLOGY

"UNABLE *(requested deviation)*, TRAFFIC IS *(call sign, position, altitude, direction)*, ADVISE INTENTIONS."

4.5.3.3 The pilot will take the following actions:

a) advise ATC of intentions; and

1) comply with the ATC clearance issued; or

2) execute the procedures detailed in 4.5.4 below; and

b) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

4.5.4 *Actions to be taken if a revised ATC clearance cannot be obtained*

4.5.4.1 The provisions of this section apply to situations where a pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

4.5.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

a) if possible, deviate away from the organized track or route system;

b) establish communications with and alert nearby aircraft broadcasting, at suitable intervals: flight level, aircraft identification, aircraft position (including ATS route designator or the track code) and intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;

f) for deviation of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the following criteria:

Route centre line track	*Deviations >19 km (10 NM)*	*Level change*
EAST 000° – 179° magnetic	LEFT	DESCEND 90 m (300 ft)
	RIGHT	CLIMB 90 m (300 ft)
WEST 180°– 359° magnetic	LEFT	CLIMB 90 m (300 ft)
	RIGHT	DESCEND 90 m (300 ft)

Note.— If, as a result of actions taken under the provisions of 4.5.4.2 b) and c) above, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

g) when returning to track, be at its assigned level, when the aircraft is within approximately 19 km (10 NM) of centre line; and

h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

5.0 AIR TRAFFIC CONTROL CLEARANCES

5.1 Adherence to ATC-approved Mach number
(A2 – 3.6.2)

5.1.1 Turbojet aircraft operating at or above FL 250 within the Canarias FIR shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If it is essential to make an immediate change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.1.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during en-route climbs and descents, pilots of aircraft concerned shall advise ATC at the time of the climb/descent request.

6.0 SEPARATION OF AIRCRAFT

6.1 Lateral separation
(A11 – Attachment B; P-ATM, 5.4.1 and 5.11)

6.1.1 Minimum lateral separation shall be 185 km (100 NM) except as provided for in 6.1.2 and 6.1.3 below.

6.1.2 Where aircraft are transiting into an airspace with a larger lateral minimum than the airspace being exited, lateral separation will continue to exist provided that:

a) the smaller separation minimum exists;

b) flight paths diverge by 15 degrees or more until the larger minimum is established; and

c) it is possible to ensure, by means approved by the appropriate ATS authority, that the aircraft have navigation capability necessary to ensure accurate track guidance.

6.1.3 For flights on designated controlled oceanic routes or areas within the Canarias FIR (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs, the minimum lateral separation that shall be applied between RNAV-equipped aircraft approved to RNP 10 or better shall be 93 km (50 NM).

6.1.3.1 The letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed.

6.1.3.2 Operators shall establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error, which:

a) ensure that operating drills include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft inadvertently deviating from an ATC-cleared route; and

b) provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

Note.— Detailed guidance material on RNP is contained in the Manual on Required Navigation Performance (RNP) *(Doc 9613).*

6.1.3.3 A target level of safety of 5×10^{-9} fatal accidents per flight hour per dimension shall be established for route systems operating a 93 km (50 NM) lateral separation minimum and the safety level of such airspace shall be determined by an appropriate safety assessment.

Note.— Detailed guidance on conducting safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.1.3.4 The following criteria are used in the operational assessment of airspace system safety:

a) the proportion of the total flight time spent by aircraft 46 km (25 NM) or more off the cleared track shall be less than 7.0×10^{-4}; and

b) the proportion of the total flight time spent by aircraft between 74 km and 111 km (40 NM and 60 NM) off the cleared track shall be less than 4.1×10^{-5}.

6.1.3.5 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the lateral navigation performance capabilities of RNP 10 and 6.1.3.3 above. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.— Detailed guidance on monitoring is contained in the Air Traffic Services Planning Manual *(Doc 9426) and the* Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.2 Longitudinal separation
(P-ATM, 5.4.2 and 5.11)

6.2.1 Except as provided for in 6.2.2, the minimum longitudinal separation between turbo-jet aircraft shall be:

a) 20 minutes, except as specified below;

b) 15 minutes at or above FL 250 within the Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs, provided that the Mach number technique is applied and, whether in level, climbing or descending flight, the aircraft have reported over the same entry point to the ATS routes or a common point into the oceanic-controlled airspace and follow the same track or continuously diverging tracks; or

c) 10 minutes or 150 km (80 NM), derived by RNAV, when the Mach number technique is applied on designated controlled oceanic routes in the EUR/SAM corridor within the Dakar Oceanic, Recife and Sal Oceanic FIRs.

6.2.2 For flights in the EUR/SAM corridor (Canarias (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs), the minimum longitudinal separation minima between RNAV-equipped aircraft approved to RNP 10 or better on the same track shall be 93 km (50 NM) provided that:

a) the letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed; and

b) a target level of safety of 5×10^{-9} fatal accidents per flight hour per dimension shall be established and the safety level of such airspace shall be determined by an appropriate safety assessment.

6.2.2.1 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the longitudinal navigation performance capabilities of RNP 10. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.— Detailed guidance on monitoring is contained in the Air Traffic Services Planning Manual *(Doc 9426) and the* Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.3 Vertical separation

The minimum vertical separation that shall be applied between FL 290 and FL 410 inclusive is 300 m (1 000 ft).

6.3.1 *Area of applicability*

The reduced vertical separation minimum (RVSM) shall be applied for flights between FL 290 and FL 410 inclusive, within the Canarias (southern sector), Dakar Oceanic, Recife (oceanic portion) and Sal Oceanic FIRs.

Note.— Implementation will be carried out in phases and will be promulgated by appropriate AIP Supplements and included in the respective AIPs.

6.3.2 *Establishment of RVSM transition areas*
(A2 – Appendix 3; A6, Parts I and II, 7.2.3; A11 – 3.3.4; P-ATM, 5.3.2)

6.3.2.1 In order to allow for the transition of flights to and from EUR/SAM RVSM airspace, the ATS authorities responsible for Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs may establish designated RVSM transition areas. A 300 m (1 000 ft) vertical separation minimum can be applied between RVSM-approved aircraft within these transition areas.

6.3.2.2 An RVSM transition area shall have a vertical extent of FL 290 to FL 410 inclusive, be contained within horizontal dimensions determined by the provider States, be overlapping with or contained within EUR/SAM RVSM airspace and should have direct controller-pilot communications.

6.3.3 *RVSM approval*

The minimum separation in 6.3 shall only be applied between aircraft and operators that have been approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and that are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

6.3.4 *MASPS*

The MASPS height-keeping requirements are as follows:

a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and

shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;

b) for groups of aircraft that are nominally of identical design and built with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft);

c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft: the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3};

2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6};

3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6};

4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7}; and

5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7}.

Note.— Guidance material regarding the initial achievement and continued maintenance of the height-keeping performance in 6.3.4 is contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.

6.3.5 *Target level of safety (TLS)*

Application of RVSM in the airspace designated in 6.3.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

6.3.6 *Approval status and aircraft registration*

Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

6.3.7 *Operation of aircraft not approved for RVSM*

6.3.7.1 Except for areas where transition areas have been established, aircraft not meeting the requirements of 6.3.4 shall not be allowed to operate in EUR/SAM RVSM airspace.

6.3.7.2 Exceptionally, aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the State provided that 600 m (2 000 ft) vertical separation is applied.

Note.— Transitions to and from EUR/SAM RVSM airspace will normally take place in the first FIR in EUR/SAM RVSM airspace.

6.3.8 *Monitoring*

Adequate monitoring of flight operations in the EUR/SAM RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 6.3.4. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 6.3.5 is not exceeded.

Note.— Details of the policy and procedures for monitoring established by the South Atlantic Monitoring Agency (SATMA) are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.

6.3.9 *Wake turbulence procedures*

6.3.9.1 The following special procedures are applicable to mitigate wake turbulence encounters in the airspace where RVSM is applied.

6.3.9.2 An aircraft that encounters wake turbulence should notify ATC and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:

a) the pilot should establish contact with other aircraft, if possible, on the air-to-air frequency 123.45 MHz; and

b) one (or both) aircraft may initiate lateral offset(s) not to exceed 3.7 km (2 NM) from the assigned route(s) or track(s), provided that:

1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and

2) the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).

Note.— In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

6.4 Information on application of separation minima
(A11 – 3.4; P-ATM, 5.4.1, 5.4.2 and 5.11)

6.4.1 Where, circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 will be applied in accordance with the PANS-ATM, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

7.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS
(P-ATM, 4.10 and 4.10.3)

7.1 The lowest usable flight level for holding and approach manoeuvres shall be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

Note 1.— The lowest usable flight level will provide a terrain clearance of at least 300 m (1 000 ft) and, for operation in the vicinity of an aerodrome, will not be established below 450 m (1 500 ft) above aerodrome elevation.

Note 2.— MET Offices will inform ATS units when, in abnormal conditions, pressure goes below the minimum climatological value, in order that appropriate steps can be taken to cancel temporarily the use of the lowest flight level or levels that would not ensure the minimum terrain clearance.

7.2 Based on current and anticipated atmospheric pressure distribution, area control centres shall coordinate, where required, the lowest flight level to be used.

7.3 In determining the transition level, the table at Appendix A should be used when necessary. This table shows the transition level directly as a function of the transition altitude of the aerodrome and of the current QNH altimeter setting value.

8.0 FLIGHT INFORMATION SERVICE

8.1 Information on runway conditions
(A11 – 4.2.1; P-ATM, 6.6)

8.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

8.2 Transmission of SIGMET information
(P-ATM, 9.1.3.2)

8.2.1 Transmission of SIGMET information to aircraft shall be at the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

8.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

8.3 Transmission of amended aerodrome forecast
(P-ATM, 9.1.3.5)

8.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information would have been made available through other means.

8.4 Transmission of trend forecasts
(A11 – 4.2.2)

8.4.1 The latest trend forecasts available to the ATS unit, provided it is no more than one hour old, shall always be transmitted to an aircraft together with the latest report of routine or special observation, when the aircraft requests the latter information.

9.0 AIR TRAFFIC SERVICES COORDINATION

9.1 Coordination between units providing area control service
(P-ATM, 10.3)

9.1.1 If a flight should enter an adjacent area, information concerning any review of estimate of three minutes or more shall be forwarded to the adjacent area control centre.

10.0 AIR TRAFFIC SERVICES MESSAGES

10.1 Flight plan and departure messages
(P-ATM, 11.3.3 and 11.4.2.2)

10.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 60 NM or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions.

10.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted.

11.0 ALERTING AND SEARCH AND RESCUE SERVICES

11.1 Routes and equipment of private aircraft
(A6 – Part II – 6.3 and 6.4)

11.1.1 General aviation aircraft operating over designated areas, land or sea, where search and rescue operations would be difficult, should:

a) carry appropriate survival equipment;

b) follow the route or specified procedures if not equipped with two-way radio, except that under special circumstances, the appropriate authority may grant specific exemptions from this requirement.

11.2 Alerting services
(P-ATM, 9.2)

11.2.1 The procedures for "Alerting Service" detailed in the PANS-ATM, 9.2, are applicable to all flights except those conducted wholly in the vicinity of an aerodrome when exempted by the appropriate air traffic control unit.

12.0 IDENTIFICATION OF ATS ROUTES
(A11, Appendix 1 – 2.4)

12.1 Composition of designators

12.1.1 The letter F to indicate that on a route or portion thereof advisory service only is provided and the letter G to indicate that on a route or portion thereof flight information service only is provided shall be added after the basic designators of the ATS route in question.

13.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-ATM, Chapter 8)

13.1 Area of application

13.1.1 The procedures provided below shall be applicable within the AFI Region, except for Alger, Canarias, Casablanca and Tunis FIRs.

Note.— Alger, Canarias and Casablanca FIRs are part of Originating Region Code Assignment Method (ORCAM) Participating Area (PA) South-West (new PA EUR-A) and Tunis FIR is part of ORCAM PA South-East (new PA EUR-D. Therefore, the procedures contained in the Regional Supplementary Procedures *(Doc 7030), EUR, Part 1, Rules of the Air, Air Traffic Services and Search and Rescue, Section 9.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR) apply in Alger, Canarias, Casablanca and Tunis FIRs.*

13.1.2 Secondary surveillance radar information may be used alone for the provision of horizontal separation between properly equipped aircraft in the circumstances and under the conditions specified below:

a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR responses from any aircraft (not necessarily the one being provided separation) coincide with the primary radar echo of the same aircraft.

Note.— Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

b) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

1) reliable SSR coverage exists within the area;

2) the area is designated as controlled airspace;

3) the control of air traffic in the area is vested in one ATC unit unless adequate means of coordination exists between all ATC units concerned;

4) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

5) density and/or complexity of air traffic in the area and provision of navigational guidance allow a safe reversion to other forms of separation in case of SSR failure;

6) the aircraft concerned have previously been identified and identification has been maintained;

7) procedural separation is applied between aircraft with functioning transponders and other aircraft; and

8) when primary radar fails and until procedural separation is established:

i) the positional accuracy of the SSR responses has been verified (see 13.1.2 a) and Note); and

ii) the pilots of the aircraft concerned have been advised.

c) In the case of aircraft emergency.

13.2 Carriage and operation of pressure-altitude reporting SSR transponders

13.2.1 With effect from 1 January 2000, all aircraft operating as IFR flights in the AFI Region shall be equipped with a pressure-altitude reporting SSR transponder.

13.2.2 Unless otherwise directed by air traffic control, the last assigned identity (Mode A) code shall be retained. If no identity code has been assigned, Mode A code 2000 shall be selected and retained.

14.0 USE OF AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS) (A2 – 3.2; A6, Part I – 6.18; A10 – Vol. IV; A11 – 2.4.2; P-OPS, Vol. I, Part VIII; P-ATM, Chapter 4)

14.1 Carriage and operation of ACAS II

14.1.1 ACAS II shall be carried and operated in the AFI Region by all aircraft that meet the following criteria:

a) All civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 15 000 kg or maximum approved passenger seating configuration of more than 30.

b) With effect from 1 January 2005, all civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 5 700 kg or a maximum approved passenger seating configuration of more than 19.

APPENDIX A
(Reference 7.3)

TABLE TO DETERMINE THE TRANSITION LEVEL WHICH WILL AT LEAST COINCIDE WITH THE FLIGHT LEVEL CORRESPONDING TO THE TRANSITION ALTITUDE

To determine the transition level for a transition layer of 150 m (500 ft), 300 m (1 000 ft), etc., it will suffice to add the figure 5, 10, etc., to the transition level shown in the appropriate table.

The columns on the left show the values that can be assigned to transition altitudes and the top lines indicate the pressure ranges in millibars between which the QNH values of the aerodrome fluctuate. The transition level for a transition layer of at least 0 m (0 ft) appears in each consolidated table in the form indicated below.

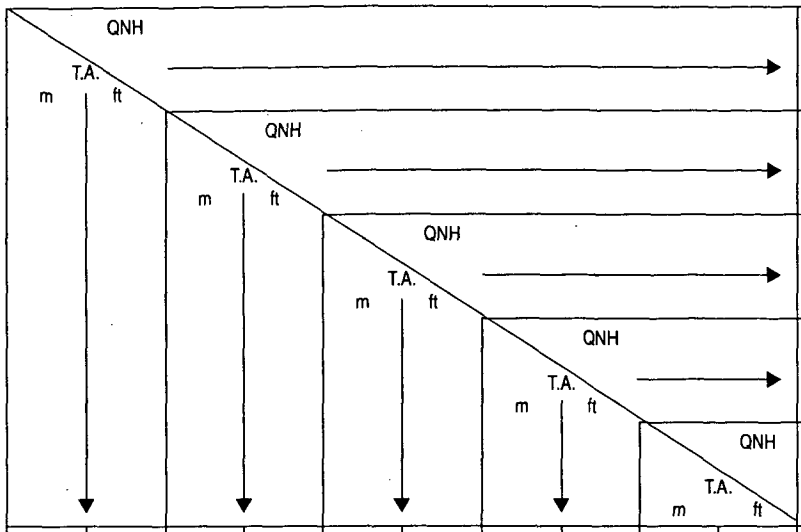
Note.— The values for transition altitude, indicated in metres and feet, are given merely for the purpose of identifying typical transition altitudes. Although pairs of values are given in each column, this does not necessarily mean that they are equivalent.

Example explaining the use of the table

Assuming a given QNH value (e.g. 1 012.5 mb) and a given transition altitude (e.g. 1 410 m), the transition level (under the conditions indicated) is FL 50. Should a transition layer of at least 300 m (1 000 ft) be required, then the flight level corresponding to the transition level is 60.

Since the transition altitude for each location has a fixed value, the only line of the table to be used at all times is that which includes this altitude. For example, in the case of an aerodrome with a transition altitude of 1 560 m, (5 200 ft), it could be:

QNH / T.A. m	T.A. ft	From 949.1 to 966.5	From 966.6 to 984.2	From 984.3 to 1 002.2	From 1 002.3 to 1 020.5	From 1 020.6 to 1 039.1	From 1 039.2 to 1 057.9
1 560	5 200	70	65	60	55	50	45



From 942.2 to 959.4	From 959.5 to 977.1	From 977.2 to 995.0	From 995.1 to 1 013.2	From 1 013.3 to 1 031.6	From 1 031.7 to 1 050.3
From 945.6 to 963.0	From 963.1 to 980.7	From 980.8 to 998.6	From 998.7 to 1 016.8	From 1 016.9 to 1 035.3	From 1 035.4 to 1 054.1
From 949.1 to 966.5	From 966.6 to 984.2	From 984.3 to 1 002.2	From 1 002.3 to 1 020.5	From 1 020.6 to 1 039.1	From 1 039.2 to 1 057.9
From 952.6 to 970.0	From 970.1 to 987.8	From 987.9 to 1 005.9	From 1 006.0 to 1 024.2	From 1 024.3 to 1 042.8	From 1 042.9 to 1 061.7
From 956.1 to 973.5	From 973.6 to 991.4	From 991.5 to 1 009.5	From 1 009.6 to 1 027.9	From 1 028.0 to 1 046.6	From 1 046.7 to 1 065.5

T.A. m	T.A. ft	T.A. m	T.A. ft	T.A. m	T.A. ft	T.A. m	T.A. ft	T.A. m	T.A. ft						
450	1 500	480	1 600	510	1 700	540	1 800	570	1 900	35	30	25	20	15	10
600	2 000	630	2 100	660	2 200	690	2 300	720	2 400	40	35	30	25	20	15
750	2 500	780	2 600	810	2 700	840	2 800	870	2 900	45	40	35	30	25	20
900	3 000	930	3 100	960	3 200	990	3 300	1 020	3 400	50	45	40	35	30	25
1 050	3 500	1 080	3 600	1 110	3 700	1 140	3 800	1 170	3 900	55	50	45	40	35	30
1 200	4 000	1 230	4 100	1 260	4 200	1 290	4 300	1 320	4 400	60	55	50	45	40	35
1 350	4 500	1 380	4 600	1 410	4 700	1 440	4 800	1 470	4 900	65	60	55	50	45	40
1 500	5 000	1 530	5 100	1 560	5 200	1 590	5 300	1 620	5 400	70	65	60	55	50	45
1 650	5 500	1 680	5 600	1 710	5 700	1 740	5 800	1 770	5 900	75	70	65	60	55	50
1 800	6 000	1 830	6 100	1 860	6 200	1 890	6 300	1 920	6 400	80	75	70	65	60	55
1 950	6 500	1 980	6 600	2 010	6 700	2 040	6 800	2 070	6 900	85	80	75	70	65	60
2 100	7 000	2 130	7 100	2 160	7 200	2 190	7 300	2 220	7 400	90	85	80	75	70	65

AFI REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 — COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Languages to be used in radiotelephony
(A10, Vol. II – 5.2.1.2.2, Note 2)

1.1.1 In English-speaking countries, the alternative shall be French.

Note.— Maintenance of this procedure does not require implementation beyond the extent to which it has been carried out so far.

2.0 AERONAUTICAL FIXED SERVICE

2.1 Priority of MOTNE messages on AFTN

2.1.1 "MOTNE Bulletins" for circulation on the MOTNE system which are handled on the AFTN shall be given FF priority.

3.0 RADIO FREQUENCIES

3.1 Air-to-air VHF channel
(A10, Vol. V, Chapter 4)

3.1.1 The frequency 123.450 MHz has been approved for use as the air-to-air channel in the AFI Region to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

CARIBBEAN (CAR)
REGIONAL SUPPLEMENTARY PROCEDURES

TABLE OF CONTENTS - CARIBBEAN (CAR) SUPPS

These procedures are supplementary to the provisions in Annex 2, Annex 6 (Part II), Annex 11, PANS-RAC (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Instrument flight rules (IFR)
(A2 - 2.2 and Chapter 5)

Note.- Annex 2, 2.2 permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.1.1 Special application of instrument flight rules

1.1.1.1 Flights shall be conducted in accordance with the instrument flight rules (even when not operating in instrument meteorological conditions) when operated above FL 180 within the Miami Oceanic, Houston Oceanic and San Juan control areas.

2.0 FLIGHT PLANS

2.1 Contents of flight plans
(A2 - 3.3; P-RAC, Part II - 8.1 and Appendix 2)

2.1.1 Route

2.1.1.1 Flight plans for flights or portions thereof along oceanic routes not defined by specified reporting points shall be made in accordance with the following:

1) for flights whose flight path is generally oriented in an east-west direction, the planned track shall normally be defined by significant points formed by the intersection of half or whole degrees of latitude with meridians spaced at intervals of 10 degrees;

2) for flights whose flight path is generally oriented in a north-south direction, the planned track shall normally be defined by significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude spaced at 5 degree intervals.

2.1.2 Mach number

2.1.2.1 For turbojet aircraft intending to operate within the Houston Oceanic, Merida FIR, Miami Oceanic, Monterrey FIR and San Juan CTA/FIR control areas at or above FL 200 and west of 60°W, the Mach number planned to be used shall be specified in Item 15 of the flight plan.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note:- Annex 2, 3.6.3, 3.6.5.1 and 5.3.3, and PANS-RAC, Part II, 14, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application
(A2 - 3.6.3, 3.6.5, 5.3.3; P-RAC, Part II - 14)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Time or place of position reports
(A2 - 3.6.3, 3.6.5, 5.3.3; P-RAC, Part II - 14)

3.2.1 Position reports additional to those required by the general position reporting procedures shall be made at the flight information region boundary when entering or exiting FIR Panama.

3.2.2 Unless otherwise required by air traffic services, position reports for flights on routes not defined by designated reporting points shall be made at the significant points listed in the flight plan.

3.2.2.1 Air traffic services may require any flight operating generally in an east-west direction to report its position at any of the intermediate meridians spaced at intervals of 10° of longitude when deemed necessary.

3.2.2.2 Air traffic services may require any flight operating generally in a north-south direction to report its position at any intermediate parallel of latitude when deemed necessary.

3.2.2.3 In requiring aircraft to report their position at intermediate intervals, the air traffic services authorities will be guided by the requirement to have position information at approximately hourly intervals and also by the need to cater for varying types of aircraft and for varying traffic and meteorological conditions.

3.2.3 Within the Mazatlan Oceanic flight information region, flights shall provide position reports as follows:

1) if operating on a fixed route, report over designated reporting points using the specified name of such points;

Note.- States should establish reporting points at locations fulfilling operational requirements as set forth in Annex 11, 2.11.1, 2.11.3 and Appendix 2. Except where operational considerations dictate otherwise, those points should be located at intervals of 5 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Aircraft traversing 10 degrees of latitude or longitude in 1 hour and 20 minutes or less should normally be required to report only at 10° intervals. Slower aircraft should normally be required to report at 5° intervals.

2) if operating on a route without designated reporting points, report at intervals of 5 or 10 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Ten degrees will be used if the aircraft traverses 10 degrees in 1 hour and 20 minutes or less.

3.2.3.1 Within the Mazatlan Oceanic flight information region, air traffic services may require any flight to report at any intermediate parallel or latitude or meridian of longitude when deemed necessary.

3.3 Contents of position reports (P-RAC, Part II, 14 and 15)

3.3.1 Position and time

3.3.1.1 "Position" shall, for flights in oceanic areas outside the ATS routes network, be expressed in terms of latitude and longitude. For flights whose tracks are predominantly east or west, latitude shall be expressed in degrees and minutes, longitude in degrees only. For flights whose tracks are predominantly north or south, latitude shall be expressed in degrees only, longitude in degrees and minutes.

3.3.1.2 Unless air-ground communication is direct with the area control centre concerned, all times shall be expressed in four digits, giving both the hour and minutes, when making position reports within oceanic control areas.

3.3.2 Next position and time over

3.3.2.1 "Next position" shall normally be expressed as the significant point at which the aircraft is next required to report its position.

3.3.2.2 Time over next position shall be expressed in four digits, giving both the hour and minutes, when making position reports within oceanic control areas.

3.3.2.3 The name or location of the ensuing significant point following the "next position and estimated time" shall be given when making position reports within oceanic control areas.

3.3.2.4 If the estimated time over the next significant point is found to be in error by five minutes or more, a revised estimated time over shall be transmitted as soon as possible to the appropriate ATS unit.

3.3.3 Level

3.3.3.1 Aircraft cleared for cruise climb shall report their level to the nearest 100 feet.

Note.- Levels so reported, e.g. 354, may not necessarily be flight levels as defined in PANS-OPS, Part III.

3.3.4 Abbreviated reports

3.3.4.1 When operating along designated ATS routes for supersonic aircraft, position reports may be abbreviated as notified by the appropriate ATS authority concerned.

3.3.4.2 Abbreviated position reports for supersonic aircraft shall consist of aircraft identification, position and time only.

3.4 Transmission of position reports
(P-RAC, Part II - 14.1)

3.4.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

3.4.2 Position reports made by aircraft operating within an oceanic control area at a distance of 60 NM or less from the common boundary with an adjacent oceanic control area, including aircraft operating on tracks through successive points on such boundary, shall also be made to the area control centre serving the adjacent control area.

3.4.3 Responsibility for the transmission of position reports to the additional ATS units specified in 3.4.1 and 3.4.2 may be delegated to the appropriate communications station(s) through local arrangements.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

4.1 The following procedures are intended for guidance only. Although all possible contingencies cannot be covered, they provide for cases of inability to maintain assigned level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight. They are applicable primarily when rapid descent, turn-back, or both, are required. The pilot's judgement shall determine the sequence of actions taken, having regard to the specific circumstances.

4.2 General procedures

The following general procedures apply to both subsonic and supersonic aircraft.

4.2.1 If an aircraft is unable to continue flight in accordance with its air traffic control clearance, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using the radiotelephony distress or urgency signal as appropriate.

4.2.2 If prior clearance cannot be obtained, an air traffic control clearance shall be obtained at the earliest possible time and, in the meantime, the aircraft shall broadcast its position (including the ATS route designator or the track code, as appropriate) and intentions, on frequency 121.5 MHz at suitable intervals until air traffic control clearance is received.

4.3 Special procedures for supersonic aircraft

4.3.1 Turn-back procedures

If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

1) when operating on an outer track of a multi-track system, turn away from the adjacent track;

2) when operating on a random track or on an inner track of a multi-track system, turn either left or right as follows:

   a) if the turn is to be made to the right, the aircraft should attain a position 30 NM to the left of the assigned track and then turn to the right onto its reciprocal heading, at the greatest practical rate of turn;

   b) if the turn is to be made to the left, the aircraft should attain a position 30 NM to the right of the assigned track and then turn to the left onto its reciprocal heading, at the greatest practical rate of turn;

3) while executing the turn-back, the aircraft should lose height so that it will be at least 1 850 m (6 000 ft) below the level at which turn-back was started, by the time the turn-back is completed;

4) when turn-back is completed, heading should be adjusted to maintain a lateral displacement of 30 NM from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

5.0 AIR TRAFFIC CONTROL CLEARANCES

5.1 Contents of clearances

(A11 - 3.7; P-RAC, Part III - 11 and 12 and Part VIII, 4.2.5.2)

5.1.1 A pilot-in-command shall, if at any time in doubt, request a detailed description of the route from ATS.

5.1.2 The ATC-approved Mach number shall be included in each clearance given to subsonic turbojet aircraft operating within the Houston Oceanic, Merida FIR, Miami Oceanic, Monterrey FIR and San Juan CTA/FIR control areas at or above FL 200 and west of 60°W.

5.2 Adherence to ATC-approved Mach number
(A2 - 3.6.2)

5.2.1 Turbojet aircraft operating in the Houston Oceanic, Merida FIR, Miami Oceanic, Monterrey FIR and San Juan CTA/FIR control areas at or above FL 200 and west of 60°W shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

6.0 SEPARATION OF AIRCRAFT

6.1 Lateral separation
(P-RAC, Part III - 7 and 9)

6.1.1 Minimum lateral separation shall be:

1) 60 NM between aircraft which meet the North Atlantic minimum navigation performance specifications (MNPS) which, while operating in the San Juan CTA/FIR control area, are in transit to or from the NAT MNPS airspace;

Note.- The NAT MNPS are set forth in NAT SUPPS, Section 2.0. NAT MNPS airspace is identified in NAT SUPPS, 2.2.

2) 90 NM between aircraft operating between the United States, Canada or Bermuda and points in the CAR Region in the San Juan and New York Oceanic control areas and the Atlantic portion of the Miami Oceanic control area;

3) 100 NM west of 60°W (only in Oceanic Areas) between aircraft not covered in 1) and 2) above, and between aircraft in the Piarco CTA/FIR west of 55°W;

4) 120 NM between aircraft operating east of 60°W in the New York Oceanic Area, and between aircraft in the Piarco CTA/FIR east of 55°W;

except that lower minima in 7.2 of Part III of the PANS-RAC may be applied, or further reduced in accordance with 9 of the same Part, where the conditions specified in the relevant PANS-RAC provisions are met (see 6.4)

6.1.2 In addition to the track separation criteria set forth in PANS-RAC, Part III, 7.2.1.4, minimum lateral separation, where radar is the means of confirming initial aircraft positions, and track will diverge until other lateral separation is achieved, shall be:

Distance between tracks	Minimum degree divergence
5 NM	30
10 NM	20
15 NM	15
20 NM	10

6.2 Longitudinal separation
(P-RAC, Part III - 8 and 9)

6.2.1 Minimum longitudinal separation shall be:

1) a) 10 minutes between aircraft in supersonic flight provided that:

1) both aircraft are in level flight at the same Mach number or the aircraft are of the same type and are both operating in cruise climb; and

2) the aircraft concerned have reported over the same entry point into the oceanic controlled airspace and follow the same track, continuously diverging tracks or initially the same track then continuously diverging tracks until some other form of separation is provided.

Note.- An ATC clearance authorizing the commencement of the deceleration/descent phase of the flight of the aircraft concerned may be issued while the above separation minimum is being applied.

This separation minimum may also be applied between supersonic aircraft which have not reported over the same entry point into oceanic controlled airspace (but comply with all other provisions) provided their respective entry points, as well as the point from which they either follow the same track or start following continuously diverging tracks, are located within the radar coverage of the controlling ATC unit and it is therefore possible, by radar monitoring, to ensure that the appropriate time interval will exist between the aircraft concerned, at the time they start to follow the same or continuously diverging tracks.

b) 15 minutes between aircraft in supersonic flight but not covered by 1) a) above.

2) a) 10 minutes between turbojet aircraft at or above FL 280 on oceanic published routes operating in the West Atlantic Route System (WATRS), or at or above FL 280 operating west of 60°W when transitioning to or from the WATRS area, provided that the Mach number technique is applied and whether in level, climbing or descending flight:

1) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided, and:

i) at least 10 minutes longitudinal separation exists at the point where the tracks diverge;

ii) at least 5 minutes longitudinal separation will exist where the minimum lateral separation is achieved; and

iii) at least the minimum lateral separation will be achieved at or before the next significant point or, if not, within 90 minutes of the time the second aircraft passes the common point or within 600 NM of the common point whichever is estimated to occur first;

2) if the aircraft have not reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

b) between 9 and 5 minutes inclusive, between turbojet aircraft at or above FL 280 on oceanic published routes operating in the West Atlantic Route System (WATRS), or at or above FL 280 operating west of 60°W when transitioning to or from the WATRS area, provided:

1) it is possible to ensure, by radar or other means approved by the State, that the required time interval exists and will exist at the common point from which they either follow the same track or continuously diverging tracks; and

2) the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following:

- 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft;
- 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft;
- 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft;
- 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft; or
- 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

Note 1.- When a preceding aircraft is maintaining a greater Mach number than the following aircraft, in accordance with the table above, and the aircraft will follow continuously diverging tracks so that the minimum lateral separation will be achieved by the next significant point, the requirement stated in 2) a) 1) ii) above to have at least 5 minutes longitudinal separation where the minimum lateral separation is achieved may be disregarded.

Note 2.- Application of longitudinal separation between aircraft when the Mach number technique as used is based on the assumption that the last assigned Mach number will be maintained at all times, including during any climbs and descents. In the event that for operational reasons it is not feasible to do so, the pilot must inform ATC at the time of initial clearance or subsequent climb/descent request or clearance.

Note 3.- The WATRS area is defined beginning at a point 2700N 7700W direct to 2000N 6700W direct to 1800N 6200W direct to 1800N 6000W direct to 3830N 6000W direct to 3830N 6915W thence counterclockwise along the New York Oceanic control area/flight information region boundary to the Miami Oceanic control area/flight information region boundary, thence southbound along the Miami Oceanic control area/flight information region boundary to the point of beginning.

c) 15 minutes between turbojet aircraft operating at or above FL 200 and west of 60°W within the Houston Oceanic, Merida FIR, Miami Oceanic, Monterrey FIR and San Juan CTA/FIR control areas, provided that the Mach number technique is applied and the aircraft concerned have reported over the same entry point into oceanic controlled airspace and follow the same or diverging tracks.

This separation may be reduced to:

- 10 minutes at the entry point into oceanic controlled airspace, if the preceding aircraft is maintaining a speed of at least Mach 0.03 greater than that of the following aircraft; or

- 5 minutes at the entry point into oceanic controlled airspace, if the preceding aircraft is maintaining a speed of at least Mach 0.06 greater than that of the following aircraft;

d) 20 minutes between aircraft operating below FL 200 west of 55°W and between aircraft operating at all levels east of 55°W within the San Juan and Piarco flight information regions and the Paramaribo and Rochambeau UIRs.

The above separation minima may also be applied between aircraft which have not reported over the same entry point into oceanic controlled airspace (but otherwise comply with all other provisions) provided their respective entry points as well as the point from which they either follow the same track or start following diverging tracks are located within the radar coverage of the controlling ATC unit and it is therefore possible, by radar monitoring, to ensure that the appropriate time interval will exist between the aircraft concerned at the time they start following the same or diverging tracks.

Note.- The use of SSR alone for the application of this procedure is governed by the applicable provisions of 7.2.1 2).

3) As described below, turbojet aircraft meeting the MNPS and operating in the New York Oceanic control area wholly or partly in MNPS airspace:

a) 10 minutes, provided the Mach number technique is applied and whether in level, climbing or descending flight:

1) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; and

i) at least 10 minutes longitudinal separation exists at the point where the tracks diverge;

ii) at least 5 minutes longitudinal separation will exist where 60 NM lateral separation is achieved; and

iii) at least 60 NM lateral separation will be achieved at or before the next significant point (normally ten degrees of longitude along track(s)) or, if not, within 90 minutes of the time the second aircraft passes the common point or within 600 NM of the common point, whichever is estimated to occur first; or

2) if the aircraft have not reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

b) between 10 and 5 minutes inclusive, only when it is possible to ensure, by radar or other means approved by the State, that the required time interval exists and will exist at the common point, provided the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following:

- 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft;

- 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft;

- 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft;

- 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft;

- 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

Note.- When a preceding aircraft is maintaining a greater Mach number than the following aircraft, in accordance with the table above, and the aircraft will follow continuously diverging tracks so that 60 NM lateral separation will be achieved by the next significant point, the requirement stated in 3) a) 1) ii) above to have at least 5 minutes longitudinal separation where 60 NM lateral separation is achieved may be disregarded.

c) 15 minutes between turbojet aircraft meeting the MNPS and operating wholly or partly in MNPS airspace but not covered by a) or b) above.

4) As described below, between aircraft operating outside MNPS airspace in the New York Oceanic control area:

a) 15 minutes between turbojet aircraft, provided the Mach number technique is applied and, whether in level, climbing or descending flight:

1) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

2) if the aircraft have not reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

b) 10 or 5 minutes only when it is possible to ensure by radar or other means approved by the State that the required time interval exists and will exist at the common point, provided the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following:

1) 10 minutes if the preceding aircraft is at least Mach 0.03 faster than the following aircraft; and

2) 5 minutes if the preceding aircraft is at least Mach 0.06 faster than the following aircraft;

c) 20 minutes between turbojet aircraft not covered by a) and b) above; and

d) 20 minutes between other than turbojet aircraft operating along routes extending between the United States, Canada or Bermuda and Caribbean terminals, or between the United States or Canada and Bermuda;

e) 30 minutes between other than turbojet aircraft not covered in d) above.

6.3 Vertical separation

6.3.1 Above FL 450, vertical separation between supersonic aircraft, and between supersonic aircraft and any other aircraft, shall be considered to exist if the flight levels of the two aircraft differ by at least 1 200 m (4 000 ft).

6.4 Information on application of separation minima
(A11 - 3.4; P-RAC, Part III - 7, 8 and 9)

6.4.1 Where, circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 will be applied in accordance with the PANS-RAC, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

7.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-RAC, Part X; P-OPS, Vol. I, Part VIII)

7.1 Assignment of SSR codes

7.1.1 Except when otherwise prescribed by bilateral agreement between adjacent area control centres located in different ICAO Regions, area control centres providing air traffic services in flight information regions adjacent to other regions should, when properly equipped, assign individual SSR codes to aircraft entering their flight information regions from the adjacent regions. Such codes should be selected from the subset allocated to the area control centres for assignment to international flights.

7.1.2 As a general rule, an individual SSR code assigned to an international flight may be reassigned to another flight:

1) three hours after the departure of the leading aircraft; or

2) when it is estimated that the lead aircraft has landed;

whichever is the earlier.

7.2 Use of SSR-derived information for the provision of separation between aircraft

7.2.1 Secondary surveillance radar information may be used alone for the provision of horizontal separation between properly equipped aircraft in the circumstances and under the conditions specified below:

1) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR response from any aircraft (not necessarily the one being provided separation) coincides with the primary radar echo of the same aircraft.

Note.- Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

2) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

a) reliable SSR coverage exists within the area;

b) the area is designated as controlled airspace;

c) the control of air traffic in the area is vested in one ATC unit unless adequate means of co-ordination exists between all ATC units concerned;

d) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

e) density and/or complexity of air traffic in the area and provision of navigational guidance allow to revert safely to other forms of separation in case of SSR failure;

f) the aircraft concerned have previously been identified and identification has been maintained;

g) procedural separation is applied between aircraft with functioning transponders and other aircraft.

3) When primary radar fails and until procedural separation is established, provided that:

a) the positional accuracy of the SSR responses has been verified (see 7.2.1 1) and Note);

b) the pilots of the aircraft concerned have been advised.

4) In the case of aircraft in emergency.

Note.- Apart from causes resulting in the inability to resolve the positional element of an SSR response which can occur due to malfunctioning of the equipment, there are two causes which may occur during normal operations. These are the presence of side-lobe responses and reflections.

8.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICE AND MINIMUM LEVELS
(P-RAC, Part II - 12 and Part III - 4.2)

8.1 The lowest usable flight level for flights en-route may be calculated with reference to climatological data.

9.0 FLIGHT INFORMATION SERVICE

9.1 Information on runway conditions
(A11 - 4.2.1; P-RAC, Part IV - 15.1)

9.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

9.2 Transmission of SIGMET information
(P-RAC, Part VI - 1.3.2)

9.2.1 Transmission of SIGMET information to aircraft shall be at the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

9.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours flying time ahead of the aircraft.

9.3 Transmission of amended aerodrome forecast
(P-RAC, Part VI - 1.3.3.2)

9.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information would have been made available through other means.

10.0 AIR TRAFFIC SERVICES CO-ORDINATION

10.1 Co-ordination between units providing area control service
(P-RAC, Part VII - 3.2)

10.1.1 If a flight should enter an adjacent area, information concerning any revision of estimate of three minutes or more shall be forwarded to the adjacent area control centre.

11.0 AIR TRAFFIC SERVICES MESSAGES

11.1 Flight plan and departure messages
(P-RAC, Part VIII - 3.3 and 4.2.2)

11.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 60 NM or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions, shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions.

11.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted.

12.0 ALERTING AND SEARCH AND RESCUE SERVICES

12.1 Routes and equipment of private aircraft
(A6, Part II - 6.3 and 6.4)

12.1.1 General aviation aircraft shall:

1) carry appropriate survival equipment;

2) be equipped with functioning two-way radio communications equipment except that under special local circumstances, the appropriate authorities may grant exemption from this requirement.

12.2 Alerting services
(P-RAC, Part VI - 2)

12.2.1 The procedures for "Alerting Service" detailed in the PANS-RAC, Part VI, 2, are applicable to all sectors of flights over mountainous or sparsely populated areas, including sea areas.

CAR REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Languages to be used in radiotelephony
(A10, Vol. II, 5.2.1.1.2, Note 2)

1.1.1 In English-speaking countries the alternative shall be Spanish.

Note.- Maintenance of this procedure does not require implementation beyond the extent to which it has been carried out so far.

2.0 RADIO FREQUENCIES

2.1 Air-to-air VHF channel
(A10, Vol. I, Part II - 4.1.3.2)

2.1.1 The frequency 130.550 MHz has been approved for use as the air-to-air channel in the CAR Region, to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

EUROPEAN (EUR)
REGIONAL SUPPLEMENTARY PROCEDURES

TABLE OF CONTENTS — EUROPEAN (EUR) SUPPS

EUR REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Part II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Instrument flight rules (IFR)
(A2 – 2.2, Chapter 4 and Chapter 5)

Note.— Annex 2, 2.2, permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.1.1 *Special application of instrument flight rules*

1.1.1.1 Flights shall be conducted in accordance with instrument flight rules when operated above FL 150 within the Amman, Beirut, Cairo, Damascus, Nicosia and Tel Aviv flight information regions.

1.1.1.2 Flights shall be conducted in accordance with instrument flight rules when operated within or above the EUR RVSM airspace as specified in 2.1.

1.2 Air traffic advisory service
(P-ATM, 9.1.4)

Note.— The PANS-ATM leaves it to the discretion of the pilot whether or not to obtain air traffic advisory service when available. The following procedures make it compulsory to obtain such service under certain circumstances.

1.2.1 All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace within the Amman, Beirut, Cairo, Damascus and Tel Aviv flight information regions.

2.0 REDUCED VERTICAL SEPARATION MINIMUM (RVSM) OF 300 M (1 000 FT)

2.1 Area of applicability

2.1.1 RVSM shall be applicable in that volume of airspace between FL 290 and FL 410 inclusive in the following flight information regions/upper flight information regions (FIRs/UIRs):

Amsterdam, Ankara, Barcelona, Beograd, Berlin, Bodø, Bratislava, Brindisi, Bruxelles, Bucuresti, Budapest, Çasablanca, Chisinau, France, Hannover, Hellas, Istanbul, Kaliningrad, Kharkiv, København, Kyiv, Lisboa, Ljubljana, London, L'viv, Madrid, Malta, Milano, Minsk, Nicosia, Odesa, Oslo, Praha, Rhein, Riga, Roma, Rovaniemi, Sarajevo, Scottish, Shannon, Simferopol, Skopje, Sofia, Stavanger, Sweden, Switzerland, Tallinn, Tampere, Tirana, Trondheim, Tunis, Varna, Vilnius, Warszawa, Wien, Zagreb.

2.1.2 RVSM shall be applicable in part of that volume of airspace between FL 290 and FL 410 inclusive in the Canarias UIR (AFI Region).

Note.— The volume of airspace specified in 2.1.1 and 2.1.2 shall be referred to as "EUR RVSM airspace".

2.2 Means of compliance
(A2 – 5.1.1 and Appendix 3; A6, Part I – 4.2, 7.2 and Chapter 3, Note 1; A6, Part II – 7.2 and Chapter 3, Note 1; A8, Part IIIA – 8.1)

2.2.1 Except for State aircraft, operators intending to conduct flights within the volume of airspace specified in 2.1 where RVSM is applied shall require an RVSM approval either from the State in which the operator is based or from the State in which the aircraft is registered. To obtain such an RVSM approval, operators shall satisfy the said State that:

a) aircraft for which the RVSM approval is sought have the vertical navigation performance capability required for RVSM operations through compliance with the criteria of the RVSM minimum aircraft systems performance specifications (MASPS);

b) they have instituted procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and

c) they have instituted flight crew procedures for operations in the EUR RVSM airspace specified in 2.1.

Note 1.— An RVSM approval is not restricted to a specific region. Instead, it is valid globally on the understanding that any operating procedures specific to a given region, in this case the EUR Region, should be stated in the operations manual or appropriate crew guidance.

Note 2.— Aircraft that have received State approval for RVSM operations will be referred to as "RVSM approved aircraft".

Note 3.— Aircraft that have not received State approval for RVSM operations will be referred to as "non-RVSM approved aircraft".

2.2.2 The characteristics of total vertical error (TVE) distribution form the basis of the MASPS which were developed to support the introduction of RVSM operations in accordance with agreed global safety standards. The MASPS were designed to ensure that:

a) in respect of groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance, height-keeping performance capability shall be such that the TVE for the group of aircraft shall have a mean no greater than 25 m (80 ft) in magnitude and shall have a standard deviation no greater than $92 - 0.004z^2$ for $0 \leq z \leq 80$ where z is the magnitude of the mean TVE in feet or $28 - 0.013z^2$ for $0 \leq z \leq 25$ when z is in metres. In addition, the components of TVE must have the following characteristics:

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude;

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft); and

   3) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential;

b) in respect of a non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, height-keeping performance capability shall be such that the components of the TVE of the aircraft have the following characteristics:

   1) the ASE of a non-group aircraft shall not exceed 60 m (200 ft) in magnitude under all flight conditions; and

   2) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

2.2.3 Guidance material of use to those involved in the initial achievement and continued maintenance of the height-keeping performance capability has been issued by ICAO under the title *Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) in the European RVSM Airspace.* Detailed technical guidance material on the airworthiness, continued airworthiness, and the operational practices and procedures for the EUR RVSM airspace is provided in the Joint Aviation Authorities *Administrative and Guidance Material, Section One: General, Part 3: Temporary Guidance Leaflet No. 6.* The content of these documents will be supplemented and updated as required and as new material becomes available.

2.2.4 Monitoring of flight operations in the EUR RVSM airspace shall be conducted to assess the continuing compliance of aircraft with the height-keeping performance requirements.

Note.— Monitoring will be conducted in accordance with the appropriate material issued by ICAO. When notified, operators will be required to cooperate in the monitoring programme.

3.0 FLIGHT PLANS

3.1 Submission of a flight plan
(A2 – 3.3.1; P-ATM, 3.2.1.5, 4.4.2, Appendix 2)

3.1.1 A centralized flight planning processing and distribution service has been established under the authority of the EUROCONTROL Central Flow Management Unit (CFMU). The service is provided through the Integrated Initial Flight Plan Processing System (IFPS) and covers part of the ICAO EUR Region known as the IFPS Zone (IFPZ).

3.1.2 For all IFR flights, including the IFR portions of mixed IFR/VFR flights, entering, overflying or departing the IFPZ, a flight plan shall be submitted to IFPS either directly or via the Air Traffic Services Reporting Office (ARO) serving the aerodrome of departure.

Note 1. — The area of applicability and detailed procedures pertaining to the IFPZ are contained in the EUROCONTROL "Basic CFMU Handbook".

Note 2.— See 3.4 for information concerning flight plan addressing and distribution.

3.1.3 Flight plans for flights which may be subject to ATFM shall be submitted at least 3 hours before the estimated off-block time (EOBT);

3.1.4 Any changes to the EOBT of more than 15 minutes for any IFR flight within the IFPZ shall be communicated to the IFPS.

3.2 Content of a flight plan

3.2.1 *Date of flight*
(A2 – 3.3; P-ATM, 4.4.1, 11.4.2.2.2.5, 16.4, Appendix 2)

Note.— PANS-ATM, 11.4.2.2.2.5, states that "if a flight plan is filed more than 24 hours in advance of the estimated off-block time of the flight to which it refers, that flight plan shall be held in abeyance until at most 24 hours before the flight begins so as to avoid the need for the insertion of a date group into that flight plan". The following specifies details regarding optional insertion of a date group into the flight plan.

3.2.1.1 If a flight plan for a flight conducted wholly in the EUR Region is filed more than 24 hours in advance of the estimated off-block time, it is mandatory to provide the date of the flight. If the flight plan is filed less than 24 hours in advance of the estimated off-block time, the date of the flight may be optionally indicated. This information will be inserted in Item 18 of the flight plan in the form of a 3-letter indicator (DOF) followed by an oblique stroke and date of flight in a 6-figure group format:

DOF/YYMMDD (YY = year; MM = month; DD = day)

3.2.2 *Runway visual range (RVR)*

3.2.2.1 When RVR information is included in Item 18 of the ICAO flight plan form ("RVR/nnn") to indicate the minimum RVR requirement of the flight, it may be used for ATFM purposes.

3.2.3 *Indication in the flight plan of 8.33 kHz channel spacing capable radio equipment*

3.2.3.1 For flights conducted wholly or partly in the volume of airspace specified in 4.1.1, in addition to the letter S and/or any other letters, as appropriate, the letter Y shall be inserted in Item 10 of the flight plan for aircraft equipped with 8.33 kHz channel spacing capable radio equipment, or the indicator STS/EXM833 shall be included in Item 18 for aircraft not equipped but which have been granted exemption from the mandatory carriage requirement. Aircraft normally capable of operating above FL 245/FL 195 but planning to fly below these levels shall include the letter Y as specified above.

Note.— In the case of "STS/EXM833", a list of exemptions will have to be published in the States' AIPs. The absence of the above letter/indicator will be taken as a lack of 8.33 kHz capable equipment.

3.2.3.2 In case of a change in the 8.33 kHz capability status for a flight planned to operate in the area specified in 4.1.1, a modification message shall be sent with the appropriate indicator inserted in the relevant Item.

3.2.4 *Indication in the flight plan of RVSM approval status*

3.2.4.1 *Flight planning for RVSM approved aircraft and non-RVSM approved State aircraft*

3.2.4.1.1 Operators of RVSM approved aircraft shall indicate the approval status by inserting the letter W in

Item 10 of the ICAO flight plan form, regardless of the requested flight level.

3.2.4.1.2 Operators of formation flights of State aircraft shall not insert the letter W in Item 10 of the ICAO flight plan form, regardless of the RVSM approval status of the aircraft concerned. Operators of formation flights of State aircraft intending to operate within the EUR RVSM airspace as general air traffic (GAT) shall include STS/NONRVSM in Item 18 of the ICAO flight plan form.

3.2.4.1.3 Operators of RVSM approved aircraft shall also include the letter W in Item Q of the RPL, regardless of the requested flight level. If a change of aircraft operated in accordance with an RPL results in a modification of the RVSM approval status as stated in Item Q, a modification message (CHG) shall be submitted by the operator.

3.2.4.1.4 Operators of RVSM approved aircraft and non-RVSM approved State aircraft intending to operate within the EUR RVSM airspace, as specified in 2.1, shall include the following in Item 15 of the ICAO flight plan form:

a) the entry point at the lateral limits of the EUR RVSM airspace and the requested flight level for that portion of the route commencing immediately after the RVSM entry point; and

b) the exit point at the lateral limits of the EUR RVSM airspace and the requested flight level for that portion of the route commencing immediately after the RVSM exit point.

Note.— Refer to 10.1.2 and 10.1.3 for related air traffic control (ATC) requirements.

3.2.4.1.5 Operators of non-RVSM approved State aircraft with a requested flight level of FL 290 or above shall insert STS/NONRVSM in Item 18 of the ICAO flight plan form.

3.2.4.2 *Flight planning for non-RVSM approved aircraft*

3.2.4.2.1 Except for operations within the EUR RVSM transition airspace, as specified in 10.1.1, and within airspace designated in accordance with 10.2.1, operators of non-RVSM approved aircraft shall flight plan to operate outside the EUR RVSM airspace.

Note.— Refer to 7.2.1 and 7.2.2 regarding ATC clearance into the EUR RVSM airspace.

3.2.4.2.2 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome outside the lateral limits of the EUR RVSM airspace to a destination aerodrome within the lateral limits of the EUR RVSM airspace shall include the following in Item 15 of the ICAO flight plan form:

a) the entry point at the lateral limits of the EUR RVSM airspace; and

b) a requested flight level below FL 290 for that portion of the route commencing immediately after the entry point.

Note.— Refer to 10.1.4.1 for related ATC requirements.

3.2.4.2.3 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome to a destination aerodrome, both of which are within the lateral limits of the EUR RVSM airspace, shall include in Item 15 of the ICAO flight plan form, a requested flight level below FL 290.

Note.— Refer to 10.1.4.2 for related ATC requirements.

3.2.4.2.4 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome within the lateral limits of the EUR RVSM airspace to a destination aerodrome outside the lateral limits of the EUR RVSM airspace shall include the following in Item 15 of the ICAO flight plan form:

a) a requested flight level below FL 290 for that portion of the route within the lateral limits of the EUR RVSM airspace; and

b) the exit point at the lateral limits of the EUR RVSM airspace and the requested flight level for that portion of the route commencing immediately after the exit point.

Note.— Refer to 10.1.4.3 for related ATC requirements.

3.2.4.2.5 Operators of non-RVSM approved aircraft intending to operate from a departure aerodrome to a destination aerodrome, both of which are outside the lateral limits of the EUR RVSM airspace, with a portion of the route within the lateral limits of the EUR RVSM airspace, shall include the following in Item 15 of the ICAO flight plan form:

a) the entry point at the lateral limits of the EUR RVSM airspace and a requested flight level below FL 290 or above FL 410 for that portion of the route commencing immediately after the entry point; and

b) the exit point at the lateral limits of the EUR RVSM airspace and the requested flight level for that portion of the route commencing immediately after the exit point.

Note.— Refer to 10.1.4.4 for related ATC requirements.

3.3 Procedure for filing an alternative route when subject to ATFM measures
(P-ATM, 11.1.5)

3.3.1 When an individual flight plan (FPL) or a repetitive flight plan (RPL) has been filed but it is decided, within 4 hours of EOBT, to use an alternative routing between the same aerodromes of departure and destination, either a modification message (CHG) may be sent or alternatively:

a) a cancellation message (CNL) with priority "DD" shall be sent to IFPS;

b) not less than 5 minutes after sending the CNL message, a replacement flight plan (RFP) in the form of an FPL with identical call sign shall be transmitted.

c) the RFP shall contain, as the first element of Item 18, the indication "RFP/Qn", where RFP signifies "Replacement Flight Plan" and "n" is "1" for the first replacement, "2" for the second replacement, and so on; and

d) the last RFP shall be filed at least 30 minutes before EOBT.

Note.— The submission of a replacement flight plan is normally accepted as fulfilling a State's requirement for advance notification of flight (diplomatic clearance).

3.4 Flight plan addressing and distribution
(P-ATM, 11.4.2.2.2.2)

3.4.1 Flight plans and associated messages for all IFR flights, including the IFR portions of mixed IFR/VFR flights, entering, overflying or departing the IFPZ, shall be addressed only to the two IFPS addresses for that portion of the flight within the IFPZ. The IFPS addresses to be included in flight plans and associated messages submitted by operators that intend to fly into or through the IFPZ are as follows:

Network	IFPS Unit Addresses	
	IFPU1 Haren, Belgium	IFPU2 Brétigny, France
AFTN	EBBDZMFP	LFPYZMFP
SITA	BRUEP7X	PAREP7X

3.4.2 IFPS will ensure distribution of the accepted flight plan to all relevant ATS units within their area of responsibility. Flight plan message originators filing to IFPS are responsible for ensuring that the flight plan and any modifications made thereto are addressed to all the relevant ATS units outside the IFPZ. In order to ensure consistency between the flight plan data distributed within the IFPZ and that distributed outside the IFPZ, the CFMU has established a "re-addressing function". The "re-addressing function" is intended primarily for flights originating within the IFPZ and proceeding outside the IFPZ.

Note. — Detailed procedures and information applicable to flight plan addressing and distribution are contained in the EUROCONTROL "Basic CFMU Handbook".

3.5 Use of repetitive flight plans (RPLs)
(P-ATM, 16.4, Appendix 2)

3.5.1 *General*

Note.— Detailed provisions for the handling of RPLs within the IFPZ are specified in the EUROCONTROL "Basic CFMU Handbook".

3.5.1.1 In order to avoid a disproportionate workload on ATS units, RPLs will not be accepted for any flight conducted on 25 December. On this day, individual flight plans shall be filed for all flights.

3.5.1.2 All operators filing RPLs shall include in Item Q of the RPL all equipment and capability information in conformity with Item 10 of the ICAO flight plan form.

3.5.1.3 When there is a change of equipment or capability for a flight which is subject to an RPL, a modification message (CHG) for the day of operation shall be sent not earlier than 20 hours before the estimated off-block time.

3.5.1.4 Similarly, other changes, delays, or cancellations for the day of operation shall be sent not earlier than 20 hours before the estimated off-block time.

4.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3, and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

4.1 Mandatory carriage of 8.33 kHz channel spacing capable radio equipment
(A10, Vol. V – 4.1.2.2.1)

4.1.1 All aircraft operating above FL 245 in the European Region shall be equipped with 8.33 kHz channel spacing capable radio equipment. All aircraft operating above FL 195 in France upper flight information region shall be equipped with 8.33 kHz channel spacing capable radio equipment.

4.1.2 Exemptions may be granted by States concerned for certain types of aircraft operation and for certain areas of operation.

Note.— All exemptions granted by States, including the extent to which aircraft from other States can be exempted, should be specified in States' AIPs.

4.1.3 When UHF ground infrastructure permits a close operational link to a State's airspace management procedure, UHF-equipped State aircraft not equipped with an 8.33 kHz channel spacing capable radio will be allowed to operate in the airspace designated for 8.33 kHz channel spacing operations.

Note.— Details of UHF coverage meeting the above infrastructure requirements should be specified in States' AIPs.

4.2 Phraseology to be used in airspace where 8.33 kHz channel spacing is used
(P-ATM, 12.3)

4.2.1 Aircraft operating in airspace where 8.33 kHz channel spacing has been implemented shall use the phraseology as shown in Table 1.

4.3 Application
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

4.3.1 Aircraft flying within uncontrolled airspace may be requested to maintain a continuous watch on the appropriate air-ground frequency of the ATS unit serving the flight information region within which the aircraft is flying.

4.4 Contents of position reports
(P-ATM, 4.11 and 4.12)

4.4.1 *Abbreviated reports*

4.4.1.1 Position reports should only contain the aircraft identification, position, time and flight level, unless otherwise specified.

4.4.1.2 In defined portions of the airspace, designated by the appropriate ATS authority, where:

a) through SSR, individual identity and verified Mode C information are permanently available in the form of labels associated with the radar position of the aircraft concerned; and

b) reliable air-ground communications coverage and direct pilot-to-controller communications exist,

the initial call after changing a radio frequency may contain only the aircraft identification and level; subsequently, position reports may contain only aircraft identification, position and time.

5.0 ACTION IN THE EVENT OF AIR-GROUND COMMUNICATION FAILURE
(A2 – 3.6.5.2)

5.1 As soon as it is known that two-way communication has failed, ATC shall maintain separation between the aircraft having the communication failure and other aircraft based on the assumption that the aircraft will operate in accordance with 5.2 or 5.3.

5.2 Visual meteorological conditions (VMC)

5.2.1 Except as provided for in 5.3.1, a controlled flight experiencing communication failure in VMC shall:

a) set transponder to Code 7600;

b) continue to fly in VMC;

Table 1. Phraseology to be used in airspace where 8.33 kHz channel spacing is used

Reference	*Circumstances*	*Phraseology*
PANS-ATM, 12.4.3.1	To request the capability of the radio equipment	ADVISE EIGHT POINT THREE THREE EQUIPPED
	To indicate 8.33 kHz capability	*AFFIRM EIGHT POINT THREE THREE
	To indicate lack of 8.33 kHz capability	*NEGATIVE EIGHT POINT THREE THREE
	To indicate UHF capability	*UHF EQUIPPED
	To request the status in respect of exemption	ADVISE EIGHT POINT THREE THREE EXEMPTION STATUS
	To indicate 8.33 kHz exempted status	*(*aircraft call sign*) EXEMPTED EIGHT POINT THREE THREE
	To indicate that a certain clearance is given because otherwise a non-equipped aircraft would enter the airspace of mandatory carriage	(*clearance/instruction*) DUE EIGHT POINT THREE THREE REQUIREMENT
PANS-ATM, 12.4.3.5	To request the pilot to confirm the 8.33 kHz selection	a) CONFIRM EIGHT POINT THREE THREE CHANNEL (*name*)
		*b) AFFIRM EIGHT POINT THREE THREE CHANNEL (*name*)
PANS-ATM, 12.3.1.3	Transfer of control and/or channel change	a) CONTACT (*unit call sign*) CHANNEL (*name*)
		b) AT (or OVER) (*time or place*) CONTACT (*unit call sign*) CHANNEL (*name*)
		c) IF NO CONTACT (*instructions*)
		d) STAND BY CHANNEL (*name*) FOR (*unit call sign*)
		*e) REQUEST CHANGE TO CHANNEL (*name*)
		f) CHANNEL CHANGE APPROVED
		g) MONITOR (*unit call sign*) CHANNEL (*name*)
		*h) MONITORING CHANNEL (*name*)
		i) WHEN READY CONTACT (*unit call sign*) CHANNEL (*name*)
		j) REMAIN THIS CHANNEL

* denotes pilot transmission

Example: "AIR FRANCE TWO SEVEN FOUR CONTACT FRANCE CONTROL CHANNEL ONE THREE TWO DECIMAL ZERO ONE ZERO."

c) land at the nearest suitable aerodrome; and

d) report its arrival time by the most expeditious means to the appropriate ATS unit.

5.3 Instrument meteorological conditions (IMC)

5.3.1 A controlled IFR flight experiencing communication failure in IMC, or where it does not appear feasible to continue in accordance with 5.2 shall:

a) set transponder to Code 7600;

b) maintain for a period of 7 minutes the last assigned speed and level or the minimum flight altitude, if the minimum flight altitude is higher than the last assigned level. The period of 7 minutes commences:

1) if operating on a route without compulsory reporting points or if instructions have been received to omit position reports:

i) at the time the last assigned level or minimum flight altitude is reached, or

ii) at the time the transponder is set to Code 7600,

whichever is later; or

2) if operating on a route with compulsory reporting points and no instruction to omit position reports has been received:

i) at the time the last assigned level or minimum flight altitude is reached, or

ii) at the previously reported pilot estimate for the compulsory reporting point, or

iii) at the time of a failed report of position over a compulsory reporting point,

whichever is later;

Note.— The period of 7 minutes is to allow the necessary air traffic control and coordination measures.

c) thereafter, adjust level and speed in accordance with the filed flight plan;

Note.— With regard to changes to levels and speed, the filed flight plan, which is the flight plan as filed with an ATS unit by the pilot or a designated representative without any subsequent changes, will be used.

d) if being radar vectored or proceeding offset according to RNAV without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

Note.— With regard to the route to be flown or the time to begin descent to the arrival aerodrome, the current flight plan, which is the flight plan, including changes, if any, brought about by subsequent clearances, will be used.

e) proceed according to the current flight plan route to the appropriate designated navigation aid serving the destination aerodrome and, when required to ensure compliance with 5.3.1 f), hold over this aid until commencement of descent;

f) commence descent from the navigation aid specified in 5.3.1 e) at, or as close as possible to, the expected approach time last received and acknowledged or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

g) complete a normal instrument approach procedure as specified for the designated navigation aid; and

h) land, if possible, within thirty minutes after the estimated time of arrival specified in 5.3.1 f) or the last acknowledged expected approach time, whichever is later.

Note.— Pilots are reminded that the aircraft may not be in an area of secondary surveillance radar coverage.

6.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

6.1 Emergency descent procedures (P-ATM, 15.1.4)

6.1.1 *Action by the pilot-in-command*

6.1.1.1 When an aircraft operated as a controlled flight experiences sudden decompression or a (similar) malfunction requiring an emergency descent, the aircraft shall, if able:

a) initiate a turn away from the assigned route or track before commencing the emergency descent;

b) advise the appropriate air traffic control unit as soon as possible of the emergency descent;

c) set transponder to Code 7700 and select the Emergency Mode on the automatic dependent surveillance/controller-pilot data link communications (ADS/CPDLC) system, if applicable;

d) turn on aircraft exterior lights;

e) watch for conflicting traffic both visually and by reference to ACAS (if equipped); and

f) coordinate its further intentions with the appropriate ATC unit.

6.1.1.2 The aircraft shall not descend below the lowest published minimum altitude which will provide a minimum vertical clearance of 300 m (1 000 ft) or in designated mountainous terrain 600 m (2 000 ft) above all obstacles located in the area specified.

6.1.2 *Action by the air traffic control unit*

6.1.2.1 Immediately upon recognizing that an emergency descent is in progress, air traffic control units shall acknowledge the emergency on radiotelephony (RTF) and take all necessary action to safeguard all aircraft concerned.

6.1.2.2 In particular, they may, as required by the situation:

a) suggest a heading to be flown, if able, by the aircraft carrying out the emergency descent in order to achieve spacing from other aircraft concerned;

b) state the minimum altitude for the area of operation, only if the level-off altitude stated by the pilot is below such minimum altitude, together with the applicable QNH altimeter setting;

c) as soon as possible, provide separation with conflicting traffic, or issue essential traffic information, as appropriate.

6.1.2.3 When deemed necessary, air traffic control will broadcast an emergency message, or cause such message to be broadcast, to other aircraft concerned to warn them of the emergency descent.

6.2 Special procedures for in-flight contingencies involving a loss of vertical navigation performance required for flight within the EUR RVSM airspace

6.2.1 *General*

6.2.1.1 An in-flight contingency affecting flight in the EUR RVSM airspace pertains to unforeseen circumstances that directly impact on the ability of one or more aircraft to operate in accordance with the vertical navigation performance requirements of the EUR RVSM airspace as specified in 2.2. Such in-flight contingencies can result from degradation of aircraft equipment associated with height-keeping and from turbulent atmospheric conditions.

6.2.1.2 The pilot shall inform ATC as soon as possible of any circumstances where the vertical navigation performance requirements for the EUR RVSM airspace cannot be maintained. In such cases, the pilot shall obtain a revised ATC clearance prior to initiating any deviation from the cleared route and/or flight level, whenever possible. When a revised ATC clearance could not be obtained prior to such a deviation, the pilot shall obtain a revised clearance as soon as possible thereafter.

6.2.1.3 ATC shall render all possible assistance to a pilot experiencing an in-flight contingency. Subsequent ATC actions will be based on the intentions of the pilot, the overall air traffic situation and the real-time dynamics of the contingency.

6.2.2 *Degradation of aircraft equipment — pilot reported*

6.2.2.1 When informed by the pilot of an RVSM approved aircraft operating in the EUR RVSM airspace that the aircraft's equipment no longer meets the RVSM MASPS, as specified in 2.2, ATC shall consider the aircraft as non-RVSM approved.

6.2.2.2 ATC shall take action immediately to provide a minimum vertical separation of 600 m (2 000 ft) or an appropriate horizontal separation from all other aircraft concerned that are operating in the EUR RVSM airspace. An aircraft rendered non-RVSM approved shall normally be cleared out of the EUR RVSM airspace by ATC when it is possible to do so.

6.2.2.3 Pilots shall inform ATC, as soon as practicable, of any restoration of the proper functioning of equipment required to meet the RVSM MASPS.

6.2.2.4 The first ACC/UAC to become aware of a change in an aircraft's RVSM status shall coordinate with adjacent ACCs/UACs, as appropriate.

6.2.3 *Severe turbulence — not forecast*

6.2.3.1 When an aircraft operating in the EUR RVSM airspace encounters severe turbulence due to weather or wake vortex that the pilot believes will impact the aircraft's capability to maintain its cleared flight level, the pilot shall inform ATC. ATC shall establish either an appropriate horizontal separation or an increased minimum vertical separation.

6.2.3.2 ATC shall, to the extent possible, accommodate pilot requests for flight level and/or route changes and shall pass on traffic information as required.

6.2.3.3 ATC shall solicit reports from other aircraft to determine whether RVSM should be suspended entirely or within a specific flight level band and/or area.

6.2.3.4 The ACC/UAC suspending RVSM shall coordinate such suspension(s) and any required adjustments to sector capacities with adjacent ACCs/UACs, as appropriate, to ensure an orderly progression to the transfer of traffic.

6.2.4 *Severe turbulence — forecast*

6.2.4.1 When a meteorological forecast is predicting severe turbulence within the EUR RVSM airspace, ATC shall determine whether RVSM should be suspended and, if so, the period of time and specific flight level(s) and/or area.

6.2.4.2 In cases where RVSM will be suspended, the ACC/UAC suspending RVSM shall coordinate with adjacent ACCs/UACs with regard to the flight levels appropriate for the transfer of traffic, unless a contingency flight level allocation scheme has been determined by letter of agreement. The ACC/UAC suspending RVSM shall also coordinate applicable sector capacities with adjacent ACCs/UACs as appropriate.

7.0 AIR TRAFFIC CONTROL CLEARANCES

7.1 Contents of clearances
(A11 – 3.7; P-ATM, 4.5.4, 4.5.7 and 11.4.2.5.2)

7.1.1 A pilot-in-command shall, if at any time in doubt, request a detailed description of the route from ATS.

7.2 ATC clearance into the EUR RVSM airspace

7.2.1 Except for operations within the EUR RVSM transition airspace, as specified in 10.1.1, and within airspace designated in accordance with 10.2.1, only RVSM approved aircraft and non-RVSM approved State aircraft shall be issued an ATC clearance into the EUR RVSM airspace.

7.2.2 ATC clearance into the EUR RVSM airspace shall not be issued to formation flights of aircraft.

8.0 SEPARATION OF AIRCRAFT

8.1 Longitudinal separation minimum based on time and radar-observed distance

8.1.1 A minimum longitudinal separation of three minutes may be applied between aircraft on the same track or crossing tracks, whether at the same level, climbing or descending, provided that:

a) their flight progress is continuously monitored by radar forming an integral part of the ATC unit concerned; and

b) the distance between the aircraft, as observed by radar, is never less than 37 km (20 NM).

Note.— Use of this separation is subject to all the limitations in the use of radar specified in PANS-ATM, 8.1.

8.2 Transfer of radar control without verbal exchange — "silent" radar transfer

8.2.1 Transfer of radar control based on the procedures specified in PANS-ATM, 8.6.2 and 8.6.3 may be carried out without systematic use of the bidirectional speech facilities available between the adjacent units concerned, provided that:

a) the detailed conditions applicable for the transfer are the subject of a bilateral agreement; and

b) the minimum distance between successive aircraft during the period of transfer is agreed as one of the following values:

1) 19 km (10 NM) when SSR information is used in accordance with the provisions of 9.2.1 c), provided that an overlapping radar coverage of at least 56 km (30 NM) between units involved exists; or

2) 9.3 km (5 NM) when the conditions of 1) above apply and both units involved possess electronic aids for immediate recognition of release and acceptance of aircraft under radar transfer.

8.3 Separation of aircraft within radar coverage by using Mach number speed control

8.3.1 In areas of radar coverage, separation minima may be maintained between aircraft operating along the same track and at the same cruising level based on a combination of radar-observed distance and the assignment of Mach speeds to both aircraft, provided the following conditions are met:

a) both aircraft are being observed on radar and no interruption to radar coverage is anticipated; and

b) both aircraft are assigned a Mach number and the following aircraft is assigned either the same or a lower Mach number as that assigned to the leading aircraft.

8.3.2 Transfer of the radar control of aircraft being longitudinally separated in accordance with 8.3.1 may be effected between adjacent control positions or adjacent ATC units provided that the requirements of PANS-ATM, 8.7.5.2 a) through f) are met.

8.3.3 Using Mach number speed control requires that:

a) aircraft must adhere to the last assigned Mach number;

b) if a deviation of [CODE] = M.01 or more becomes necessary, ATC must be advised prior to the change of speed. If prior notification is not possible (e.g. due to turbulence), the appropriate ATC unit shall be notified as soon as possible; and

c) when required by the appropriate ATC unit, the current true Mach number should be included in routine position reports.

8.3.4 In order to reduce coordination requirements on ATC, controllers, when applying this technique, shall require pilots to report the assigned Mach number upon initial contact. Once pilots have been assigned a Mach number and instructed to report the assigned Mach number on initial contact, they should continue to make such report(s) on each initial contact until advised by ATC to discontinue.

8.3.5 The separation minima to be applied by ATC when using Mach number speed control shall be in accordance with States' requirements and, in the case of transfer of radar control between adjacent ATS units, in accordance with letters of agreement between the units.

8.4 Vertical separation
(A6, Parts I and II – 7.2.4; A11 – 3.3.4; P-ATM, 5.3.2)

8.4.1 Between FL 290 and FL 410 inclusive, within the EUR RVSM airspace, the vertical separation minimum shall be:

a) 300 m (1 000 ft) between RVSM approved aircraft;

b) 600 m (2 000 ft) between:

1) non-RVSM approved State aircraft and any other aircraft operating within the EUR RVSM airspace;

2) all formation flights of State aircraft and any other aircraft operating within the EUR RVSM airspace; and

3) non-RVSM approved aircraft and any other aircraft operating within the EUR RVSM transition airspace, as specified in 10.1.1, and within airspace designated in accordance with 10.2.1.

8.4.2 ATC shall provide a minimum vertical separation of 600 m (2 000 ft) between an aircraft experiencing a communications failure in flight and any other aircraft when both aircraft are operating within the EUR RVSM airspace.

9.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-ATM, Chapter 8); P-OPS, Vol. I, Part VIII)

9.1 Area of application

9.1.1 The procedures provided below shall be applicable within the EUR Region, as well as in Alger, Canarias, Casablanca and Tunis FIRs.

Note.— Alger, Canarias, Casablanca and Tunis FIRs are in the AFI Region; however, Alger, Canarias and Casablanca FIRs are part of Originating Region Code Assignment Method (ORCAM) Participating Area (PA) South-West (new PA EUR-A) and Tunis FIR is part of ORCAM PA South-East (new PA EUR-D).

9.1.2 *Operation of transponders*

9.1.2.1 When it is necessary to stop IFF/SIF transponders from replying on Mode A/3, pilots shall be requested to switch off Mode 3 (see 9.4.1, "STOP SQUAWK MODE THREE"). In no case shall they be requested to switch to STANDBY, since operation of the STANDBY switch stops the IFF/SIF transponder from replying on **all** modes.

Note. — Some military aircraft are required to operate IFF transponders for non-ATC purposes simultaneously with and independently of their operation in Mode A/3 for ATC purposes.

9.1.3 *Operation of SSR equipment and displays*

9.1.3.1 SSR-derived information shall be checked by use of special monitoring devices or by correlation of an identified primary radar blip with the appropriate SSR response.

9.1.3.2 The "all codes" setting shall be used when it is desired to display for ATC purposes all aircraft in a specified area that are equipped with SSR or IFF/SIF transponders; the "all aircraft" setting shall be used when it is desired to also display aircraft equipped with basic IFF transponders.

9.1.4 *Assignment of SSR codes*

9.1.4.1 All aircraft engaged in international flight shall be assigned an appropriate SSR code by the initial ATS unit at the beginning of the flight, if it is to be conducted under instrument flight rules. The code shall be assigned in accordance with the *Air Navigation Plan — European Region*, Volume II — *FASID* (Doc 7754), Part IV, Attachment H, Principles and Procedures for the Distribution and Use of SSR Codes in the EUR Region.

9.1.5 *Assignment of SSR Code A2000*

9.1.5.1 Whenever an aircraft leaves SSR radar coverage or the area of applicability as defined below, the ATS unit concerned shall assign Code A2000 unless otherwise coordinated between the transferring and accepting ATS units.

9.1.5.2 The procedure provided in 9.1.5.1 shall be applicable in the following flight information regions/upper flight information regions (FIRs/UIRs): Baku, Canarias, Casablanca, Tbilisi, Tunis, Yerevan, all FIRs/UIRs within: the Russian Federation, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan only, in order to avoid code conflict in other regions.

9.2 Use of SSR-derived information for the provision of separation between aircraft

9.2.1 Except when the positional element of an SSR response cannot be resolved (see Note following 9.2.1 e)), SSR-derived information may be used alone for the provision of horizontal separation between aircraft in the circumstances and under the conditions specified below.

a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR response from any aircraft (not necessarily the one being provided separation) coincides with the primary radar echo of the same aircraft.

Note.— Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

b) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

1) reliable SSR coverage exists within the area;

2) the area is designated as controlled airspace;

3) the control of air traffic in the area is vested in one ATC unit unless adequate means of coordination exist between all ATC units concerned;

4) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

5) density and/or complexity of air traffic in the area and provision of navigational guidance allow a safe reversion to other forms of separation in case of SSR failure;

6) the aircraft concerned have previously been identified and identification has been maintained;

7) procedural separation is applied between aircraft with functioning transponders and other aircraft.

c) In defined areas where advanced ATS systems are in operation and SSR is the main source for the provision to air traffic services of continuous information on the position of the aircraft, and where the carriage of SSR transponders is mandatory, the appropriate ATS authority, after consultation with operators, may authorize the systematic provision of horizontal and/or vertical separation, based on SSR-derived information, between aircraft that are equipped with correctly functioning transponders, provided that:

1) adequate SSR coverage exists throughout the area wherein this procedure is used, and reliable operation of this service is assured;

2) identification of individual aircraft so separated is maintained by means of discrete codes;

3) adequate primary radar or SSR ground equipment backup is provided or, alternatively, in case of SSR failure, density and/or complexity of air traffic in the area and the availability of navigational guidance allow a safe reversion to other forms of separation (based on either the use of primary radar or procedural control).

Note.— Other appropriate forms of separation should be applied between aircraft with functioning transponders and other controlled aircraft.

d) When primary radar fails and until procedural separation is established, provided that:

1) the positional accuracy of the SSR responses has been verified (see 9.2.1 a) and Note);

2) the pilots of the aircraft concerned have been advised.

e) In the case of aircraft in emergency.

Note.— Apart from causes resulting in the inability to resolve the positional element of an SSR response which can occur due to malfunctioning of the equipment, there are two causes which may occur during normal operations. These are the presence of side-lobe responses and reflections.

9.2.2 The separation minima used should not be less than those applied when using the associated primary radar, if any, on the understanding that the resolution of the SSR is not better than that normally associated with primary radar.

9.3 Use of SSR alone for other than radar separation purposes

9.3.1 In addition to 9.2 and further to Chapter 8 of the PANS-ATM, information on aircraft derived from SSR alone may be used in areas specified by the controlling authority in order to assist the air traffic services in maintaining an orderly and expeditious flow of air traffic and to resolve specific situations where radar separation is not involved.

9.4 Phraseology
(P-ATM, Chapter 12)

9.4.1 SSR phraseology is shown in Table 2.

Table 2. SSR Phraseology

Phrase	*Meaning*
*STOP SQUAWK MODE THREE	Switch off Mode 3.

* This phrase is reserved for use with military aircraft only.

9.5 Carriage and operation of SSR Mode S airborne equipment
(A10, Vol. IV – 2.1.5 and 2.1.6)

9.5.1 The carriage and operation of Mode S airborne equipment shall be mandatory in airspace designated by the appropriate ATS authorities pursuant to the implementation of SSR Mode S enhanced surveillance in accordance with the following requirements:

a) for IFR flights, as General Air Traffic (GAT), for new aircraft with effect from 1 January 2001, and for all aircraft with effect from 1 January 2003:

— Level 2 transponder, as a minimum, with downlink aircraft parameter capability denoted as basic functionality and enhanced surveillance functionality as detailed in 9.5.2.

Note.— The employment of Level 4 transponders, as a minimum, with an airborne data link processor (ADLP), is envisaged as a possible future requirement in association with the extended use of Mode S data link in an integrated air-ground communications network. The earliest target date is mid-2005 and this date will be consolidated once a strategy for surveillance and communications has been defined, with due regard to an agreed minimum five-year notification period.

b) for VFR flights, conducted in Class B and C airspace as designated by the appropriate ATS authority and in defined portions of Class D, E, F and G airspace where the carriage and operation of SSR transponders have already been prescribed, for new aircraft with effect from 1 January 2003, and for all aircraft with effect from 1 January 2005:

— Level 2 transponder, as a minimum, with downlink aircraft parameter capability denoted as basic functionality as detailed in 9.5.2.

c) Mode S equipped aircraft shall report, automatically, basic functionality which includes aircraft identification (call sign used in flight).

Note 1.— The aircraft identification required above is not provided by the 24-bit aircraft address.

Note 2.— Level 1 transponders are not prescribed for international flights in the European Region.

d) Mode S equipped aircraft with a maximum mass in excess of 5 700 kg or a maximum cruising true airspeed in excess of 324 km/h (175 kt) shall operate with antenna diversity.

9.5.2 Specific requirements for downlink aircraft parameters (DAPs) are classified, separately, as shown in Tables 3 and 4.

Note.— Additional DAPs that relate to aircraft intention are currently under evaluation, in particular, selected parameters contained in BDS Register 4.0 which have been recommended for inclusion once certain technical and institutional issues have been resolved. Any further requirements which may become necessary after the initial implementation of Mode S enhanced surveillance will be promulgated with due regard to an agreed minimum five-year notification period.

9.5.3 Dispensation from these requirements may be granted by the appropriate ATS authorities in accordance with the harmonized exemption arrangements, which have been coordinated on a regional basis, as follows:

a) for VFR flights conducted by aircraft:

already equipped with non-Mode S transponders having Mode A 4096 code capability and Mode C altitude reporting; or

when the carriage of a transponder is impracticable; or

when an exception to the requirement is authorized for a specific purpose;

b) to the operators of older aircraft where airframe life remaining is shown to be less than three years from 1 January 2003;

c) for IFR flights conducted by State (military) aircraft required to occasionally[1] operate as GAT, subject to the availability of a Mode 3/A transponder with 4096 code capability and Mode C altitude reporting. This concession should also apply, in the same circumstances, to State (military) aircraft equipped with a Mode S transponder but without the capability, either technically or operationally, to downlink the full set of prescribed DAPs.

These coordinated exemption arrangements shall be subject to periodic review and, in the first instance, should be for a period not exceeding three years.

1. In this context, "occasionally" is taken to mean an average total flying time of 30 hours annually in the airspace subject to the mandatory carriage of operation of Mode S transponders.

Note.— Aircraft operators who are granted exemptions are advised that it will not be possible to provide the same level of ATM service as that applied to aircraft which comply with the Mode S transponder carriage and operation requirements.

9.5.4 Operators of older aircraft that are equipped with Mode S transponders but where the avionics do not permit the extraction and transmission of the full set of prescribed DAPs shall be granted air traffic services to the maximum extent possible without penalty. However, this dispensation will be subject to review as in 9.5.3.

Table 3. Basic Functionality

Basic functionality	*Associated register or protocol*
Automatic reporting of flight identity (call sign used in flight)	BDS 2.0
Transponder capability report	BDS 1.0 (enabling transponder data link capacities to be determined)
	BDS 1.7 (enabling registers which the transponder provides to be established)
Altitude reporting in 25-ft intervals (subject to aircraft availability)	Mode C transmission
Flight status (airborne/on the ground)	Provision of flight status filed data in the Mode S protocol

Table 4. Enhanced Surveillance Functionality

Enhanced surveillance functionality	*Associated register*
Magnetic heading Speed (IAS/Mach no.) Vertical speed (barometric rate of climb/descend or, preferably, baro-inertial)	BDS 6.0
Speed (TAS) Roll angle Track angle variation True track angle Ground speed	BDS 5.0

10.0 SPECIAL PROCEDURES APPLICABLE IN DESIGNATED AIRSPACES

10.1 Provisions for the transition of aircraft to/from the EUR RVSM airspace

(A2, Appendix 3; A6, Parts I and II – 7.2.4; A11 – 3.3.4; P-ATM, 5.3.2)

10.1.1 *Area of applicability*

10.1.1.1 Transition tasks associated with the application of a 300 m (1 000 ft) vertical separation minimum within the EUR RVSM airspace, as specified in 2.1, shall be carried out in all or parts of the following FIRs/UIRs:

Ankara, Barcelona, Canarias (AFI Region), Casablanca, France, Hellas, Kharkiv, Kyiv, Madrid, Malta, Minsk, Nicosia, Riga, Rovaniemi, Simferopol, Tallinn, Tampere, Tunis.

Note.— The volume of airspace referred to in 10.1.1.1 shall be referred to as the "EUR RVSM transition airspace".

10.1.2 *RVSM approved aircraft and non-RVSM approved State aircraft entering the EUR RVSM airspace from a non-RVSM environment*

10.1.2.1 RVSM approved aircraft and non-RVSM approved State aircraft entering the EUR RVSM airspace from a non-RVSM environment shall be established at a flight level in accordance with:

a) the table of cruising levels, as published in Annex 2, Appendix 3, a); and/or

b) a flight level allocation scheme, if applicable; and/or

c) as specified in an inter-area control centre (ACC) letter of agreement.

10.1.2.2 Any changes from non-RVSM levels to RVSM flight levels shall be initiated by the first ACC/upper area control centre (UAC) providing ATC service to the aircraft within the EUR RVSM airspace and shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC, unless otherwise specified in an inter-ACC letter of agreement.

10.1.3 *Aircraft entering a non-RVSM environment from the EUR RVSM airspace*

10.1.3.1 Aircraft entering a non-RVSM environment from the EUR RVSM airspace shall be established with the applicable vertical separation minimum.

10.1.3.2 The applicable vertical separation minimum shall be established by the last ACC/UAC providing ATC service to the aircraft within the EUR RVSM airspace and before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

10.1.3.3 Such aircraft shall be established at a flight level in accordance with:

a) the table of cruising levels, as published in Annex 2, Appendix 3, b); and/or

b) a flight level allocation scheme, if applicable; and/or

c) as specified in an inter-ACC letter of agreement.

10.1.4 *Non-RVSM approved civil operations*

10.1.4.1 Non-RVSM approved aircraft operating from a departure aerodrome outside the lateral limits of the EUR RVSM airspace with a destination aerodrome within the lateral limits of the EUR RVSM airspace shall be cleared to a flight level below FL 290. Such flight level changes shall be initiated by the first ACC/UAC providing ATC service to the aircraft within the EUR RVSM airspace and shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

Note.— Refer to 3.2.4.2.2 for related flight planning requirements.

10.1.4.2 Non-RVSM approved aircraft operating from a departure aerodrome to a destination aerodrome, both of which are within the lateral limits of the EUR RVSM airspace, shall be cleared to a flight level below FL 290.

Note.— Refer to 3.2.4.2.3 for related flight planning requirements.

10.1.4.3 Non-RVSM approved aircraft operating from a departure aerodrome within the lateral limits of the EUR RVSM airspace to a destination aerodrome outside the lateral limits of the EUR RVSM airspace:

a) shall be cleared to a flight level below FL 290; and

b) may be cleared to FL 290 or above by the last ACC/UAC providing ATC service to the aircraft within the EUR RVSM airspace, and such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

Note.— Refer to 3.2.4.2.4 for related flight planning requirements.

10.1.4.4 Non-RVSM approved aircraft operating from a departure aerodrome to a destination aerodrome, both of which are outside the lateral limits of the EUR RVSM airspace, with a portion of the route within the lateral limits of the EUR RVSM airspace:

a) shall be cleared to a flight level below FL 290 or above FL 410 by the first ACC/UAC providing ATC service to the aircraft within the EUR RVSM airspace, and such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC, in accordance with the flight level allocation system (FLAS), if applicable, and/or as specified in an inter-ACC letter of agreement; and

b) may subsequently be cleared to a requested flight level within or through the EUR RVSM airspace by the last ACC/UAC providing ATC service to the aircraft within the EUR RVSM airspace, and such flight level changes shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC.

Note.— Refer to 3.2.4.2.5 for related flight planning requirements.

10.2 European/North Atlantic (NAT) interface — non-RVSM approved aircraft

10.2.1 The State authorities responsible for Bodø (Domestic), Stavanger, Trondheim, Scottish, Shannon, London, Brest, Madrid and Lisboa FIRs may establish designated airspace within their FIRs for the purpose of transitioning non-RVSM approved aircraft operating to and from the NAT Region.

10.2.2 ACCs/UACs providing ATC service within airspace designated in accordance with 10.2.1 may clear such non-RVSM approved aircraft to climb or descend through RVSM airspace.

10.2.3 Climbs or descents through RVSM airspace, in accordance with 10.2.2, shall be achieved before the aircraft passes the transfer of control point to the adjacent ACC/UAC, if applicable, unless otherwise specified in an inter-ACC letter of agreement.

11.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS (P-ATM, 4.10 and 4.10.3)

11.1 Based on current and anticipated atmospheric pressure distribution, area control centres shall coordinate, where required, the lowest flight level to be used.

12.0 FLIGHT INFORMATION SERVICE

12.1 Automatic terminal information services (ATIS) (A11 – 4.3.4)

12.1.1 An ATIS broadcast should not require the assignment of a VHF frequency that is subject to international frequency assignment.

12.1.2 An ATIS broadcast, when containing departure information only and when requiring to be transmitted on a discrete frequency, should be transmitted on a ground control VHF frequency.

12.1.3 ATIS broadcast messages need not contain an instruction that, on initial contact with the appropriate ATS unit, the pilot acknowledge receipt of the ATIS message.

12.2 Transmission of SIGMET information (P-ATM, 9.1.3.2)

12.2.1 SIGMET information shall be transmitted to aircraft with the least possible delay on the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

12.3 Transmission of special air-reports (A11 – 4.2.3)

12.3.1 Special air-reports shall be transmitted with the least possible delay to aircraft likely to be affected and shall cover the portion of the route up to one hour's flying time ahead of the aircraft.

12.4 Transmission of amended aerodrome forecast
(P-ATM, 9.1.3.5)

12.4.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information was made available through other means.

13.0 AIR TRAFFIC SERVICES COORDINATION

13.1 Coordination between units providing area control services
(P-ATM, 10.4.2)

13.1.1 If a flight should enter an adjacent area, information concerning any revision of estimate of three minutes or more shall be forwarded to the adjacent area control centre normally by telephone.

14.0 AIR TRAFFIC SERVICES MESSAGES

14.1 Flight plan and departure messages
(P-ATM, 11.4.2.2)

14.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 110 km (60 NM) or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions.

14.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted.

14.1.3 Provided reliable ATS speech circuits exist between the successive ATS units concerned with the flight, departure messages may be omitted for IFR flights operated within areas or along routes designated by mutual agreements between the States concerned.

14.1.4 *Flight information region boundaries estimates*

14.1.4.1 When so specified in appropriate aeronautical information publications by the States concerned, flight plans and associated flight plan messages concerning flights within or intending to enter the airspace where the State(s) concerned are responsible for the provision of air traffic services shall not include flight information region boundaries estimates.

14.2 Computer-assisted coordination process
(P-ATM, 10.4)

14.2.1 *General*

a) When so agreed between adjacent ATC units, a computer-assisted coordination process shall be introduced to eliminate the need for verbal coordination of boundary estimates and to reduce the amount of manual data input into ATC computers.

b) When introduced between adjacent area control centres for the purpose of activation and updating of FPL messages or RPLs, data processing shall be based upon messages and procedures described below.

c) The minimum requirement for the activation of flight plan data shall be the content of the boundary estimate (EST) message. When so agreed between adjacent units, the activate (ACT) message shall be used instead of the EST message, enabling additional information to be transmitted.

d) The means of communication to be employed and the procedures to be applied for the exchange of messages in the computer-assisted coordination process shall be specified by bilateral agreement between the ATC units concerned.

14.2.2 *Messages*

a) The EST message and the ACT message shall be the alternative means employed to achieve flight plan activation. The EST message shall contain Field Types 3, 7, 13a, 14 and 16a. The ACT message shall contain Field Types 3, 7, 13a, 14 and 16a, identical to that of the EST message and, in addition, one or more Field Types 22 as bilaterally agreed between adjacent ATC units for the inclusion of other current information associated with the flight plan.

b) The logical acknowledgement message (LAM) shall be the means by which the safeguarding of the

transmitted message is indicated to the sending ATS unit by the receiving ATS unit. The LAM shall contain Field Type 3 (message type, number and reference data) with reference to the appropriate ATS message which it acknowledges.

Example: (LAMP/M178M/P100)
Meaning: LAM sent by Paris (P) to Maastricht (M) followed by the sending unit serial number (178) of this message, followed by the ATS unit identifiers (M/P) and serial number (100) or related estimate.

14.2.3 *Procedures*

14.2.3.1 *Operational procedure*

The following basic rules shall apply for the use of EST and ACT messages:

a) These messages shall be automatically generated, exchanged and processed to obviate human intervention to the extent practicable.

b) A single message shall be sent in respect of each flight due to be transferred and any subsequent revision shall be the subject of verbal coordination.

c) The message shall provide the most recent information available on all transfer conditions at the time of transmission.

d) Acceptance by the receiving unit of the transfer conditions implied in the message shall be assumed, unless the receiving unit initiates verbal coordination to amend the transfer conditions.

Note.— Bilateral arrangement may be required to cover the event of failure of the ATS direct speech circuit.

e) There shall be bilateral agreement as to the boundary point and transmission times for each route. The normal transmission time shall be 15 minutes before the flight concerned is expected to cross the boundary.

f) In the event of data not being correlated by the receiving computer with an appropriate entry in its flight plan database, the computer shall originate a warning to the appropriate ATC sector to take necessary action for the acquisition of missing flight plan details. This shall normally involve a telephone inquiry.

g) In the event of incomprehensible or illogical data being detected within the message, the computer shall initiate an appropriate warning to the ATC sector involved, if this can be determined, for further action.

Note.— Any system-initiated warning shall require reversion to verbal coordination.

h) If the receiving unit has not received a flight plan, the sending ATC unit shall verbally inform the receiving unit whether or not the aircraft is RVSM approved.

i) When an automated message does not contain the information filed in Item 18 of the ICAO flight plan form relevant to RVSM operations, the sending ATC unit shall inform the receiving unit of that information by supplementing the ACT message verbally, using the term "NEGATIVE RVSM" or "NEGATIVE RVSM STATE AIRCRAFT", as applicable.

j) When a verbal coordination process is being used, the sending ATC unit shall include the information filed in Item 18 of the ICAO flight plan form relevant to RVSM operations at the end of the verbal estimate message, using the term "NEGATIVE RVSM" or "NEGATIVE RVSM STATE AIRCRAFT", as applicable.

k) When a single aircraft is experiencing an in-flight contingency that impacts on RVSM operations, the associated coordination message(s) shall be supplemented verbally by a description of the cause of the contingency.

14.2.3.2 *Data protection procedure*

a) Appropriate safeguards in the automatic communication process shall be provided using a logical acknowledgement procedure.

b) This procedure shall be based on the following basic rules:

1) The receiving computer shall transmit a LAM in response to an activation message received and processed, up to the point where the operational content will be presented to the appropriate air traffic controller.

2) The transferring ATC unit shall set an agreed reaction parameter time of up to two minutes from transmission of the activation message. If the LAM is not received within that parameter time, an operational warning shall be initiated and reversion to telephone and manual mode shall ensue. If the appropriate ATC sector cannot be determined, a LAM shall not be transmitted.

15.0 PHRASEOLOGY RELATED TO RVSM OPERATIONS IN THE EUR RVSM AIRSPACE

15.1 Controller/pilot RTF phraseology

15.1.1 Controller/pilot RTF phraseology is shown in Table 5.

15.2 Phraseology between ATS units

15.2.1 The phraseology used between ATS units is shown in Table 6.

16.0 ALERTING AND SEARCH AND RESCUE SERVICES

16.1 Routes and equipment of private aircraft
(A6, Part II – 6.3 and 6.4)

16.1.1 General aviation aircraft operating over designated areas, land or sea, where search and rescue operations would be difficult should:

a) carry appropriate survival equipment;

b) follow the routes or specified procedures if not equipped with two-way radio, except that under special circumstances the appropriate authority may grant specific exemptions from this requirement.

16.2 Alerting services
(P-ATM, 9.2)

16.2.1 The procedures for "Alerting Service" detailed in the PANS-ATM, 9.2, are applicable to all sectors of flights over mountainous or sparsely populated areas, including sea areas.

17.0 AIR TRAFFIC FLOW MANAGEMENT (ATFM)

17.1 ATFM provision
(P-ATM, 3.2)

17.1.1 ATFM is available to all States of the EUR Region and is provided in accordance with the provisions contained in the PANS-ATM (Doc 4444) and the EUR Air Navigation Plan (Doc 7754).

Note.— A list of the States receiving services from the ATFM System of the EUR Region (ASTER) is contained in the "European Region Air Navigation Plan, Volume II, Facilities and Services Implementation Document (FASID)", Doc 7754, Part V.III, Attachment B (in preparation).

17.2 ATFM application

17.2.1 All IFR flights, including the IFR portions of mixed IFR/VFR flights, regardless of status, are taken into account when measuring demand against ATC capacity. Whenever it becomes necessary to manage this demand, ATFM may be used and departure slots issued by means of calculated take-off times.

17.2.2 Flights departing from areas beyond adjacent FIRs as set out in EUR FASID, Attachment C, are exempted from CFMU ATFM slot allocation.

Note 1.— A list of the FIRs/UIRs adjacent to the EUROCONTROL CFMU area of responsibility which receive ASTER services from the CFMU is contained in the "European Region Air Navigation Plan, Volume II, Facilities and Services Implementation Document (FASID)", Doc 7754, Part V.III, Attachment C (in preparation).

Note 2.— Detailed procedures applicable to the CFMU area of responsibility are contained in the EUROCONTROL "Basic CFMU Handbook".

17.3 Departure slot monitoring

17.3.1 ATC is responsible for departure slot monitoring at departure aerodromes. The exact procedures to be followed will depend on the way that ATS is organized at each aerodrome. There are, however, three requirements as follows:

a) States shall ensure that an ATFM slot, if applicable, be included as part of the ATC clearance. ATC shall take account of an applicable slot or flight suspension when a clearance is issued.

b) ATC units responsible for departure slot monitoring shall be provided with the necessary information concerning the restrictions in force and slots allocated.

c) Aircraft operators shall inform themselves of and adhere to:

1) general ATFM procedures including flight plan filing, strategic ATFM measures and message exchange requirements; and

2) current ATFM measures (e.g. specific measures applicable on the day in question such as ATFM slot or flight suspension).

Table 5. Controller/pilot phraseology

Phrase	*Purpose*
(call sign) CONFIRM RVSM APPROVED	Used by the controller to ascertain the RVSM approval status of an aircraft.
NEGATIVE RVSM*	Used by the pilot to report non-RVSM approval status: a) on the initial call on any frequency within the EUR RVSM airspace (controllers shall provide a readback with this same phrase); and b) in all requests for flight level changes pertaining to flight levels within the EUR RVSM airspace; and c) in all readbacks of flight level clearances pertaining to flight levels within the EUR RVSM airspace. Additionally, except for State aircraft, pilots shall include this RTF phrase to read back flight level clearances involving the vertical transit through FL 290 or FL 410.
AFFIRM RVSM*	Used by the pilot to report RVSM approval status.
NEGATIVE RVSM STATE AIRCRAFT*	Used by the pilot of a non-RVSM approved State aircraft to report non-RVSM approval status in response to the RTF phrase *(call sign)* CONFIRM RVSM APPROVED.
(call sign) UNABLE CLEARANCE INTO RVSM AIRSPACE, MAINTAIN [*or* DESCEND TO, *or* CLIMB TO] FLIGHT LEVEL *(number)*	Used to deny ATC clearance into the EUR RVSM airspace.
UNABLE RVSM DUE TURBULENCE*	Used by the pilot to report when severe turbulence affects the aircraft's capability to maintain the height-keeping requirements for RVSM.
UNABLE RVSM DUE EQUIPMENT*	Used by the pilot to report that the aircraft's equipment has degraded below the MASPS required for flight within the EUR RVSM airspace. This phrase is to be used to convey both the initial indication of the non-MASPS compliance and, henceforth, on initial contact on all frequencies within the lateral limits of the EUR RVSM airspace until such time as the problem ceases to exist or the aircraft has exited RVSM airspace.
READY TO RESUME RVSM*	Used by the pilot to report the ability to resume operations within the EUR RVSM airspace after an equipment or weather-related contingency.
REPORT ABLE TO RESUME RVSM	Used by the controller to confirm that an aircraft has regained its RVSM approval status or to confirm that the pilot is ready to resume RVSM operations.

* *indicates a pilot transmission*

Table 6. Phraseology between ATS units

Phrase	*Purpose*
NEGATIVE RVSM *or* NEGATIVE RVSM STATE AIRCRAFT [*as applicable*]	Used to verbally supplement an automated estimate message exchange that does not automatically transfer Item 18 information. Also used to verbally supplement estimate messages of non-RVSM approved aircraft.
UNABLE RVSM DUE TURBULENCE [*or* EQUIPMENT, *as applicable*]	Used to communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe weather-related phenomena [or equipment failure, as applicable].

Table 7. ATFM radiotelephony phraseology

Phraseology	*Circumstances*
SLOT *(time)*	Calculated take-off time (CTOT) delivery resulting from a slot allocation message (SAM). (The CTOT shall be communicated to the pilot at the first contact with ATC.)
REVISED SLOT *(time)*	Change to CTOT resulting from a Slot Revision Message (SRM).
SLOT CANCELLED, REPORT READY	CTOT cancellation resulting from a Slot Cancellation Message (SLC).
FLIGHT SUSPENDED UNTIL FURTHER NOTICE, DUE *(reason)*	Flight suspension until further notice (resulting from Flight Suspension Message (FLS)).
SUSPENSION CANCELLED, REPORT READY	Flight de-suspension resulting from a De-suspension Message (DES).
UNABLE TO APPROVE START-UP CLEARANCE DUE SLOT EXPIRED, REQUEST A NEW SLOT	Denial of start-up when requested too late to comply with the given CTOT.
UNABLE TO APPROVE START-UP CLEARANCE DUE SLOT *(time)*, REQUEST START-UP AT *(time)*	Denial of start-up when requested too early to comply with the given CTOT.

17.4 ATFM radiotelephony phraseology
(P-ATM, 12.3)

17.4.1 ATFM radiotelephony phraseology is shown in Table 7.

17.5 Promulgation of multinational information concerning air traffic flow management (ATFM) measures

17.5.1 *Strategic ATFM measures*
(A15 – 4.4 and 4.5; P-ATM, 3.2.3)

17.5.1.1 When a traffic orientation scheme is required and following the agreement of all States concerned, ATFM units shall promulgate it together with any other ATFM measures.

17.5.1.2 Coordinated strategic air traffic flow measures shall be promulgated in accordance with AIRAC procedures on the basis of the following principles:

a) the information shall be promulgated in English as AIRAC ATFM Bulletins in accordance with the following requirements of Annex 15 concerning AIRAC AIP Supplements:

   1) the effective date of the ATFM Bulletin shall be specified;

   2) an ATFM Bulletin number shall be assigned; and

   3) the ATFM Bulletin distribution shall be on the basis of a pre-determined distribution list including, but not limited to, all international AIS offices of EUR provider and user States; and

Note.— If required, national distribution will be determined by each State in accordance with its needs. Furthermore, if an ATFM Bulletin is redistributed, it should reference the original serial number.

b) following the publication of an AIRAC ATFM Bulletin, a trigger NOTAM in series F shall be promulgated in accordance with Annex 15 provisions (17.5.2.1 also refers).

17.5.2 *Amendments to promulgated strategic ATFM measures*
(A15 – 5.1.1.1 and 5.1.1.2; P-ATM, 3.2.5)

17.5.2.1 Changes to promulgated strategic ATFM measures, as defined in 17.5.1.1, shall be promulgated using a NOTAM in series F. This NOTAM shall be coordinated and provided in accordance with Annex 15 provisions. It shall include the following:

a) Item Q) shall include:

   FIR: EUCF or EUXX
   CODE: QPFCA (respectively QPFCD or QPFCH, whichever is appropriate)
   TRAFFIC: I
   PURPOSE: NBO
   SCOPE: E
   LOWER/UPPER: AS APPROPRIATE
   COORDINATES/RADIUS: THE EPICENTRE AND RADIUS OF THE AREA OF CONCERN.

b) As regards the FIR field in Item Q): EUCF should be used if Item A) contains one four-letter location indicator only or EUXX if Item A) contains more than one four-letter location indicator. EU relates to European multinational air navigation facilities whereas CF relates specifically to the CFMU. (XX are the letters usually used to identify NOTAMs with multiple locations in Item A).)

c) Item A) shall include EU plus the two-letter ICAO identifier of the State concerned; it could include one to seven four-letter ICAO location identifiers representing the State(s) affected by the ATFM measures or it could include EUCF if the restrictions apply to the entire area concerned; and

d) Item C): because of the temporary nature of ATFM measures, the abbreviation PERM shall not be used.

17.5.3 *ATFM Circulars and information*
(A15 – 7.1.1)

17.5.3.1 General information pertaining to air traffic flow management issues shall be promulgated using an ATFM Circular in accordance with the requirements of Annex 15 concerning Aeronautical Information Circulars. Distribution of the ATFM Circulars shall be in accordance with the procedures specified in 17.5.1.2 a) 3).

Note 1.— If required, national distribution will be determined by each State in accordance with its needs. Furthermore, if an ATFM Circular is redistributed, it should reference the original serial number.

Note 2.— Provisions for promulgation of information on ATFM measures, including update of local ATFM measures and other additional information are described in the EUROCONTROL "Basic CFMU Handbook".

17.5.4 *Pre-flight information bulletin (PIB)* (A15 – 8.1.3)

17.5.4.1 Information concerning ATFM measures promulgated using NOTAM in series F shall be included in the PIB.

17.5.5 *Query procedures*

17.5.5.1 Standard NOTAM query procedures shall be used to access NOTAM series F information.

18.0 PROCEDURES FOR AREA NAVIGATION (RNAV) OPERATIONS

18.1 Application of RNAV procedures

18.1.1 *Terminal control area operations*

18.1.1.1 Except as detailed in 18.1.1.2 and 18.1.1.3, only RNAV-equipped aircraft having a lateral track-keeping accuracy of ±1 NM (2 SD) together with an ability to determine horizontal position to an accuracy sufficient to support the track-keeping requirement and having appropriate functionality and operational approval may operate under IFR on RNAV terminal area procedures.[2] Such RNAV equipment is designated hereafter as precision area navigation (P-RNAV).

Note.— The functional and operational approval requirements appropriate to P-RNAV are set out in Joint Aviation Authorities (JAA) Temporary Guidance Leaflet (TGL) No. 10, or equivalent.

18.1.1.2 Aircraft equipped with RNAV equipment having a lateral track-keeping accuracy of ±5 NM (2 SD) with an ability to determine horizontal position to an accuracy sufficient to support the track-keeping requirement and having appropriate functionality, hereafter designated as basic area navigation (B-RNAV), may use RNAV (segments) of arrival and departure routes where these meet the following criteria:

a) the B-RNAV portion of the route must:

1) be above the appropriate minimum flight altitude (MFA) (e.g.: minimum radar vectoring altitude (MRVA) and minimum sector altitude (MSA)); and

2) be in accordance with established PANS-OPS criteria for en-route operations; and

3) conform to B-RNAV en-route design principles;

Note.— For minimum flight altitude, see Annex 11, 2.21.

b) the departure procedures must be conventional (non-RNAV) up to a conventional fix (or a minimum altitude). Beyond that fix (or minimum altitude) a B-RNAV procedure can be provided in accordance with the criteria in a) above; and

c) the B-RNAV portion of an arrival route must terminate at a conventional fix in accordance with the criteria given above. Beyond that fix, the arrival shall be completed by a conventional (non-RNAV) procedure, or by the provision of radar vectors; and

d) due regard must have been taken of those operating procedures of the users that may affect system performance. Examples include, but are not limited to, initial position fixing on runway and minimum automatic flight control system (AFCS) engagement altitudes; and

e) arrival and departure procedures, which can be flown by B-RNAV equipment, shall be identified explicitly as approved for application of B-RNAV.

Note.— To meet the requirements of B-RNAV, aircraft need to be approved in accordance with JAA ACJ 20X4 (previously known as TGL no. 2, rev. 1), or equivalent.

18.1.1.3 Aircraft equipped with GNSS-based RNAV equipment may be used only on RNAV area procedures designated for GNSS and where it is identified that P-RNAV approval is not required to operate on the procedure.

Note.— To meet the requirement of GNSS-based RNAV, aircraft need to be approved in accordance with JAA ACJ 20X5 (previously known as TGL no. 3, rev. 1), or equivalent.

18.1.2 *En-route operations*

18.1.2.1 Only aircraft approved for B-RNAV operations may plan for operations under IFR on the ATS routes of

2. In this context, terminal area procedures exclude the final and missed approach segments.

the flight information regions/upper flight information regions (FIRs/UIRs) identified in 18.2.2. Aircraft not equipped with RNAV but having a navigation accuracy meeting RNP 5 will be restricted to operations on ATS routes which States may designate within their lower airspace in accordance with 18.1.2.2.

18.1.2.2 For the period until at least 2005 or until such time as VHF omnidirectional radio range (VOR) facilities cease to be available, the carriage of a single RNAV system not meeting an average continuity of service of 99.99 per cent of flight time may be approved for B-RNAV operations if the aircraft is also carrying VOR and DME equipment.

Note.— States may designate domestic routes within their lower airspace to be available for aircraft not fitted with RNAV equipment but having a navigation accuracy meeting RNP 5.

18.2 Area of applicability

18.2.1 The provisions in respect of P-RNAV shall be applied whenever RNAV terminal area procedures, excluding the final and missed approach segments, are used.

Note.— The carriage of P-RNAV equipment has not yet been mandated in the EUR Region.

18.2.2 The above provisions in respect of en-route operations shall apply to all such operations conducted under IFR on the entire ATS route network as notified by the appropriate authorities in the following FIRs/UIRs:

Amsterdam, Ankara, Athinai, Barcelona, Berlin, Bodø, Bordeaux, Bratislava, Bremen, Brest, Brindisi, Bruxelles, Bucuresti, Budapest, Canarias (AFI area of applicability), Casablanca, Chisinau, Düsseldorf, France, Frankfurt, Hannover, Istanbul, Kharkiv, København, Kyiv, Lisboa, Ljubljana, London, L'viv, Madrid, Malta, Marseille, Milano, München, Nicosia, Odessa, Oslo, Paris, Praha, Reims, Rhein, Riga, Roma, Rovaniemi, Scottish, Shannon, Simferopol', Skopje, Sofia, Stavanger, Sweden, Switzerland, Tallinn, Tampere, Tbilisi, Tirana, Trondheim, Tunis (FL 245 and above), Varna, Vilnius, Warszawa, Wien, Yerevan, Zagreb.

18.3 Means of compliance

18.3.1 Conformance to the navigation requirement shall be verified by the State of Registry or the State of Operator as appropriate.

Note.— Guidance material concerning navigation requirements associated with B-RNAV operations is contained in JAA ACJ 20X4 and for P-RNAV in JAA Temporary Guidance Leaflet No. 10.

18.4 Identification of RNAV routes
(A11, Appendix 1 – 2.2.1 and Appendix 3; A4, Chapters 9 and 10)

18.4.1 All RNAV standard instrument arrival and departure procedures shall be suitably designated as RNAV in accordance with Doc 8168 and Annex 11, Appendix 3.

18.4.2 All other RNAV routes shall be designated in accordance with Annex 4 and Annex 11, Appendix 1.

18.5 Flight planning

18.5.1 Operators of aircraft approved for B-RNAV operations, as set out in 18.1.1.2, shall insert the designator "R" in Item 10 of the flight plan.

18.5.2 In addition to the requirement of 18.5.1, operators of aircraft approved for P-RNAV operations, as set out in 18.1.1.1, shall, in addition to the designator "R", also insert the designator "P" in Item 10 of the flight plan.

Note.— The attention of operators is drawn to 3.5.1.2 in respect of requirements for the filing of equipment information in RPLs.

18.5.3 *Instructions for completion of the flight plan*
(A2 – 3.3; P-ATM, Chapter 4, Section 4 and Appendix 2, Section 2)

18.5.3.1 Where a failure or degradation results in the aircraft being unable to meet the P-RNAV functionality and accuracy requirements of 18.1.1.1 before departure, the operator of the aircraft shall not insert the designator "P" in Item 10 of the flight plan. Subsequently, for a flight for which a flight plan has been submitted, an appropriate new flight plan shall be submitted and the old flight plan cancelled. For a flight operating based on a repetitive flight plan (RPL), the RPL shall be cancelled, and an appropriate new flight plan shall be submitted.

18.5.3.2 In addition, where a failure or degradation results in the aircraft being unable to meet the B-RNAV functionality and accuracy requirements of 18.1.1.2 before departure, the operator of the aircraft shall not insert the designators "S" or "R" or "P" in Item 10 of the flight plan.

Since such flights require special handling by ATC, Item 18 of the flight plan shall contain STS/RNAVINOP. Subsequently, for a flight for which a flight plan has been submitted, an appropriate new flight plan shall be submitted and the old flight plan cancelled. For a flight operating based on an RPL, the RPL shall be cancelled, and an appropriate new flight plan shall be submitted.

18.6 Minimum flight altitudes for operations on RNAV routes

(A2 – 5.1.2; P-ATM, 4.10.3. and 8.6.5.2)

18.6.1 Unless an IFR aircraft is receiving navigation guidance in the form of radar vectors from ATC, the pilot is responsible for obstacle clearance. Therefore, the use of RNAV does not relieve pilots of their responsibility to ensure that any ATC clearance or instruction is safe in respect to obstacle clearance. ATC shall assign levels that are at or above established minimum flight altitudes.

18.7 Procedures for operation on RNAV routes

18.7.1 Correct operation of the aircraft RNAV system shall be established before joining and during operation on an RNAV route. This shall include confirmation that:

a) the routing is in accordance with the clearance; and

b) the RNAV navigation accuracy of the aircraft meets the navigation accuracy requirements of the RNAV route and arrival or departure procedure, as applicable.

18.7.2 When an aircraft cannot meet the requirements as specified in either 18.1.1.1 or 18.1.1.2, as required by the RNAV route or procedure, as a result of a failure or degradation of the RNAV system, a revised clearance shall be requested by the pilot.

Note.— See 18.8.1 for relevant RTF phraseology.

18.7.3 Subsequent ATC action in respect of an aircraft that cannot meet the requirements as specified in either 18.1.1.1 or 18.1.1.2, due to a failure or degradation of the RNAV system, will be dependent upon the nature of the reported failure and the overall traffic situation. Continued operation in accordance with the current ATC clearance may be possible in many situations. When this cannot be achieved, a revised clearance, as specified in 18.8, may be required to revert to VOR/DME navigation.

18.7.4 For operation on RNAV arrival and departure routes, where clearance is given by ATC for an RNAV procedure for which the aircraft is not approved, the pilot is to advise ATC who will then seek to provide an alternative routing.

Note.— See 18.8.1 for relevant RTF phraseology.

18.7.5 If an aircraft cannot meet the requirements as specified in 18.1.1.2 due to a failure or degradation of the RNAV system that is detected before departure from an aerodrome where it is not practicable to effect a repair, the aircraft concerned should be permitted to proceed to the nearest suitable aerodrome where the repair can be made. When granting clearance to such aircraft, ATC should take into consideration the existing or anticipated traffic situation and may have to modify the time of departure, flight level or route of the intended flight. Subsequent adjustments may become necessary during the course of the flight.

18.8 ATC procedures

18.8.1 *RTF phraseology*
(P-ATM, Chapter 12)

18.8.1.1 If an RNAV arrival or departure procedure which has been assigned cannot be accepted by the pilot, for reasons of either the RNAV equipment or circumstances associated with its operational use, the pilot shall inform ATC immediately by use of the phrase:

UNABLE (*designator*) DEPARTURE [*or* ARRIVAL] DUE RNAV TYPE

18.8.1.2 If, for any other reason, the pilot is unable to comply with an assigned terminal area procedure, the pilot shall inform ATC immediately by use of the phrase:

UNABLE (*designator*) DEPARTURE [*or* ARRIVAL] (*reasons*)

18.8.1.3 If ATC is unable to assign an RNAV arrival or departure procedure requested by a pilot, for reasons associated with the type of on-board RNAV equipment indicated in the FPL/CPL, ATC shall inform the pilot by use of the phrase:

UNABLE TO ISSUE (*designator*) DEPARTURE [*or* ARRIVAL] DUE RNAV TYPE

18.8.1.4 If, for any other reason, ATC is unable to assign an arrival or departure procedure requested by the pilot, ATC shall inform the pilot by use of the phrase:

UNABLE TO ISSUE (*designator*) DEPARTURE [*or* ARRIVAL] (*reasons*)

18.8.1.5 As a means for ATC to confirm the ability of a pilot to accept a specific RNAV arrival or departure procedure, ATC shall use the phrase:

ADVISE IF ABLE (*designator*) DEPARTURE [*or* ARRIVAL]

18.8.2 *Degradation of RNAV systems*

18.8.2.1 If, as a result of a failure or degradation of the RNAV system,

a) detected after departure, the aircraft cannot meet the requirements of 18.1.1.1, or,

b) detected before or after departure, the aircraft cannot meet the requirement of 18.1.1.2,

the following ATC procedures are applicable.

18.8.2.2 *Coordination messages*
(P-ATM, 11.4.2.3)

a) *Computer-assisted coordination of estimate messages.* In the case of automated messages not containing the information provided in Item 18 of the flight plan, the sending ATC unit shall inform the receiving ATC unit by supplementing the ACT message verbally with the phrase "RNAV OUT OF SERVICE" after the call sign of the aircraft concerned.

b) *Verbal coordination of estimate messages.* When a verbal coordination process is being used, the sending ATC unit shall include the phrase "RNAV OUT OF SERVICE" at the end of the message.

18.8.2.3 *RTF phraseology*
(P-ATM, Chapter 12)

18.8.2.3.1 The phrase "UNABLE RNAV DUE EQUIPMENT" shall be included by the pilot immediately following the aircraft call sign upon occurrence of the RNAV degradation or failure and whenever initial contact on an ATC frequency is subsequently established.

18.8.2.4 *ATC clearances*
(A11 – 3.7; P-ATM, 4.5.4, 4.5.7, 6.3.2 and 11.4.2.5.2.1)

18.8.2.4.1 With respect to the degradation/failure in flight of an RNAV system, while the aircraft is operating on an ATS route requiring the use of B-RNAV,

a) aircraft should be routed via VOR/DME-defined ATS routes; or

b) if no such routes are available, aircraft should be routed via conventional navigation aids, i.e. VOR/DME; or

c) when the above procedures are not feasible, the ATC unit should, where practicable, provide the aircraft with radar vectors until the aircraft is capable of resuming its own navigation.

Note.— Aircraft routed in accordance with a) or b) may, where practicable, require continuous radar monitoring by the ATC unit concerned.

18.8.2.4.2 With respect to the degradation/failure in flight, of an aircraft's RNAV system, while the aircraft is operating on an arrival or departure procedure requiring the use of RNAV,

a) the aircraft should be provided with radar vectors until the aircraft is capable of resuming its own navigation, or

b) the aircraft should be routed by conventional navigation aids, i.e. VOR/DME.

18.9 ATC procedures for State aircraft not equipped with RNAV but having a navigation accuracy meeting RNP 5

18.9.1 *Instructions for the completion of the flight plan*
(A2 – 3.3.3; P-ATM, 4.4 and Appendix 2, 2)

18.9.1.1 Operators of State aircraft not equipped with RNAV shall not insert the designators "S" or "R" or "P" in Item 10 of the flight plan.

18.9.1.2 Since such flights require special handling by ATC, Item 18 of the flight plan shall contain STS/NONRNAV.

18.9.2 *Coordination messages*
(P-ATM, 11.4.2.3)

18.9.2.1 *Computer-assisted coordination of estimate messages*

18.9.2.1.1 In the case of automated messages not containing the information provided in Item 18 of the

flight plan, the sending ATC unit shall inform the receiving ATC unit by supplementing the ACT message verbally with the phrase "NEGATIVE-RNAV" after the call sign of the aircraft concerned.

18.9.2.2 *Verbal coordination of estimate messages*

18.9.2.2.1 When a verbal coordination process is being used, the sending ATC unit shall include the phrase "NEGATIVE-RNAV" at the end of the message.

18.9.2.3 *Phraseology*

18.9.2.3.1 The phrase "NEGATIVE-RNAV" shall be included by the pilot immediately following the aircraft call sign whenever initial contact on an ATC frequency is established.

18.9.2.4 *ATC clearances* (A11 – 3.7; P-ATM, 4.5.4, 4.5.7, 6.3.2 and 11.4.2.5.2.1)

18.9.2.4.1 Within TMAs, State aircraft may only be routed via RNAV terminal area procedures if they are equipped with the appropriate RNAV equipment. (18.1.1.1 and 18.1.1.2 apply).

18.9.2.4.2 For such aircraft operating en route, the following procedures apply:

a) State aircraft should be routed via VOR/DME-defined ATS routes; or

b) if no such routes are available, State aircraft should be routed via conventional navigation aids, i.e. VOR/DME.

Note.— State aircraft routed in accordance with a) or b) above may require continuous radar monitoring by the ATC unit concerned.

18.9.2.4.3 When the above procedures cannot be applied, the ATC unit shall provide State aircraft with radar vectors until the aircraft is capable of resuming its own navigation.

19.0 OPERATIONS ON ATS ROUTES IN THE MIDDLE EAST REGION WHERE AN RNP TYPE IS SPECIFIED

19.1 Application of RNP 5 to ATS routes in the Middle East

19.1.1 Requirements for RNAV capability and aircraft navigation accuracy meeting RNP 5 will be progressively introduced in FIRs of the Middle East Region.

19.1.2 RNP 5 requirements may be specified on a route by route basis, or by designation of airspace within which all routes are RNP 5.

19.1.3 Within the FIRs specified in 19.2.1, only RNAV-equipped aircraft having a navigation accuracy meeting RNP 5 may plan for operations under IFR on those ATS routes, and within those level bands, which have been specified as requiring RNP 5 in the relevant State AIP or NOTAM.

19.1.4 Aircraft operating under IFR on designated RNP 5 routes shall be equipped with, as a minimum, RNAV equipment meeting the following requirements:

a) a system use accuracy equal to, or better than, 4.6 km (2.5 NM) for one standard deviation, with a 95 per cent containment value of ±9.26 km (±5 NM), thereby meeting the accuracy requirements for RNP 5; and

b) an average continuity of service of 99.99 per cent of flight time.

19.1.5 For the period until at least 2005 or until such time as VHF omnidirectional radio range (VOR) or distance measuring equipment (DME) facilities cease to be available, the carriage of a single RNAV system having a navigation accuracy meeting RNP 5 but not meeting the above continuity of service requirements may be approved for RNAV operations if the aircraft is also carrying VOR and DME equipment.

19.2 Area of applicability

19.2.1 The above provisions shall apply to operations conducted under IFR on designated RNP 5 routes within the following FIRs:

Amman, Beirut, Cairo, Damascus and Tel Aviv.

19.3 Means of compliance

19.3.1 Conformance to the navigation requirement shall be verified by the State of Registry or the State of the Operator, as appropriate.

Note.— Guidance material concerning navigation accuracy requirements is contained in the Manual on Required Navigation Performance (RNP) *(Doc 9613), Chapter 5.*

19.4 Flight planning and operational procedures in RNP 5 airspace

19.4.1 The procedures in 18.4, 18.5, 18.6 and 18.7 shall apply, except that the requirement in 18.7.1 b) to confirm that navigation accuracy meets RNP 5 shall only apply to those RNAV routes which have been designated RNP 5 by the State concerned.

19.5 Protected airspace for RNP 5 ATS routes (A-11, Attachment B; P-ATM, 5.4.1.2.1.2 d))

19.5.1 The provisions of Annex 11, Attachment B, Section 2.2 (Protected airspace for RNAV ATS routes based on RNP 4) shall apply equally to RNP 5 routes, except that the cross-track distances required to achieve a given level of containment shall be as specified in the following table:

	Percentage Containment for RNP 5					
	95	96	97	98	99	99.5
km	9.3	10.2	10.2	11.1	12.0	13.9
NM	5.0	5.5	5.5	6.0	6.5	7.5

20.0 USE OF AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS) (A2 – 3.2; A6, Part I – 6.18; A10, Vol IV, Chapter 4; A11 – 2.4.2; P-OPS, Vol I, Part VIII; P-ATM, Chapters 12 and 15)

20.1 Carriage and operation of ACAS II

20.1.1 ACAS II shall be carried and operated in the EUR Region (including FIR Canarias) by all aircraft that meet the following criteria:

a) All civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 15 000 kg or maximum approved passenger seating configuration of more than 30.

b) With effect from 1 January 2005, all civil fixed-wing turbine-engined aircraft having a maximum take-off mass exceeding 5 700 kg or a maximum approved passenger seating configuration of more than 19.

20.1.2 ACAS II equipment which operates in accordance with the relevant provisions of Annex 10, Volume IV, shall be carried and operated by all turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers operating within the Amman, Beirut, Cairo, Damascus and Tel Aviv FIRs except when operating wholly within an FIR for which the State responsible has notified in its AIP or by NOTAM that these requirements do not apply.

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10, Volume II.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Language to be used in radiotelephony
(A10, Vol. II - 5.2.1.1.2, Note 2)

1.1.1 In English-speaking countries the alternative shall be French.

2.0 AERONAUTICAL FIXED SERVICE

2.1 Priority of MOTNE messages on AFTN

2.1.1 For transmission on the AFTN, MOTNE traffic should be given:

1) DD priority in the case of SIGMET messages;

2) FF priority in the case of METAR plus TREND and EUR 9-hour TAF;

3) GG priority in the case of other data.

EUR REGIONAL SUPPLEMENTARY PROCEDURES

PART 3 — AERODROME OPERATIONS

1.0 AREA OF APPLICABILITY

1.1 The provisions in Sections 2 to 5 below shall apply in all FIRs of the ICAO EUR Region (including Canarias) listed in the "Index to Application of Supplementary Procedures" except in the following FIRs: Alger, Beirut, Cairo, Casablanca, Damascus, Tel Aviv, Tripoli and Tunis.

2.0 INTERSECTION TAKE-OFF

2.1 Conditions of application

2.1.1 An aircraft may be cleared to depart from a published intersection take-off position upon request of the pilot, or if initiated by air traffic control (ATC) and accepted by the pilot provided that:

2.1.1.1 The reduced runway declared distances for each published intersection take-off position shall consist of the following:

a) reduced take-off run available (reduced TORA);

b) reduced take-off distance available (reduced TODA); and

c) reduced accelerate-stop distance available (reduced ASDA).

2.1.1.2 The reference point from which the reduced runway declared distances for a published intersection take-off position are measured shall be in accordance with relevant ICAO provisions, Part III-AOP of the *Air Navigation Plan — European Region* (Doc 7754)).

2.1.1.3 Reduced runway declared distances for an intersection take-off position shall be published in the relevant AIP, clearly distinguishable from full runway declared distances.

2.1.1.4 Signs shall be in accordance with Annex 14, Volume I.

2.2 Phraseologies

2.2.1 The intersection take-off position(s) shall be identified in each line-up or take-off instruction/clearance, in addition to the standard radiotelephony phraseologies in Chapter 12 of the PANS-ATM.

2.2.2 When a departure from an intersection take-off position is requested by a pilot, phraseologies shall be as follows:

a) *REQUEST DEPARTURE FROM RUNWAY (*number*), INTERSECTION (*name of intersection*);

**Denotes pilot transmission*

b) APPROVED, TAXI TO HOLDING POINT RUNWAY (*number*), INTERSECTION (*name of intersection*); or

c) NEGATIVE, TAXI TO HOLDING POINT RUNWAY (*number*), [INTERSECTION (*name of intersection*)].

2.2.3 When ATC initiates an intersection take-off, the phraseology shall be as follows:

ADVISE ABLE TO DEPART FROM RUNWAY (*number*), INTERSECTION (*name of intersection*).

2.2.4 Upon request by the pilot, or if deemed necessary by the controller, reduced take-off run available shall be given to the pilot:

REDUCED TAKE-OFF RUN AVAILABLE RUNWAY (*number*), FROM INTERSECTION (*name of intersection*), (*distance in metres*).

3.0 MULTIPLE LINE-UPS ON THE SAME RUNWAY

3.1 Conditions of application

3.1.1 Line-up instructions may be issued to more than one aircraft at different points on the same runway, taking into account that intersection take-off criteria shall be complied with, provided that:

a) minimum visibility shall be established by the appropriate authority. Those minima shall permit the controller and the pilot to continuously observe the position of the relevant aircraft on the manoeuvring area by visual reference;

b) local considerations, such as the airport layout, available radar equipment and local weather phenomena shall be defined. The effect of jet blast/prop wash shall be taken into consideration;

c) air traffic service for aircraft involved in multiple line-ups on the same runway shall be provided on the same radio frequency;

d) pilots shall be advised of the position of any essential traffic on the same runway;

e) the slope of the runway shall not render preceding aircraft in the departure sequence invisible to succeeding aircraft on the same runway;

f) pilot readback of line-up instructions shall be required and shall contain the runway designator, the name of the intersection (if applicable) and the number in the departure sequence; and

g) wake turbulence separation shall be applied.

3.2 Phraseologies

3.2.1 In addition to the standard radiotelephony phraseologies in Chapter 12 of the PANS-ATM, the following ATC phraseology shall be used when issuing multiple line-up instructions:

LINE UP AND WAIT RUNWAY (*number*), INTERSECTION (*name of intersection*), (*essential traffic information*).

4.0 VISUAL APPROACHES (PANS-ATM, Chapter 6 – 6.5.3.5)

4.1 Conditions of application

4.1.1 An instrument flight rules (IFR) aircraft may be cleared to execute a visual approach upon request of the pilot or if initiated by the controller and accepted by the pilot.

4.1.2 For successive visual approaches, radar or non-radar separation shall be maintained until the pilot of a succeeding aircraft reports having the preceding aircraft in sight and is cleared for the visual approach. The aircraft shall be instructed to follow and maintain own separation from the preceding aircraft. Precautionary advisories provided by ATC regarding wake turbulence (as appropriate) shall be taken into account by the pilot.

4.2 Phraseologies

4.2.1 In addition to the radiotelephony phraseologies in Chapter 12 of the PANS-ATM, the following phraseology shall be used when issuing visual approach instructions/ clearance:

a) ADVISE ABLE TO ACCEPT VISUAL APPROACH RUNWAY (*number*); and

b) in the case of successive visual approaches when the pilot of the succeeding aircraft has reported having the preceding aircraft in sight:

CLEARED VISUAL APPROACH RUNWAY (*number*), MAINTAIN OWN SEPARATION FROM PRECEDING (*aircraft type and wake turbulence category as appropriate*), [CAUTION WAKE TURBULENCE].

4.3 Aeronautical chart information

4.3.1 Information essential for the conduct of visual approaches (e.g. significant obstacles, topographical and cultural features), including any specific limitations as prescribed by the appropriate authority (e.g. designated airspace, recommended tracks) shall be displayed on the visual approach chart and standard instrument arrival (STAR) chart, as appropriate.

5.0 VISUAL DEPARTURES

5.1 Conditions of application

5.1.1 A visual departure is a departure by an IFR flight when either part or all of an instrument departure procedure (e.g. standard instrument departure (SID)) is not completed and the departure is executed in visual reference to terrain.

5.1.2 An IFR flight may be cleared to execute a visual departure upon request of the pilot or if initiated by the controller and accepted by the pilot.

5.1.3 To execute a visual departure, the aircraft take-off performance characteristics shall allow them to make an early turn after take-off. When implemented, visual departure shall be applied under the following conditions:

a) the meteorological conditions in the direction of take-off and the following climb-out shall not impair the procedure up to an altitude to be established and published by the appropriate authority, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA);

b) the procedure shall be applied during the daytime. The procedure may be considered for application at night following a separate aeronautical study by the appropriate air traffic services (ATS) authority;

c) the pilot shall be responsible for maintaining obstacle clearance until the specified altitude. Further clearance (route, heading, point) shall be specified by ATC; and

d) separation shall be provided between an aircraft cleared to execute a visual departure and other departing and arriving aircraft.

5.1.4 Any additional local restrictions shall be agreed on in consultation between the appropriate ATS authority and operators.

5.2 Aeronautical chart information

5.2.1 Information essential for the conduct of visual departure (e.g. significant obstacles, topographical and cultural features), including any specific limitations as prescribed by the appropriate authority (e.g. designated airspace, recommended tracks) shall be displayed on the visual approach chart and standard instrument departure (SID) chart, as appropriate.

5.3 Phraseologies

5.3.1 In addition to the radiotelephony phraseologies in Chapter 12 of the PANS-ATM, the following phraseologies shall be used:

a) When requesting or issuing visual departure instruction/clearance:

i) pilot initiative	*REQUEST VISUAL DEPARTURE [DIRECT] TO/UNTIL (*navaid, waypoint, altitude*)
ii) ATS initiative	ADVISE ABLE TO ACCEPT VISUAL DEPARTURE [DIRECT] TO/UNTIL (*navaid, waypoint/altitude*)
iii) ATS instruction	VISUAL DEPARTURE RUNWAY (*number*) APPROVED, TURN LEFT/RIGHT [DIRECT] TO (*navaid, heading, waypoint*) [MAINTAIN VISUAL REFERENCE UNTIL (*altitude*)]
	**Denotes pilot transmission*

b) Prior to take-off, the pilot shall agree on executing a visual departure, i.e. readback of additional ATC clearance:

*VISUAL DEPARTURE TO/UNTIL (*navaid, waypoint/altitude*)

**Denotes pilot transmission.*

EUR REGIONAL SUPPLEMENTARY PROCEDURES

PART 4 — METEOROLOGY

These procedures are supplementary to the provisions contained in Annex 3.

1.0 AIRCRAFT OBSERVATION AND REPORTS (A3 – Chapter 5)

1.1 When voice communications are used, aircraft outside the Alger, Cairo, Casablanca, Tripoli and Tunis flight information regions shall be exempted from making and reporting any routine observations except when flying on portions of routes traversing the Mediterranean Sea.

MIDDLE EAST/ASIA (MID/ASIA)
REGIONAL SUPPLEMENTARY PROCEDURES

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MID/ASIA REGIONAL SUPPLEMENTARY PROCEDURES

PART 1— RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Part II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Visual flight rules (VFR)
(A2 – 4.7 and 4.8)

1.1.1 VFR flights to be operated within a control zone established at an aerodrome serving international flights and in specified portions of the associated terminal control area shall:

a) have two-way radio communications;

b) obtain clearance from the appropriate air traffic control unit; and

c) report positions, as required.

Note.— The phrase "specified portions of the associated terminal control area" is intended to signify at least those portions of the TMA used by international IFR flights in association with approach, holding, departure and noise abatement procedures.

1.2 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.— Annex 2, 2.2 permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.2.1 *Special application of instrument flight rules*

1.2.1.1 Flights shall be conducted in accordance with instrument flight rules (even when not operating in instrument meteorological conditions) when operated:

a) more than 100 NM seaward from the shoreline within controlled airspace; or

b) above flight level 150.

1.3 Air traffic advisory service
(P-ATM, 9.1.4)

Note.— The PANS-ATM leaves it to the discretion of the pilot whether or not to obtain air traffic advisory service when available. The following procedures make it compulsory to obtain such service under certain circumstances.

1.3.1 All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace.

2.0 FLIGHT PLANS

2.1 Contents of flight plans
(A2 – 3.3; P-ATM, 4.4.1 and Appendix 2)

2.1.1 *Mach number*

2.1.1.1 Turbo-jet aircraft intending to operate within airspace and on air routes to which longitudinal separation minima utilizing Mach number technique will be applied shall include the Mach number planned to be used in Item 15 of the flight plan.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3 and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Time or place of position reports
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.2.1 Within the Manila (east of the Philippines), Naha, Taegu, Taipei and Tokyo (excluding the area west of a line 100 NM seaward from the eastern coastline of Japan) flight information regions, flights shall provide position reports as follows:

a) If operating on a fixed route, report over designated reporting points using the specified name of such points.

Note.— States should establish reporting points at locations fulfilling operational requirements as set forth in Annex 11, 2.13.1, 2.13.3 and Appendix 2. Except where operational considerations dictate otherwise, those points should be located at intervals of 5 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Aircraft traversing 10 degrees of latitude or longitude in 1 hour and 20 minutes or less should normally be required to report only at 10° intervals. Slower aircraft should normally be required to report at 5° intervals.

b) If operating on a route without designated reporting points, report at intervals of 5 or 10 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Ten degrees will be used if the aircraft traverses 10 degrees in 1 hour and 20 minutes or less.

3.2.1.1 Within the Manila (east of the Philippines), Naha, Taegu, Taibei and Tokyo (excluding the area west of a line 100 NM seaward from the eastern coastline of Japan) flight information regions, air traffic services may require any flight to report at any intermediate parallel of latitude or meridian of longitude when deemed necessary.

3.3 Transmission of position reports
(P-ATM, 4.11.1)

3.3.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

3.3.2 Responsibility for the transmission of position reports to the additional ATS units specified in 3.3.1 may be delegated to the appropriate communications station(s) through local arrangement.

3.4 Contents of position reports
(P-ATM, 4.11 and 4.12)

3.4.1 *Position and time*

3.4.1.1 Position reports shall be identified by the spoken word "position" transmitted immediately before or after the aircraft call sign/identification.

3.4.1.2 The aircraft call sign/identification shall be transmitted immediately before or after the word "position".

3.4.1.3 The position of the aircraft shall be transmitted in reference to a reporting point name, name-code designator or, if not named:

a) for flights operating in a predominantly east-west direction:

1) latitude in degrees and minutes; and

2) longitude in degrees only;

b) for flights operating in a predominantly north-south direction:

1) latitude in degrees only; and

2) longitude in degrees and minutes.

3.4.1.4 The time at which the aircraft is over the reporting point shall be transmitted in four digits, giving both the hour and the minutes.

3.4.1.5 The altitude/flight level of the aircraft shall be included in the position report.

3.4.2 *Next position and time*

3.4.2.1 Next position shall normally be expressed as the reporting point name, name-code designator or latitude and longitude as indicated in 3.4.1.3.

3.4.2.2 Estimated time over next position shall be expressed in four digits.

3.4.3 *Ensuing position*

3.4.3.1 Ensuing position information shall include the name, name code or coordinates of the next succeeding reporting point, whether compulsory or not.

3.5 Meteorological reports

3.5.1 When air-ground data link is used and ADS is being applied, from among the aircraft intending to operate on high-density air routes, area control centres shall designate those which shall be required to include the meteorological information block in the ADS messages every 15 minutes. The designation shall be made by the area control centre delivering the clearance, by including the required meteorological reporting frequency in the ADS contract. The designation should normally be made so as to designate one aircraft per air route and per flight level at approximately hourly intervals.

3.5.2 When voice communications are used, from among the aircraft intending to operate at cruising level on high-density air routes, area control centres shall designate those which shall be required to report routine meteorological observations at each prescribed reporting point. The designation shall be made by the control centre delivering the clearance, by using the phrase "SEND MET REPORTS". The designation should normally be made so as to designate one aircraft per air route and per flight level at approximately hourly intervals.

4.0 ACTION IN THE EVENT OF AIR-GROUND COMMUNICATIONS FAILURE (A2 – 3.6.5.2; P-ATM, 8.8.3, 15.2)

4.1 As soon as it is known that two-way communication has failed, ATC shall maintain separation between the aircraft having the communication failure and other aircraft based on the assumption that the aircraft will operate in accordance with 4.2 or 4.3.

Note.— The following expands upon the requirements contained in Annex 2, 3.6.5.2 and the PANS-ATM, 8.8.3 and 15.2, and specifies additional details regarding air-ground communications failure.

4.2 Visual meteorological conditions (VMC)

4.2.1 Except as provided in 4.3.1, a controlled flight experiencing communications failure in VMC shall:

a) set transponder to Code 7600;

b) continue to fly in VMC;

c) land at the nearest suitable aerodrome; and

d) report its arrival time by the most expeditious means to the appropriate air traffic control unit.

4.3 Instrument meteorological conditions (IMC)

4.3.1 A controlled IFR flight experiencing communications failure in IMC or in VMC when it does not appear feasible to continue in VMC within the Amman, Bahrain, Beirut, Cairo, Damascus, Emirates, Jeddah, Kuwait, Muscat (continental part), Sana'a (continental part), and Teheran FIRs shall:

a) set transponder to Code 7600; and

b) maintain the last assigned speed and level or the minimum flight altitude, if the minimum flight altitude is higher than the last assigned level, for a period of 7 minutes. The period of 7 minutes commences:

1) if operating on a route without compulsory reporting points or if instructions have been received to omit position reports:

i) at the time the last assigned level or minimum flight altitude is reached, or

ii) at the time the aircraft sets transponder to Code 7600,

whichever is later; or

2) if operating on a route with compulsory reporting points and no instruction to omit position reports has been received:

i) at the time the last assigned level or minimum flight altitude is reached, or

ii) at the previously reported pilot estimate for the compulsory reporting point, or

iii) at the time the aircraft fails to report its position over a compulsory reporting point,

whichever is later;

c) thereafter, adjust level and speed in accordance with the filed flight plan;

Note.— With regard to changes to levels and speed, the filed flight plan, which is the flight plan as filed with an ATS unit by the pilot or a designated representative without any subsequent changes, will be used.

d) if being radar vectored or proceeding offset according to RNAV without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

Note.— With regard to the route to be flown or the time to begin descent to the arrival aerodrome, the current flight plan, which is the flight plan, including changes, if any, brought about by subsequent clearances, will be used.

e) proceed according to the current flight plan to the appropriate designated navigation aid serving the destination aerodrome and, when required to ensure compliance with 4.3 f), hold over this aid until commencement of descent;

f) commence descent from the navigation aid specified in 4.3 e) at, or as close as possible to, the expected approach time last received and acknowledged or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

g) complete a normal instrument approach procedure as specified for the designated navigation aid; and

h) land, if possible, within thirty minutes after the estimated time of arrival specified in 4.3 f) or the last acknowledged expected approach time, whichever is later.

Note.— Pilots are reminded that the aircraft may not be in an area of secondary surveillance radar coverage.

5.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

5.1 General procedures

5.1.1 The following general procedures apply to both subsonic and supersonic aircraft. Although all possible contingencies cannot be covered, they provide for cases of inability to maintain assigned level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight. They are applicable primarily when rapid descent and/or turnback or diversion to an alternate airport are required. The pilot's judgement shall determine the sequence of actions taken, taking into account specific circumstances.

5.1.2 If an aircraft is unable to continue flight in accordance with its ATC clearance, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using a distress or urgency signal as appropriate.

5.1.3 If prior clearance cannot be obtained, ATC clearance shall be obtained at the earliest possible time and, until a revised clearance is received, the pilot shall:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including the ATS route designator or the track code), and intentions on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) advise the appropriate air traffic control unit as soon as possible of the emergency descent;

f) set the transponder to Code 7700 and select emergency mode on automatic dependent surveillance/controller-pilot data link communications (ADS/CPDLC) system, if applicable; and

g) coordinate further intentions with the appropriate ATC unit.

5.1.3.1 The aircraft shall not descend below the lowest published minimum altitude which will provide a minimum vertical clearance of 300 m (1 000 ft) or in designated mountainous terrain 600 m (2 000 ft) above all obstacles located in the area specified.

5.1.4 *Action by the air traffic control unit*

5.1.4.1 Immediately upon recognizing that an emergency descent is in progress, ATC units shall acknowledge the emergency on radiotelephony (RTF) and take all necessary action to safeguard all aircraft concerned.

5.1.4.2 In particular, they may, as required by the situation:

a) suggest a heading to be flown, if able, by the aircraft carrying out the emergency descent in order to achieve spacing from other aircraft concerned;

b) state the minimum altitude for the area of operation, only if the level-off altitude stated by the pilot is below such minimum altitude, together with the applicable QNH altimeter setting;

c) as soon as possible, provide separation with conflicting traffic, or issue essential traffic information, as appropriate.

5.1.4.3 When deemed necessary, air traffic control will broadcast an emergency message, or cause such message to be broadcast, to other aircraft concerned to warn them of the emergency descent.

5.2 Special procedures for subsonic aircraft requiring rapid descent and/or turnback or diversion to an alternate airport due to aircraft system malfunction or other contingencies

Note.— Additional procedures for in-flight contingencies involving a loss of vertical navigation performance required for flights within the MID RVSM airspace are contained in 5.3.

5.2.1 *Initial action*

5.2.1.1 If unable to comply with the provisions of 5.1.2 to obtain a revised ATC clearance, the aircraft should leave its assigned route or track by turning 90 degrees to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system, e.g. whether the aircraft is outside, at the edge of, or within the system. Other factors to consider are the direction to the alternate airport, terrain clearance and the levels allocated to adjacent routes or tracks.

5.2.2 *Subsequent action (RVSM airspace)*

5.2.2.1 In RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track, and:

a) if above FL 410, climb or descend 300 m (1 000 ft); or

b) if below FL 410, climb or descend 150 m (500 ft); or

c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

5.2.2.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent flight level, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 410, or by 150 m (500 ft) if below FL 410.

5.2.3 *Subsequent action (non-RVSM airspace)*

5.2.3.1 In non-RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track, and:

a) if above FL 290, climb or descend 300 m (1 000 ft); or

b) if below FL 290, climb or descend 150 m (500 ft); or

c) if at FL 290, climb 300 m (1 000 ft) or descend 150 m (500 ft).

5.2.3.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent flight level, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 290, or by 150 m (500 ft) if below FL 290.

5.2.4 DIVERSION ACROSS THE FLOW OF ADJACENT TRAFFIC. Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 5.2.1 or 5.2.2 or 5.2.3. However, if the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level as defined in 5.2.2.1 or 5.2.3.1 until a revised ATC clearance is obtained.

5.2.5 EXTENDED RANGE OPERATIONS BY AEROPLANES WITH TWO-TURBINE POWER-UNITS (ETOPS) AIRCRAFT. If these contingency procedures are employed by a twin-engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation, reminding ATC of the type of aircraft involved, and request expeditious handling.

5.3 Special procedures for in-flight contingencies involving a loss of vertical navigation performance

Note.— Applicable within Amman, Bahrain, Beirut, Cairo, Damascus, Emirates, Jeddah, Kuwait, Muscat (continental part), Sana'a (continental part) and Teheran FIRs.

5.3.1 *Degradation of aircraft equipment — pilot reported*

5.3.1.1 When informed by the pilot of an RVSM-approved aircraft operating in the MID RVSM airspace that the aircraft's equipment no longer meets the RVSM MASPS, ATC shall consider the aircraft as non-RVSM approved.

5.3.1.2 ATC shall take action immediately to provide a minimum vertical separation of 600 m (2 000 ft) or an appropriate horizontal separation from all other aircraft concerned that are operating in the MID RVSM airspace. An aircraft rendered non-RVSM approved shall normally be cleared out of the RVSM airspace by ATC when it is possible to do so.

5.3.1.3 Pilots shall inform ATC, as soon as practicable, of any restoration of the proper functioning of equipment required to meet the RVSM MASPS.

5.3.1.4 The first ACC to become aware of a change in an aircraft's RVSM status shall coordinate with adjacent ACCs, as appropriate.

5.3.2 *Severe turbulence — not forecast*

5.3.2.1 When an aircraft operating in the RVSM airspace encounters severe turbulence due to weather or wake vortex that the pilot believes will impact the aircraft's capability to maintain its cleared flight level, the pilot shall inform ATC. ATC shall establish either an appropriate horizontal separation or an increased minimum vertical separation.

5.3.2.2 ATC shall, to the extent possible, accommodate pilots' requests for flight level and/or route changes and shall pass on traffic information as required.

5.3.2.3 ATC shall solicit reports from other aircraft to determine whether RVSM should be suspended entirely or within a specific flight level band and/or area.

5.3.2.4 The ACC suspending RVSM shall coordinate such suspension(s) with, and any required adjustments to, sector capabilities with adjacent ACCs, as appropriate, to ensure an orderly progression to the transfer of traffic.

5.3.3 *Severe turbulence — forecast*

5.3.3.1 When a meteorological forecast is predicting severe turbulence, ATC shall determine whether RVSM should be suspended and, if so, the period of time and specific flight level(s) and/or area.

5.3.3.2 In cases where RVSM will be suspended, the ACC suspending RVSM shall coordinate with adjacent

ACCs with regard to flight levels appropriate for the transfer of traffic, unless a contingency flight level allocation scheme has been determined by letter of agreement. The ACC suspending RVSM shall also coordinate applicable sector capabilities with adjacent ACCs as appropriate.

5.4 Weather deviation procedures for oceanic-controlled airspace

5.4.1 *General*

5.4.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions taken, and ATC shall render all possible assistance.

5.4.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 5.4.4.

5.4.1.3 The pilot shall advise ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centre line of its cleared route.

5.4.2 *Obtaining priority from ATC when weather deviation is required*

5.4.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

5.4.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

5.4.3 *Actions to be taken when controller-pilot communications are established*

a) Pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

b) ATC takes one of the following actions:

1) if there is no conflicting traffic in the horizontal dimension, ATC will issue clearance to deviate from track; or

2) if there is conflicting traffic in the horizontal dimension, ATC separates aircraft by establishing vertical separation; or

3) if there is conflicting traffic in the horizontal dimension and ATC is unable to establish appropriate separation, ATC shall:

i) advise the pilot of inability to issue clearance for requested deviation; and

ii) advise the pilot of conflicting traffic; and

iii) request pilot's intentions.

SAMPLE PHRASEOLOGY:

"UNABLE (*requested deviation*), TRAFFIC IS (*call sign, position, altitude, direction*), ADVISE INTENTIONS."

c) Pilot will take the following actions:

1) advise ATC of intentions by the most expeditious means available; and

2) comply with ATC clearance issued; or

3) execute the procedures detailed in 5.4.4. (ATC will issue essential traffic information to all affected aircraft); and

4) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

5.4.4 *Actions to be taken if a revised ATC clearance cannot be obtained*

5.4.4.1 The provisions of this section apply to situations where the pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

5.4.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including the ATS route designator or the track code), and intentions (including the magnitude of the deviation expected) on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF interpilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

Note.— If, as a result of actions taken under 5.4.4.2 b) and c), the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;

f) for deviations of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the criteria in Table 1;

g) when returning to track, be at its assigned level, when the aircraft is within approximately 19 km (10 NM) of centre line; and

h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

6.0 AIR TRAFFIC CONTROL CLEARANCES

6.1 Adherence to ATC-approved route
(A2 – 3.6.2)

6.1.1 If an aircraft on a long over-water flight has inadvertently deviated from the route specified in its ATC clearance, it shall forthwith take action to regain such route within 370 km (200 NM) from the position at which the deviation was observed.

6.2 Adherence to ATC-approved Mach number
(A2 – 3.6.2)

6.2.1 Turbo-jet aircraft intending to operate within airspace and on air routes to which longitudinal separation minima utilizing Mach number technique will be applied shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), air traffic control shall be notified as soon as possible that such a change has been made.

6.2.2 If it is not feasible, for operational reasons, to maintain the last assigned Mach number, pilots of aircraft concerned shall advise ATC at the time of initial clearance or subsequent climb/descent request or clearance.

7.0 SEPARATION OF AIRCRAFT

7.1 Lateral separation
(A11 – Appendix B; P-ATM, 5.4.1 and 13.5)

7.1.1 Except as provided for in 7.1.2 and 7.1.5, the minimum lateral separation shall be 185 km (100 NM), for flights on controlled oceanic routes, except:

where aircraft are transiting into an airspace with a larger lateral minimum than the airspace being exited provided that:

a) the smaller separation minimum exists;

b) flight paths diverge by 15° or more until the larger minimum is established; and

c) it is possible to ensure, by means approved by the appropriate ATS authority, that the aircraft have the navigation capability necessary to ensure accurate track guidance.

7.1.2 For flights on controlled oceanic routes across the Tasman Sea within Auckland Oceanic, Brisbane, Melbourne, New Zealand and Sydney FIRs and for flights across the South China Sea within Bangkok, Hanoi, Ho Chi Minh, Hong Kong, Kota Kinabalu, Kuala Lumpur, Manila, Taipei and Singapore FIRs, the minimum lateral separation shall be 112 km (60 NM) between RNAV-equipped and RNAV-approved aircraft using inertial navigation systems (INS) provided that:

a) the INS is updated at least every 4.5 hours;

Table 1.

Route centre line Track	*Deviations >19 km (10 NM)*	*Level change*
EAST 000–179° magnetic	LEFT RIGHT	DESCEND 90 m (300 ft) CLIMB 90 m (300 ft)
WEST 180–359° magnetic	LEFT RIGHT	CLIMB 90 m (300 ft) DESCEND 90 m (300 ft)

b) the standard deviation of lateral track errors shall be less than 11.7 km (6.3 NM);

c) the proportion of the total flight time spent by aircraft 55.6 km (30 NM) or more off the cleared track shall be less than 5.3×10^{-4}; and

d) the proportion of the total flight time spent by aircraft between 92.6 and 129.6 km (50 and 70 NM) off the cleared track shall be less than 13×10^{-5}.

Such navigation performance capability shall be verified by the State of Registry or the State of the aircraft operator, as appropriate. Lateral separation of 185 km (100 NM) or greater if required shall be used if the track-keeping capability of the aircraft has been reduced for any reason.

Note.— The navigation performance accuracy contained in b) is considered to be comparable to RNP 12.6 or better.

7.1.3 When granting approval for operations in the airspace as indicated in 7.1.2, either the State of Registry or the State of the aircraft operator shall ensure that in-flight operating drills include mandatory navigation cross-checking procedures which will identify navigation errors in sufficient time to prevent the aircraft from inadvertently deviating from the ATC-cleared route.

7.1.4 Lower minima as detailed in 5.4.1.2 of the PANS-ATM may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS-ATM provisions are met.

7.1.5 For flights on designated controlled oceanic routes or areas within the Auckland Oceanic, Brisbane, Honiara, Melbourne, Naha, New Zealand, Port Moresby, Sydney, and Tokyo FIRs, a lateral separation minimum of 93 km (50 NM) may be applied provided that the aircraft and the operator have been approved by the State of Registry or the State of the Operator, as appropriate, to meet the following requirements (or equivalent):

a) aircraft navigation performance shall be such that the standard deviation of lateral track errors shall be less than 8.7 km (4.7 NM) (or the aircraft approved to RNP 10); and

b) operator programmes shall be established to mitigate the occurrence of large navigational errors due to equipment malfunction or operational error:

1) operator in-flight operating drills shall include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft from inadvertent deviation from ATC-cleared route; and

2) the operator shall establish programmes to provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

7.1.5.1 The letter R shall be inserted in Item 10 (Equipment) of the flight plan to indicate that the aircraft has been appropriately approved and can comply with all the conditions of that approval.

7.1.5.2 The following criteria are to be used in the operational assessment of airspace system safety:

a) the proportion of the total flight time spent by aircraft 46 km (25 NM) or more off the cleared track shall be less than 7.0×10^{-4}; and

b) the proportion of the total flight time spent by aircraft between 74 and 111 km (40 and 60 NM) off the cleared track shall be less than 4.1×10^{-5}.

7.1.6 For flights on designated controlled oceanic routes or areas within the Auckland Oceanic, Brisbane, Honiara, Melbourne, Naha, New Zealand, Port Moresby, and Tokyo FIRs, a lateral separation minimum of 55.5 km (30 NM) may be applied provided:

a) the aircraft are approved by the State of Registry or the State of the Operator to RNP 4;

b) direct controller-pilot voice communications or controller-pilot data link communications (CPDLC) are maintained;

c) surveillance is maintained using an automatic dependent surveillance (ADS) system; and

d) an ADS lateral deviation change event contract is established, with a lateral deviation threshold of 9.3 km (5 NM).

7.1.7 The letter R shall be inserted in Item 10 (Equipment) of the flight plan to indicate that the aircraft is approved to RNP 4 and can comply with all the conditions of that approval.

7.1.8 Prior to implementation, States shall undertake a system verification of sufficient duration and integrity to demonstrate that the maximum acceptable rate of lateral deviations greater than or equal to 27.8 km (15 NM) will not exceed those listed in Table B-1 in Annex 11, Attachment B, 3.4.1 e). The verification should be conducted after the minimum navigation, communications and surveillance requirements listed above have been met.

7.1.9 Following implementation, a monitoring programme shall be established to periodically verify that the system's actual rate of lateral deviations greater than or equal to 27.8 km (15 NM) does not exceed the maximum prescribed in Table B-1 in Annex 11, Attachment B, 3.4.1 e).

7.2 Longitudinal separation
(P-ATM, 5.4.2 and 13.5)

7.2.1 Except as provided for in 7.2.1.1 and 7.2.2, the minimum longitudinal separation between turbo-jet aircraft operating within the Auckland Oceanic, Bali, Bangkok, Biak, Brisbane, Chennai, Colombo, Delhi, Dhaka, Hanoi, Ho Chi Minh, Hong Kong, Honiara, Jakarta, Karachi, Kolkata, Kota Kinabalu, Kuala Lumpur, Lahore, Madras, Male, Manila, Melbourne, Mumbai, Muscat, Naha, Nauru, New Zealand, Phnom-Penh, Port Moresby, Singapore, Taegu, Taibei, Tehran, Tokyo, Ujung Pandang, Vientiane, and Yangon FIRs shall be:

a) 10 minutes, or 80 NM, derived by RNAV when the Mach number technique is applied and whether in level, climbing or descending flight, provided that:

1) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

2) if the aircraft have **not** reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; or

b) between 9 and 5 minutes inclusive, provided:

1) it is possible to ensure, by radar or other means approved by the State, that the required time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; and

2) the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following table:

— 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft

— 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft

— 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft

— 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft

— 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

Note.— Application of longitudinal separation between aircraft when the Mach number technique is used is based on the assumption that the last assigned Mach number will be maintained at all times, including during any climbs and descents. In the event that for operational reasons it is not feasible to do so, the pilot must inform ATC at the time of initial clearance or subsequent climb/descent request or clearance.

7.2.1.1 Between aircraft on controlled oceanic routes within Hong Kong, Manila (west of the Philippines), Singapore and Bangkok FIRs and extended areas of responsibility where applicable, not covered in 7.2.1, the minimum longitudinal separation shall be 15 minutes.

7.2.2 *Longitudinal distance-based separation between aircraft equipped with RNAV and holding an appropriate RNP approval*

7.2.2.1 For flights on designated controlled oceanic routes or areas within the Auckland Oceanic, Brisbane, Honiara, Melbourne, Naha, New Zealand, Port Moresby, and Tokyo FIRs, a longitudinal separation minimum of 93 km (50 NM) derived by RNAV may be applied between RNAV-equipped aircraft approved to RNP 10 or better, in accordance with the provisions of PANS-ATM, 5.4.2.6.

Note.— The provisions of PANS-ATM, 5.4.2.6.1 to 5.4.2.6.2.3, apply in all cases. Where ADS is not available, the provisions of PANS-ATM, 5.4.2.6.3 apply. Where ADS is available, the provisions of PANS-ATM, 5.4.2.6.4 apply.

7.2.2.2 For flights on designated controlled oceanic routes or areas within the Auckland Oceanic, Brisbane, Honiara, Melbourne, Naha, New Zealand, Port Moresby, and Tokyo FIRs, a longitudinal separation minimum of 55.5 km (30 NM) may be applied between RNAV-equipped aircraft approved to RNP 4 or better, in accordance with the provisions of PANS-ATM, 5.4.2.6.

Note.— ADS is required for the application of this minimum; therefore the applicable provisions will be those of PANS-ATM, 5.4.2.6.1 to 5.4.2.6.2.3 and 5.4.2.6.4.

7.2.2.3 For all operations in airspace or on ATS routes where an RNP type has been designated, the pilot shall insert the letter R in Item 10 (Equipment) of the flight plan, to indicate that the aircraft has the appropriate RNP approval and can comply with all the conditions of that approval.

7.2.2.4 Pilots shall advise ATC of any deterioration or failure of the navigation equipment below the navigation performance required for the designated RNP type. ATC shall then, as required, apply alternative separation minima.

7.2.2.5 Both the 93 km (50 NM) and 55.5 km (30 NM) longitudinal separation minima using ADS were developed in accordance with collision risk analyses which dictate conditions under which the minima can be applied. For airspace planning purposes, the frequencies of observed or estimated separations between successive aircraft at the same level should be such that no more than 4 per cent of separations will fall in any one 19 km (10 NM) band, from the minimum separation of 93 km (50 NM) to a separation of 556 km (300 NM) in the case of the 93 km (50 NM) minimum, and from the minimum separation of 55.5 km (30 NM) to a separation of 533 km (280 NM) in the case of the 55.5 km (30 NM) minimum.

7.3 Composite separation
(A11 – 3.3.4 c))

7.3.1 For aircraft operating at or above FL 290 within the flexible Pacific Organized Track Systems (PACOTS), North Pacific (NOPAC) composite route system between the United States and Japan and the composite route system between Hawaii and the west coast of the United States, within the Tokyo, Oakland Oceanic and Anchorage Oceanic flight information regions, composite separation consisting of a combination of at least 50 NM lateral and 300 m (1 000 ft) vertical separation may be applied.

7.3.2 The type of separation in 7.3.1 may be applied between aircraft operating in the same or opposite directions. (See also 10.1.1.)

7.4 Information on application of separation minima
(A11 – 3.4; P-ATM, 5.4.1, 5.4.2 and 5.11)

7.4.1 Where, circumstances permitting, separation minima lower than specified in 7.1 and 7.2 will be applied in accordance with the PANS-ATM, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

7.5 Vertical separation

The minimum vertical separation that shall be applied between FL 290 and FL 410 inclusive is 300 m (1 000 ft).

7.5.1 *Area of applicability*

7.5.1.1 The reduced vertical separation minimum (RVSM) shall be applied for flights within the Amman, Auckland Oceanic, Bahrain, Bali, Bangkok, Beirut, Brisbane, Cairo, Damascus, Emirates, Hanoi, Ho Chi Minh, Hong Kong, Honiara, Jakarta, Jeddah, Kota Kinabalu, Kuala Lumpur, Kuwait, Manila, Melbourne, Muscat, Naha, Nauru, New Zealand, Phnom Penh, Port Moresby, Sana'a, Singapore, Taibei, Teheran, Tokyo, Ujung Pandang, and Vientiane FIRs.

7.5.2 *RVSM approval*

7.5.2.1 The minimum separation in 7.5 shall only be applied between aircraft and operators that have been

approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and that are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

7.5.3 *MASPS*

7.5.3.1 The MASPS height-keeping requirements are as follows:

a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;

b) for groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft);

c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

   1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3};

   2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6};

   3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6};

   4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7}; and

   5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7}.

Note.— Guidance material regarding the initial achievement and continued maintenance of the height-keeping performance in 7.5.3.1 is contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia/Pacific Region.

7.5.4 *Target level of safety (TLS)*

7.5.4.1 Except for the airspace forming part of the MID RVSM area, where a TLS of 3.75×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension has been specified, the application of RVSM in the other airspace designated in 7.5.1.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

Note.— The rationale for choosing a TLS value of 3.75×10^{-9} fatal accidents (1.25×10^{-9} for technical risk and 2.5×10^{-9} for operational risk) per aircraft flight hour due to all causes of risk in the vertical dimension in the MID RVSM airspace is to ensure that the TLS value of 2.5×10^{-9} for technical risk will not be infringed with future projected traffic growths and the system remains safe for a period of at least 12 years.

7.5.5 *Approval status and aircraft registration*

7.5.5.1 Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

7.5.6 *Operation of aircraft not approved for RVSM*

7.5.6.1 Aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and

procedures established by the State provided that 600 m (2 000 ft) vertical separation is applied.

7.5.7 *Monitoring*

7.5.7.1 Adequate monitoring of flight operations in the Asia and Pacific RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 7.5.3.1. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 7.5.4.1 is not exceeded.

Note.— Details of the policy and procedures for monitoring established by the Asia/Pacific Air Navigation Planning and Implementation Regional Group and the Middle East Planning and Implementation Regional Group (MIDANPIRG) are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia/Pacific Region *and the MID Region* ATC Manual *and* OPS/AIR Manual.

7.5.8 *Wake turbulence procedures*

7.5.8.1 The following special procedures are applicable to mitigate wake turbulence encounters in airspace where RVSM is applied.

7.5.8.1.1 An aircraft that encounters wake turbulence should notify ATC and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:

a) the pilot should establish contact with other aircraft, if possible, on the appropriate VHF inter-pilot air-to-air frequency; and

b) one (or both) aircraft may initiate lateral offset(s) not to exceed 2 NM from the assigned route(s) or track(s), provided that:

   1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and

   2) the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).

Note.— In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

8.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-ATM, Chapter 8; P-OPS, Vol. I, Part VIII)

8.1 Area of application

8.1.1 The procedures provided below shall be applicable in all the FIRs/UIRs of Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan, Turkmenistan and Uzbekistan located in the area of application of the MID/ASIA Regional Supplementary Procedures (Index to application of supplementary procedures refers).

8.1.2 *Operation of transponders*

8.1.2.1 When it is necessary to stop IFF/SIF transponders from replying on Mode A/3, pilots shall be requested to switch off Mode 3 (see 8.4.1, "STOP SQUAWK MODE THREE"). In no case shall they be requested to switch to STANDBY, since operation of the STANDBY switch stops the IFF/SIF transponders from replying on **all** modes.

Note.— Some military aircraft are required to operate IFF transponders for non-air traffic control purposes simultaneously with and independently of their operation in Mode A/3 for air traffic control purposes.

8.1.3 *Operation of SSR equipment and displays*

8.1.3.1 SSR-derived information shall be checked by use of special monitoring devices or by correlation of an identified primary radar blip with the appropriate SSR response.

8.1.3.2 The "all codes" setting shall be used when it is desired to display for air traffic control purposes all aircraft in a specified area that are equipped with SSR or IFF/SIF transponders; the "all aircraft" setting shall be used when it is desired to also display aircraft equipped with basic IFF transponders.

8.1.4 *Assignment of SSR codes*

8.1.4.1 All aircraft engaged in international flight shall be assigned an appropriate SSR code by the initial ATS unit at the beginning of the flight, if it is to be conducted under instrument flight rules. The code shall be assigned from within the code block(s) allocated to the area control centre/flight information centre of the originating flight information region and shall be retained and used by the

aircraft until its arrival at destination, with modifications as provided for in 8.1.4.2 and 8.1.4.3.

8.1.4.2 *Aircraft entering the ASIA Region*

8.1.4.2.1 For an aircraft entering the area under consideration via various "peripheral" flight information regions, the area control centre/flight information centre concerned shall assign a code in one of the two following ways. If the aircraft concerned is going to land in the "peripheral" flight information region, a domestic code will be assigned. If the aircraft is going to overfly the "peripheral" flight information region, an international code shall be assigned from the code set allocated to that flight information region.

Note 1.— Diversion. *Whenever a diversion occurs which will take the aircraft into another flight information region, advance coordination with the area control centre/flight information centre having jurisdiction over that flight information region shall be effected to avoid code conflict. This is of particular importance if the diverted flight returns towards its point of departure since the code used by the flight concerned may already have been reassigned to another flight.*

Note 2.— Peripheral flight information regions. *For those flight information regions forming the boundary of the ASIA Region and in which domestic codes are assigned to flights originating outside the region and terminating in the peripheral flight information region, international codes are assigned to flights originating outside the region and terminating in other flight information regions within the area under consideration.*

8.1.4.3 *Flight in non-SSR areas*

a) *Traversing non-SSR areas or landing in non-SSR areas.* The area control centre/flight information centre will include the assigned four-digit code as part of the transfer message.

b) *Departing from a non-SSR area.* The aircraft shall be assigned a four-digit code upon departure, and the area control centre/flight information centre shall include the code in the departure and transfer messages.

8.1.4.4 *Forwarding of the assigned code to ATS units en route and at destination*

8.1.4.4.1 The ATS unit serving the aerodrome where the flight originates shall include the assigned four-digit code in the departure message sent to each addressee of the flight plan.

8.1.4.4.2 The area control centre/flight information centre serving the flight information region where the flight originates shall include the assigned four-digit code in the transfer message to the next area control centre/ flight information centre. The area control centres/flight information centres of subsequent flight information regions overflown by the aircraft concerned shall ensure that the code is included in the transfer messages.

Note.— This is particularly important in the case of 8.1.4.3 a).

8.2 Use of SSR-derived information for the provision of separation between aircraft

8.2.1 Except when the positional element of an SSR response cannot be resolved (see Note following 8.2.1, e)) SSR-derived information may be used alone for the provision of horizontal separation between aircraft in the circumstances and under the conditions specified below:

a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR response from any aircraft (not necessarily the one being provided separation) coincides with the primary radar echo of the same aircraft.

Note.— Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

b) Outside the coverage area of the associated primary radar provided that:

1) there is an agreed need to provide radar control service in that portion of the airspace covered by SSR, but beyond the coverage of the associated primary radar;

2) the aircraft concerned have previously been identified and identification has been maintained;

3) only procedural separation is applied between aircraft with functioning transponders and other aircraft;

4) the SSR coverage is known.

c) In defined areas where advanced ATS systems are in operation and SSR is the main source for the provision to air traffic services of continuous information on the position of aircraft, and where the carriage of SSR transponders is mandatory, the appropriate ATS authority, after consultation with operators, may authorize the systematic provision of horizontal and/or vertical separation, based on SSR-derived information, between aircraft that are equipped with correctly functioning transponders, provided that:

1) adequate SSR coverage exists throughout the area wherein this procedure is used, and reliable operation of this service is assured;

2) identification of individual aircraft so separated is maintained by means of discrete codes;

3) adequate primary radar or SSR ground equipment backup is provided or, alternatively, in case of SSR failure, density and/or complexity of air traffic in the area and the availability of navigational guidance allow a safe reversion to other forms of separation (based on either the use of primary radar or procedural control).

Note.— Other appropriate forms of separation should be applied between aircraft with functioning transponders and other controlled aircraft.

d) When primary radar fails and until procedural separation is established, provided that:

1) the positional accuracy of the SSR responses has been verified (see 8.2.1 a) and Note);

2) the pilots of the aircraft concerned have been advised.

e) In the case of aircraft in emergency.

Note.— Apart from causes resulting in the inability to resolve the positional element of an SSR response which can occur due to malfunctioning of the equipment, there are two causes which may occur during normal operations. These are the presence of side-lobe responses and reflections.

8.2.2 The separation minima used should not be less than those applied when using the associated primary radar, if any, on the understanding that the resolution of the SSR is not better than that normally associated with primary radar.

8.3 Carriage and operation of pressure-altitude reporting SSR transponders

8.3.1 *In respect of international general aviation aeroplanes*

8.3.1.1 All aeroplanes shall be equipped with a pressure-altitude reporting transponder of a type certified by the State as meeting the relevant provisions of Annex 10.

8.3.2 *In respect of international helicopter operations, etc. — general aviation*

8.3.2.1 All helicopters shall be equipped with a pressure-altitude reporting transponder of a type certified by the State as meeting the relevant provisions of Annex 10.

8.4 Phraseology
(P-ATM, Chapter 12)

8.4.1 SSR phraseology is shown in Table 2.

9.0 USE OF AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS)
(A2 – 3.2; A6, Part I – 6.18;
A10, Vol. IV, Chapter 4; A11 – 2.4.2;
P-OPS, Vol. I, Part VIII;
P-ATM, Chapters 12 and 15)

9.1 Carriage and operation of ACAS II

9.1.1 ACAS II equipment which operates in accordance with the relevant provisions of Annex 10, Volume IV, shall be carried and operated by all turbine-engined aeroplanes of a maximum certificated take-off mass in excess of 15 000 kg or authorized to carry more than 30 passengers operating within the Amman, Baghdad, Bahrain, Emirates, Jeddah, Kabul, Muscat, Sana'a and Teheran FIRs except when operating wholly within an FIR for which the State responsible has notified in its AIP or by NOTAM that these requirements do not apply.

Table 2. SSR Phraseology

Phrase	*Meaning*
*SQUAWK LOW	Turn master control to "low" sensitivity position, retaining present mode and code.
*SQUAWK NORMAL	Turn master control to "normal" position, retaining present mode and code.
*STOP SQUAWK MODE THREE	Switch off Mode 3.

* This phrase is reserved for use with military aircraft only.

10.0 SPECIAL PROCEDURES APPLICABLE IN DESIGNATED AIRSPACES

10.1 Use of composite routes

10.1.1 When composite separation is used in accordance with 7.3.1, the following procedures apply:

a) An aircraft may be cleared to join an outer route of the system at other than the normal entry point provided:

1) longitudinal or non-composite vertical separation exists between that aircraft and any other on that route; and

2) composite separation exists between that aircraft and any other on the next adjacent route.

b) An aircraft may be cleared to leave an outer route of the system at other than the normal exit point provided its course diverges so that the lateral spacing from the route increases until longitudinal or non-composite lateral or non-composite vertical separation exists between that aircraft and any other aircraft in the system.

c) An aircraft may be cleared to change from one route to an adjacent route in the system provided:

1) longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on the route being vacated until that aircraft is established on the route to which it is proceeding;

2) longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on the route to which that aircraft is proceeding; and

3) composite separation exists between that aircraft and any other aircraft on the next adjacent route.

d) An aircraft may be cleared to cross the system provided longitudinal or non-composite lateral or non-composite vertical separation exists between that aircraft and any other aircraft in the system.

e) An aircraft may be cleared to change altitude on a route if longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on that route and regardless of any other aircraft on adjacent routes.

Note.— Non-composite separation referred to above is separation in accordance with the minima in 7.1.1 and 7.2.1 and those in the PANS-ATM, 5.3.2.

10.2 Flexible Pacific Organized Track Systems (PACOTS)

10.2.1 To optimize the use of airspace across the Northern, Central and South Pacific, flexible organized track systems may be established within the Tokyo, Oakland Oceanic, Anchorage Oceanic, Nadi, Tahiti, Auckland Oceanic, Sydney, Brisbane and Port Moresby flight information regions.

10.2.2 The area control centres providing air traffic service within the concerned flight information regions will provide information to users regarding the PACOTS tracks generated for use. The location of the tracks will depend on traffic demand, prevailing winds, significant weather and other relevant factors. Unless otherwise stated, tracks will apply at FL 290 and above.

10.2.3 PACOTS track messages to users specifying track details will be disseminated daily by one of the area control centres. Messages will be disseminated in a timely manner to accommodate the flight planning requirements

of users. Any subsequent changes will be issued promptly. Pilots are expected to flight plan in accordance with the daily track message.

Note.— PACOTS guidelines containing detailed information on track generation, lateral track spacing, level assignment, position-reporting requirements and other relevant details shall be published in the Aeronautical Information Publications or associated supplements of those States which utilize a flexible track system within their airspace or areas of responsibility.

10.3 Use of lateral offsets other than those special procedures prescribed to mitigate wake turbulence and distracting aircraft system alerts

10.3.1 Pilots of flights in designated oceanic controlled airspace (OCA) or remote airspace, and outside radar controlled airspace, within the Auckland Oceanic, Brisbane, Honiara, Melbourne, Nauru, New Zealand, and Port Moresby FIRs are authorized to apply a 1.9 km (1 NM) lateral offset under the following conditions:

a) the offset shall only be applied in OCA or remote area airspace, and outside radar controlled airspace;

b) the offset shall only be applied during the en-route phase of flight;

c) the offset shall only be applied by aircraft that use GNSS in the navigation solution;

d) the offset shall only be made to the **right** of the centre line relative to the direction of flight;

e) the offset shall **not** be applied at levels where obstacle clearance would be affected;

f) the offset shall **not** be applied in addition to an offset of 3.8 km (2 NM) that was applied because of temporary wake turbulence or distracting aircraft system alert, i.e. shall not result in an offset of 5.6 km (3 NM); and

g) the offset shall **not** be applied in parallel route systems where the track spacing is less than 93 km (50 NM).

10.3.2 Pilots shall not be required to notify ATC that a 1.9 km (1 NM) offset is being applied.

Note.— Pilots need to be aware that different lateral offset procedures may apply in different airspaces.

11.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS (P-ATM, 4.10 and 4.10.3)

11.1 The lowest usable flight level for holding and approach manoeuvres shall be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

Note 1.— The lowest usable flight level will provide a terrain clearance of at least 300 m (1 000 ft) and, for operation in the vicinity of an aerodrome, will not be established below 450 m (1 500 ft) above aerodrome elevation.

Note 2.— MET Offices will inform ATS units when, in abnormal conditions, pressure goes below the minimum climatological value, in order that appropriate steps can be taken to cancel temporarily the use of the lowest flight level or levels that would not ensure the minimum terrain clearance.

11.2 Based on current and anticipated atmospheric pressure distribution, area control centres shall coordinate, where required, the lowest flight level to be used.

12.0 FLIGHT INFORMATION SERVICE

12.1 Information on runway conditions (A11 – 4.2.1; P-ATM, 6.6)

12.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

12.2 Transmission of SIGMET information (P-ATM, 9.1.3.2)

12.2.1 SIGMET information shall be transmitted to aircraft with the least possible delay on the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

12.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

12.3 Transmission of amended aerodrome forecast (P-ATM, 9.1.3.5)

12.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information would have been made available through other means.

13.0 AIR TRAFFIC SERVICES COORDINATION

13.1 Coordination between units providing area control service (P-ATM, 10.4.2)

13.1.1 If a flight should enter an adjacent area, information concerning any revision of estimate of three minutes or more shall be forwarded to the adjacent area control centre normally by telephone.

14.0 ALERTING AND SEARCH AND RESCUE SERVICES

14.1 Routes and equipment of private aircraft (A6, Part II – 6.3 and 6.4)

14.1.1 General aviation aircraft operating over designated areas, land or sea, where search and rescue operations would be difficult should:

a) carry appropriate survival equipment;

b) follow the routes or specified procedures if not equipped with two-way radio, except that under special circumstances the appropriate authority may grant specific exemptions from this requirement.

14.2 Alerting services (P-ATM, 9.2)

14.2.1 The procedures for "Alerting Service" detailed in the PANS-ATM, 9.2, are applicable to all flights except those conducted wholly in the vicinity of an aerodrome when exempted by the appropriate air traffic control unit.

15.0 OPERATIONS ON ATS ROUTES IN THE MIDDLE EAST REGION WHERE AN RNP TYPE IS SPECIFIED

15.1 Application of RNP 5 to ATS routes in the Middle East

15.1.1 Requirements for RNAV capability and aircraft navigation accuracy meeting RNP 5 will be progressively introduced in FIRs of the Middle East Region.

15.1.2 RNP 5 requirements may be specified on a route-by-route basis, or by designation of airspace within which all routes are RNP 5.

15.1.3 Within the FIRs specified in 15.2.1, only RNAV-equipped aircraft having a navigation accuracy meeting RNP 5 may plan for operations under IFR on those ATS routes, and within those level bands, which have been specified as requiring RNP 5 in the relevant State AIP or NOTAM.

15.1.4 Aircraft operating under IFR on designated RNP 5 routes shall be equipped with, as a minimum, RNAV equipment meeting the following requirements:

a) a system use accuracy equal to, or better than, 4.6 km (2.5 NM) for one standard deviation, with a 95 per cent containment value of ±9.26 km (±5 NM), thereby meeting the accuracy requirements for RNP 5; and

b) an average continuity of service of 99.99 per cent of flight time.

15.1.5 For the period until at least 2005 or until such time as VHF omnidirectional radio range (VOR) or distance measuring equipment (DME) facilities cease to be available, the carriage of a single RNAV system having a navigation accuracy meeting RNP 5 but not meeting the above continuity of service requirements may be approved for RNAV operations if the aircraft is also carrying VOR and DME equipment.

15.2 Area of applicability

15.2.1 The above provisions shall apply to operations conducted under IFR on designated RNP 5 routes within the following FIRs:

Amman, Baghdad, Bahrain, Beirut, Cairo, Damascus, Jeddah, Kabul, Kuwait, Muscat, Sana'a, Tehran, Tel Aviv and the United Arab Emirates.

15.3 Means of compliance

15.3.1 Conformance to the navigation requirement shall be verified by the State of Registry or the State of the Operator, as appropriate.

Note.— Guidance material concerning navigation accuracy requirements is contained in the Manual on Required Navigation Performance (RNP) *(Doc 9613), Chapter 5.*

15.4 Flight planning

15.4.1 Operators of aircraft fitted with RNAV having a navigation accuracy meeting RNP 5 shall insert the designator "R" in Item 10 of the flight plan.

15.5 Procedures for operation in RNP 5 routes

15.5.1 Correct operation of the aircraft RNAV system shall be verified before joining and during operation on an RNP 5 route. This shall include confirmation that:

a) the routing is in accordance with the clearance; and

b) the aircraft navigation accuracy meets RNP 5.

15.5.2 If, as a result of failure of the RNAV system or its degradation to below RNP 5, an aircraft is unable to enter either an ATS route designated as RNP 5 or to continue operations in accordance with the current air traffic control clearance, a revised clearance shall, wherever possible, be obtained by the pilot.

15.5.3 Subsequent air traffic control action in respect of that aircraft will be dependent upon the nature of the reported failure and the overall traffic situation. Continued operation in accordance with the current ATC clearance may be possible in many situations. When this cannot be achieved, a revised clearance may be required to revert to VOR/DME.

15.6 ATC procedures for aircraft experiencing failure or degradation of the RNAV system

15.6.1 If, as a result of a failure or degradation of the RNAV system, detected either before or after departure, the aircraft cannot meet the requirements of 15.1.4, the following ATC procedures are applicable.

15.6.1.1 *Coordination messages*
(P-ATM, 11.4.2.3)

a) *Computer-assisted coordination of estimate messages.* In the case of automated messages not containing the information provided in Item 18 of the flight plan, the sending ATC unit shall inform the receiving ATC by supplementing the ACT message verbally with the phrase "RNAV OUT OF SERVICE" after the call sign of the aircraft concerned.

b) *Verbal coordination of estimate messages.* When a verbal coordination process is being used, the sending ATC unit shall include the phrase "RNAV OUT OF SERVICE" at the end of the message.

15.6.1.2 *Pilot phraseology*
(P-ATM, Chapter 12)

15.6.1.2.1 The phrase "UNABLE RNAV DUE EQUIPMENT" shall be included by the pilot immediately following the aircraft call sign whenever initial contact on an ATC frequency is established.

15.7 ATC procedures for State aircraft not equipped with RNAV equipment but having a navigation accuracy meeting RNP 5

15.7.1 *Instructions for completion of the flight plan*
(A2 – 3.3.3; P-ATM, 4.4.1
and Appendix 2)

15.7.1.1 Operators of State aircraft not equipped with RNAV equipment meeting RNP 5 shall not insert "S" or "R" in Item 10 of the flight plan.

15.7.1.2 Since such flights require special handling by air traffic control, "STS/NORNAV" shall be inserted in Item 18 of the flight plan.

15.7.2 *ATC clearances*
(A11 – 3.7; P-ATM, 4.5, 4.5.4 and 4.5.7)

15.7.2.1 Within TMAs, State aircraft not equipped with RNAV approved for RNP 5 should be routed via non-RNAV SIDs and STARs.

15.7.2.2 Such aircraft operating en-route should be routed via VOR/DME-defined ATS routes.

15.7.2.3 When the above procedures cannot be applied, the ATC unit shall provide the aircraft with radar vectors until the aircraft is capable of resuming its own navigation.

15.7.3 *Coordination messages*
(P-ATM, 11:4.2.3)

a) *Computer-assisted coordination of estimate messages.* In the case of automated messages not containing the information provided in Item 18 of the flight plan, the sending ATC unit shall inform the receiving ATC unit by supplementing the ACT message verbally with the phrase "NEGATIVE RNAV" after the call sign of the aircraft concerned.

b) *Verbal coordination of estimate messages.* When a verbal coordination process is being used, the sending ATC unit shall include the phrase "NEGATIVE RNAV" at the end of the message.

15.7.4 *Pilot phraseology*
(P-ATM, Chapter 12)

15.7.4.1 The phrase "NEGATIVE RNAV" shall be included by the pilot immediately following the aircraft call sign whenever initial contact on an air traffic control frequency is established.

15.8 Protected airspace for RNP 5 ATS routes
(A-11, Attachment B; P-ATM, 5.4.1.2.1.2 d))

15.8.1 The provisions of Annex 11, Attachment B, Section 2.2 (Protected airspace for RNAV ATS routes based on RNP 4) shall apply equally to RNP 5 routes, except that the cross-track distances required to achieve a given level of containment shall be as specified in the following table:

	Percentage Containment for RNP 5					
	95	96	97	98	99	99.5
km	9.3	10.2	10.2	11.1	12.0	13.9
NM	5.0	5.5	5.5	6.0	6.5	7.5

MID/ASIA REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Languages to be used in radiotelephony
(A10, Vol. II, 5.2.1.1.2, Note 2)

1.1.1 In English-speaking countries the alternative shall be French.

Note.- Maintenance of this procedure does not require implementation beyond the extent to which it has been carried out so far.

2.0 AERONAUTICAL FIXED SERVICE

2.1 Priority of MOTNE messages on AFTN

2.1.1 "MOTNE Bulletins" for circulation on the MOTNE system which are handled on the AFTN shall be given FF priority.

2.1.2 Technical aspects of AFTN rationalization

2.1.2.1 To support data communication requirements and to provide needed data integrity and minimal transit time, the CCITT X.25 protocol should be used between AFTN COM Centres in the ASIA Region.

3.0 RADIO FREQUENCIES

3.1 Air-to-air channel
(A10, Vol. I, Part II - 4.1.3.2)

3.1.1 The frequency 128.950 MHz has been approved for use as the air-to-air channel in the MID and ASIA Regions, to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

MID/ASIA REGIONAL SUPPLEMENTARY PROCEDURES

PART 3 — METEOROLOGY

These procedures are supplementary to the provisions contained in Annex 3.

1.0 AIRCRAFT OBSERVATIONS AND REPORTS
(A3 – Chapter 5)

1.1 Aircraft cleared on high-density routes in the Kabul, Tehran, Muscat, Emirates, Bahrain, Jeddah, Amman and Damascus flight information regions between 2300 and 0500 UTC shall be required to transmit routine meteorological observations only when so designated at the time of receiving their clearance in accordance with MID/ASIA/RAC 3.5.1 and 3.5.2.

1.2 When voice communications are used, aircraft flying over Japan and Continental Asia shall be exempted from reporting routine observations.

1.3 Aircraft cleared on high-density routes between Tokyo and Hong Kong, Tokyo and Taipei, Hong Kong and Taipei, Hong Kong and Bangkok, Hong Kong and Singapore, Hong Kong and Kuala Lumpur, Bangkok and Kuala Lumpur, Bangkok and Singapore shall be required to transmit routine meteorological observations only when so designated at the time of receiving their clearance in accordance with MID/ASIA/RAC 3.5.1 and 3.5.2.

NORTH AMERICA (NAM)
REGIONAL SUPPLEMENTARY PROCEDURES

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NAM REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions in PANS-ATM (Doc 4444).

1.0 SEPARATION OF AIRCRAFT

1.1 Lateral separation

1.1.1 Minimum lateral separation in the Anchorage Arctic CTA shall be 167 km (90 NM) except that lower minima in 5.4.1.2 of PANS-ATM (Doc 4444) may be applied, or further reduced in accordance with paragraph 5.11 of the same part, where the conditions specified in the relevant PANS-ATM provisions are met.

1.2 Longitudinal separation

1.2.1 Minimum longitudinal separation in the Anchorage Arctic CTA shall be:

a) 15 minutes between turbo-jet aircraft.

This separation may be reduced to:

1) 10 minutes provided the Mach number technique is applied and whether in level, climbing or descending flight:

   i) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

   ii) if the aircraft have **not** reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; or

2) between 10 and 5 minutes inclusive only when it is possible to ensure by radar or other means approved by the State, that the required time interval will exist at the common point from which they either follow the same track or continuously diverging tracks provided the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following table:

   — 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft;

   — 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft;

   — 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft;

   — 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft;

   — 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

b) 20 minutes between other aircraft.

1.3 Vertical separation
(A2–Appendix 3; PANS-ATM, 5.3.2)

1.3.1 Reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) between FL 290 and FL 410 inclusive may be applied in the area specified in 1.3.2.

1.3.2 *Area of applicability*

1.3.2.1 RVSM shall be applicable in either all, or part of, that volume of airspace between FL 290 and FL 410 inclusive in the following flight information regions/ control areas (FIRs/CTAs):

Edmonton, Montreal, Winnipeg.

1.3.2.2 States concerned shall publish the appropriate information in aeronautical information publications, so that users of the airspace are fully aware of the portions of the airspace where the reduced separation minimum will be applied, and associated special procedures, where applicable.

1.3.3 *RVSM approval*

1.3.3.1 Except for State aircraft, operators intending to conduct flights within the volume of airspace specified in

1.3.2, where RVSM is applied, shall require an RVSM approval either from the State in which the operator is based or from the State in which the aircraft is registered. To obtain such an RVSM approval, operators shall satisfy the said State that:

a) aircraft for which the RVSM approval is sought are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent); and

b) the operators will adopt operational policy and procedures applicable in the RVSM area of operations specified in 1.3.2.

1.3.4 *MASPS*

1.3.4.1 The MASPS height-keeping requirements are as follows:

a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;

b) for groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft).

c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

   1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3};

   2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6} ;

   3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6} ;

   4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7}; and

   5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft) or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7}.

1.3.5 *Target level of safety (TLS)*

1.3.5.1 Application of RVSM in the airspace designated in 1.3.2.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

1.3.6 *Approval status and aircraft registration*

1.3.6.1 Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

Note.— An RVSM approval is not restricted to a specific region. Instead, it is valid globally on the understanding that any operating procedures specific to a given region are stated in the operations manual or appropriate crew guidance.

1.3.7 *Monitoring*

1.3.7.1 Adequate monitoring of flight operations in the designated RVSM airspace shall be conducted to assist in

the assessment of continuing compliance with the height-keeping capabilities in 1.3.4. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 1.3.5.1 is not exceeded.

2.0 SPECIAL PROCEDURES APPLICABLE IN DESIGNATED AIRSPACES

2.1 Establishment of 300 m (1 000 ft) vertical separation minimum (VSM) transition areas
(A2, Appendix 3; A6, Parts I and II – 7.2.4; A11 – 3.3.4; P-ATM, 5.3.2)

2.1.1 In order to allow the transition of flights to/from a vertical separation minimum of 300 m (1 000 ft) between FL 290 and FL 410 inclusive, the ATS authorities may establish designated airspaces defined as reduced vertical separation mini mum (RVSM) transition areas.

2.2 Characteristics of an RVSM transition area

2.2.1 An RVSM transition area will normally have a vertical extent of FL 290 to FL 410 inclusive, with defined horizontal dimensions as determined by the appropriate ATS authority, either individually or in consultation and agreement between the ATS authorities concerned, and be adjacent to, overlapping with or contained within designated RVSM airspace.

3.0 AIR TRAFFIC SERVICES MESSAGES

3.1 Flight plan and departure messages
(P-ATM, 10.4.2.1.1)

3.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 110 km (60 NM) or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions.

3.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted.

NAM REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10, Volume II.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Radiotelephony network operation

1.1.1 HF aeronautical mobile service is provided to flights operating in the Arctic area of the Anchorage flight information region on frequencies of the North Atlantic Family D Network (NAT-D) via Cambridge Bay Radio.

NAM REGIONAL SUPPLEMENTARY PROCEDURES

PART 3 — METEOROLOGY

These procedures are supplementary to the provisions contained in Annex 3.

1.0 AIRCRAFT OBSERVATIONS AND REPORTS (A3 – Chapter 5)

1.1 When voice communications are used aircraft shall be exempted from reporting any routine observations, except when flying north of latitude 55°N and west of longitude 80°W and when flying north of latitude 60°N and east of longitude 80°W.

NORTH ATLANTIC (NAT)
REGIONAL SUPPLEMENTARY PROCEDURES

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NAT REGIONAL SUPPLEMENTARY PROCEDURES

PART I — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 — Parts I and II, Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

They do not apply in the local areas established by the appropriate authorities around Bermuda, Iceland, the Faroe Islands and Santa Maria, and in Greenland.

1.0 FLIGHT RULES

1.1 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.— Annex 2, 2.2, permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.1.1 *Special application of instrument flight rules*

1.1.1.1 Flights shall be conducted in accordance with the instrument flight rules (even when not operating in instrument meteorological conditions) when operated at or above FL 60 or 600 m (2 000 ft) above ground, whichever is the higher, within:

a) the New York Oceanic, Gander Oceanic, Shanwick Oceanic, Santa Maria Oceanic, Søndrestrøm and Reykjavik flight information regions; and

b) the Bodø Oceanic flight information region when operated more than 185 km (100 NM) seaward from the shoreline.

2.0 REDUCED VERTICAL SEPARATION MINIMUM (RVSM)

2.1 Method of application

2.1.1 Aircraft used to conduct flights where reduced vertical separation minimum (RVSM) is applied shall receive State approval for RVSM operations after ensuring that each aircraft meets the minimum aircraft system performance specifications (MASPS). The MASPS have been designed to ensure that:

a) in respect of groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance, height-keeping performance capability shall be such that the total vertical error (TVE) for the group of aircraft shall have a mean no greater than 25 m (80 ft) in magnitude and shall have a standard deviation no greater than $92 - 0.004z^2$ for $0 \leq z \leq 80$ where z is the magnitude of the mean TVE in feet or $28 - 0.013z^2$ for $0 \leq z \leq 25$ when z is in metres. In addition, the components of TVE must have the following characteristics:

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude;

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft); and

   3) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential;

b) in respect of a non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, height-keeping performance capability shall be such that the components of the TVE of the aircraft have the following characteristics:

   1) the ASE of a non-group aircraft shall not exceed 61 m (200 ft) in magnitude under all flight conditions; and

   2) the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

The State of Registry or the State of the Operator, as appropriate, should verify that the height-keeping performance capability of approved aircraft meets the requirements specified in 2.1.1.

Note.— Guidance material of use to those involved in the initial achievement and continued maintenance of the height-keeping performance set forth in 2.1.1 has been issued by ICAO under the title Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) in the MNPS Airspace of the North Atlantic (NAT) Region *and will be supplemented and updated as required and as new material becomes available.*

2.1.2 Aircraft not meeting the requirements of 2.1.1 shall not be allowed to operate in airspace where reduced vertical separation minimum is being applied.

2.1.3 Adequate monitoring of flight operations in the NAT Region shall be conducted in order to assist in the assessment of continuing compliance of aircraft with height-keeping capabilities specified in 2.1.1.

3.0 MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS (MNPS)

3.1 Method of application

(A2 – 5.1.1; A6, Part I – 4.2, 7.2 and Chapter 3, Note 1; A6, Part II – 7.2 and Chapter 3, Note 1; A8 – 8.1)

3.1.1 Aircraft used to conduct flights within the volume of airspace specified in 3.2.1 shall have lateral navigation performance capability such that:

a) the standard deviation of lateral track errors shall be less than 11.7 km (6.3 NM);

b) the proportion of the total flight time spent by aircraft 56 km (30 NM) or more off the cleared track shall be less than 5.3×10^{-4}; and

c) the proportion of the total flight time spent by aircraft between 93 and 130 km (50 and 70 NM) off the cleared track shall be less than 1.3×10^{-5}.

The State of Registry or the State of the Operator, as appropriate, should verify that the lateral navigation capability of approved aircraft meets the requirements specified in 3.1.1.

Note.— Guidance material of use to those involved in the initial achievement and continued maintenance of the navigation capability set forth in 3.1.1 has been issued by ICAO under the title Guidance Material related to Air Navigation in the NAT Region *and will be supplemented and updated as required and as new material becomes available.*

3.2 Area of applicability

3.2.1 The MNPS shall be applicable in that volume of airspace between FL 285 and FL 420 within the Oceanic Control Areas of Santa Maria, Shanwick, Reykjavik, Gander Oceanic and New York, excluding the area west of 60°W and south of 38°30'N.

Note.— This volume of airspace is referred to as the "MNPS airspace".

3.2.2 Aircraft not meeting the requirements of 3.1.1 shall not be allowed to operate in MNPS airspace.

3.2.3 When granting approval for operations in MNPS airspace, States of Registry shall ensure that in-flight operating drills include mandatory navigation cross-checking procedures which will identify navigation errors in sufficient time to prevent the aircraft inadvertently deviating from the ATC-cleared route. Guidance on procedures are detailed in NAT Doc 001, T13/5N and NAT MNPS Operations Manual.

3.2.4 Adequate monitoring of flight operations in the NAT Region shall be conducted in order to assist in the assessment of continuing compliance of aircraft with the lateral navigation capabilities specified in 3.1.1.

Note.— Monitoring will be conducted in accordance with the appropriate guidance material issued by ICAO.

3.2.5 An operator who experiences reduced navigation performance shall inform air traffic control (ATC) as soon as practicable.

4.0 FLIGHT PLANS

4.1 Contents of flight plans

(A2 – 3.3; P-ATM, 4.4.1 and Appendix 2)

4.1.1 *Route*

4.1.1.1 Flights conducted wholly or partly outside the organized tracks shall be planned along great circle tracks joining successive significant points and flight plans shall be made in accordance with the following.

4.1.1.1.1 Flights operating between North America and Europe shall generally be considered as operating in a predominantly east-west direction. However, flights planned between these two continents via the North Pole shall be considered as operating in a predominantly north-south direction.

4.1.1.1.2 *Flights operating predominantly in an east-west direction*

a) For flights operating south of 70°N, the planned tracks shall normally be defined by significant points formed by the intersection of half or whole degrees of latitude with meridians spaced at intervals of 10° from the Greenwich meridian to longitude 70°W.

b) For flights operating north of 70°N, the planned tracks shall normally be defined by significant points formed by the intersection of parallels of latitude expressed in degrees and minutes with meridians normally spaced at intervals of 20° from the Greenwich meridian to longitude 60°W.

c) The distance between significant points shall, as far as possible, not exceed one hour's flight time. Additional significant points should be established when deemed necessary due to aircraft speed or the angle at which the meridians are crossed, e.g.:

   1) at intervals of 10° of longitude (between 5°W and 65°W) for flights operating south of 70°N; and

   2) at intervals of 20° of longitude (between 10°W and 50°W) for flights operating north of 70°N.

d) However, when the flight time between successive significant points is less than 30 minutes, one of these points may be omitted.

4.1.1.1.3 *Flights operating predominantly in a north-south direction*

For flights whose flight paths are predominantly oriented in a north-south direction, the planned tracks shall normally be defined by significant points formed by the intersection of whole degrees of longitude with specified parallels of latitude which are spaced at 5°.

4.1.1.2 For flights conducted along one of the organized tracks from the entry point into the NAT flight information regions to the exit point, the organized track shall be defined in the flight plan by the abbreviation "NAT" followed by the code letter assigned to the track.

4.1.1.3 For flights operating along the fixed ATS route network between Canada, the United States, Bermuda and the CAR Region, the track shall be defined by appropriate reference to this route network.

4.1.2 *Estimated times*

4.1.2.1 For flights conducted along one of the organized tracks from the entry point into the NAT flight information regions to the exit point, the accumulated estimated elapsed time only to the first oceanic FIR boundary should be specified in Item 18 of the flight plan.

4.1.2.2 For flights conducted wholly or partly outside the organized tracks in the NAT Region, accumulated estimated elapsed times to significant points en route shall be specified in Item 18 of the flight plan.

4.1.3 *Mach number*

4.1.3.1 For turbo-jet aircraft intending to operate within the Bodø Oceanic, Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria Oceanic and Shanwick Oceanic control areas, the Mach number planned to be used for any portion of their flight within these control areas shall be specified in Item 15 of the flight plan.

4.1.4 *Alternative flight level*

4.1.4.1 For turbo-jet aircraft intending to operate within the Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria Oceanic and Shanwick Oceanic control areas, requests for a suitable alternative flight level may be included in Item 18 of the flight plan.

4.1.5 *Approval status and aircraft registration*

4.1.5.1 All RVSM-approved aircraft intending to operate in the NAT Region shall include the letter "W" in Field 10 of the flight plan. Furthermore, all RVSM-approved aircraft intending to operate in the NAT Region shall include the aircraft registration in Item 18 of the flight plan.

4.1.5.2 All MNPS-approved aircraft intending to operate in the NAT Region shall include the letter "X" in Field 10 of the flight plan.

4.2 Submission of flight plans
(A2 – 3.3.1; P-ATM, 4.2.2)

4.2.1 Flight plans for flights departing from points within adjacent regions and entering the NAT Region without intermediate stops shall be submitted as early as possible.

5.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3, and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

5.1 Time or place of position reports
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

5.1.1 Unless otherwise required by air traffic services, position reports for flights on routes not defined by designated reporting points shall be made at the significant points listed in the flight plan.

5.1.1.1 Air traffic services may require any flight operating predominantly in an east-west direction to report its position at any of the intermediate meridians spaced at intervals of:

a) 10° of longitude south of 70°N (between 5°W and 65°W);

b) 20° of longitude north of 70°N (between 10°W and 50°W).

5.1.1.2 Air traffic services may require any flight operating generally in a north-south direction to report its position at any intermediate parallel of latitude when deemed necessary.

5.1.1.3 In requiring aircraft to report their position at intermediate intervals, the air traffic services authorities will be guided by the requirement to have position information at approximately hourly intervals and also by the need to cater for varying types of aircraft and for varying traffic and meteorological conditions.

5.1.2 Position information shall be based on the best obtainable navigation fix. The time of fixing aircraft position shall be arranged so as to provide the most accurate position information and estimates possible.

5.2 Contents of position reports
(P-ATM, 4.11 and 4.12)

5.2.1 *Position and time*

5.2.1.1 Verbal position reports shall be identified by the spoken word "Position" transmitted immediately before or after the aircraft identification.

5.2.1.2 Except as provided in 5.2.1.3, position shall, for flights outside the ATS route network, be expressed in terms of latitude and longitude. For flights whose tracks are predominantly east or west, latitude shall be expressed in degrees and minutes, longitude in degrees only. For flights whose tracks are predominantly north or south, latitude shall be expressed in degrees only, longitude in degrees and minutes.

5.2.1.3 Aircraft operating in an organized track system for supersonic aircraft operations may report their positions by reference to the track code with the longitude of the reporting point.

5.2.1.4 When making position reports all times should be expressed in four digits, giving both the hour and minutes.

5.2.2 *Next position and time over*

5.2.2.1 "Next position" shall normally be expressed as the significant point at which the aircraft is next required to report its position.

5.2.2.2 The name or location of the ensuing significant point following the "next position and estimated time" shall be given when making position reports within oceanic control areas.

5.2.2.3 If the estimated time for the next position last reported to air traffic control is found to be in error by three minutes or more, a revised estimate shall be transmitted to the ATS unit concerned as soon as possible.

5.2.3 *Level*

5.2.3.1 Aircraft cleared for cruise climb shall report their level to the nearest 30 m (100 ft).

Note.— Levels so reported, e.g. 354, may not necessarily be flight levels as defined in the PANS-OPS, Part III.

5.2.4 *Abbreviated reports*

5.2.4.1 When operating in an organized track system for supersonic aircraft operations, position reports may be abbreviated as notified by the appropriate ATS authority concerned.

5.2.4.2 Abbreviated position reports for supersonic aircraft shall consist of aircraft identification, position and time only.

5.3 Transmission of position reports
(P-ATM, 4.11)

5.3.1 Position reports made by aircraft operating within an oceanic control area at a distance of 110 km (60 NM) or less from the common boundary with an adjacent oceanic control area, including aircraft operating on tracks through successive points on such boundary, shall also be made to the area control centre serving the adjacent control area.

5.3.2 Responsibility for the transmission of position reports to the additional ATS units specified in 5.3.1 may be delegated to the appropriate communications station(s) through local arrangement.

5.4 Meteorological reports

5.4.1 When voice communications are used, oceanic area control centres shall designate, from among the aircraft intending to operate on the organized tracks, those which shall be required to report routine meteorological observations at each prescribed reporting point. This designation shall be made by the oceanic area control centre delivering the oceanic clearance, using the phrase "SEND MET REPORTS", and should normally be made so as to designate one aircraft per track at approximately hourly intervals.

Note.— When air-ground data link is being used for meteorological reporting during flight, no aircraft observations by voice communications are required, in accordance with Annex 3, 5.3.1.

6.0 COMMON PROCEDURES FOR RADIO COMMUNICATIONS FAILURE OF AIRCRAFT OPERATING IN OR INTENDING TO OPERATE IN THE NAT REGION
(P-OPS, Vol. I, Part VIII)

6.1 The following procedures are intended to provide general guidance for aircraft operating into or from the NAT Region experiencing a communications failure. These procedures are intended to complement and not supersede State procedures/regulations. It is not possible to provide guidance for all situations associated with a communications failure.

6.2 General

6.2.1 The pilot shall attempt to contact either another aircraft or any ATC facility and inform it of the difficulty and request that information be relayed to the ATC facility with whom communications are intended.

6.3 Communications failure prior to entering NAT Region

6.3.1 If operating **with** a received and acknowledged oceanic clearance, the pilot shall enter oceanic airspace at the cleared oceanic entry point, level and speed and proceed in accordance with the received and acknowledged oceanic clearance. Any level or speed changes required to comply with the oceanic clearance shall be completed within the vicinity of the oceanic entry point.

6.3.2 If operating **without** a received and acknowledged oceanic clearance, the pilot shall enter oceanic airspace at the first oceanic entry point, level and speed, as contained in the filed flight plan and proceed via the filed flight plan route to landfall. That first oceanic level and speed shall be maintained to landfall.

6.4 Communications failure prior to exiting NAT Region

6.4.1 *Cleared on filed flight plan route*

6.4.1.1 The pilot shall proceed in accordance with the last received and acknowledged oceanic clearance, including level and speed, to the last specified oceanic route point, normally landfall, then continue on the filed flight plan route. The pilot shall maintain the last assigned

oceanic level and speed to landfall and, after passing the last specified oceanic route point, the pilot shall conform with the relevant State procedures/regulations.

6.4.2 *Cleared on other than filed flight plan route*

6.4.2.1 The pilot shall proceed in accordance with the last received and acknowledged oceanic clearance, including level and speed, to the last specified oceanic route point, normally landfall. After passing this point, the pilot shall conform with the relevant State procedures/ regulations and rejoin the filed flight plan route by proceeding, via the published ATS route structure where possible, to the next significant point ahead as contained in the filed flight plan.

Note.— The relevant State procedures/regulations to be followed by aircraft in order to rejoin its filed flight plan route are specified in detail in the appropriate national Aeronautical Information Publication.

6.5 The use of satellite communications (SATCOM)

6.5.1 Aircraft equipped with SATCOM shall restrict the use of such equipment to emergencies and non-routine messages.

7.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

7.1 General

7.1.1 The following procedures are intended for guidance only. Although all possible contingencies cannot be covered, they provide for the more frequent cases, such as:

a) inability to maintain assigned level;

b) en-route diversion across the prevailing NAT traffic flow; and

c) loss of, or significant reduction in, required navigation capability.

7.1.2 With regard to a) and b), the procedures are applicable primarily when rapid descent and/or turnback or diversion is required. The pilot's judgement shall determine the sequence of actions taken, having regard to the prevailing circumstances.

7.2 General procedures

7.2.1 The following general procedures apply to both subsonic and supersonic aircraft.

7.2.2 If an aircraft is unable to continue flight in accordance with its air traffic control clearance, a revised clearance shall be obtained, whenever possible, prior to initiating any action.

7.2.3 The radiotelephony distress signal (MAYDAY, MAYDAY, MAYDAY) or urgency signal (PAN, PAN, PAN) shall be used as appropriate.

7.2.4 If these contingency procedures are employed, the pilot shall advise air traffic control as soon as practicable, reminding them of the type of aircraft involved and the nature of the problem.

7.2.5 If prior clearance cannot be obtained, the pilot shall:

a) broadcast position (including the ATS route designator or the track code, as appropriate) and intentions at frequent intervals on frequency 121.5 MHz, with 123.45 MHz as a backup frequency;

b) turn on external lights; and

c) maintain a watch (utilizing airborne collision avoidance systems (ACAS) if available) for conflicting traffic.

7.2.6 Aircraft should be flown at a flight level and/or on an offset track where other aircraft are least likely to be encountered.

7.3 Special contingency procedures for subsonic aircraft

7.3.1 The following guidance is recommended for aircraft operating within NAT airspace.

7.3.2 *Initial action*

7.3.2.1 If unable to obtain prior air traffic control clearance, the aircraft should leave its assigned route or track by initially turning 90 degrees to the right or left to

acquire an offset track of 56 km (30 NM). The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system (e.g. whether the aircraft is outside, at the edge of, or within the organized track system (OTS)). Other factors, which may affect the direction of the turn, are the location of an alternate airport, terrain clearance, any lateral offset being flown and levels allocated on adjacent routes or tracks.

7.3.3 *Subsequent action (using offset procedures)*

7.3.3.1 An aircraft that is able to maintain its assigned flight level, once established on the offset track, should:

a) if above FL 410, climb or descend 300 m (1 000 ft); or

b) if below FL 410, climb or descend 150 m (500 ft); or

c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

7.3.3.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its descent rate to the extent possible;

b) take account of other aircraft possibly being laterally offset from its track;

c) select a flight level which differs from those normally used by 300 m (1 000 ft) if above FL 410 or by 150 m (500 ft) if below FL 410;

d) if it is a random track aircraft operating in MNPS airspace and its distance is less than 110 km (60 NM) from any organized track, establish and maintain a 56 km (30 NM) offset track from any OTS track prior to initiating descent if the aircraft is able to do so; and

e) contact ATC as soon as practicable and request a revised ATC clearance.

7.3.3.3 An aircraft that is not MNPS/RVSM approved and is unable to maintain a flight level above MNPS/RVSM airspace should descend to a flight level below MNPS/RVSM airspace.

7.3.3.4 An aircraft compelled to make a descent through MNPS airspace, whether continuing to destination or turning back, should, if its descent will conflict with an organized track:

a) plan to descend to a level below FL 280;

b) prior to passing FL 410, proceed to a point midway between a convenient pair of organized tracks prior to entering that track system from above;

c) while descending between FL 410 and FL 280, maintain a track that is midway between and parallel with the organized tracks; and

d) contact ATC as soon as practicable and request a revised ATC clearance.

7.3.4 *En-route diversion across the prevailing NAT air traffic flow*

7.3.4.1 Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 7.3.2 or 7.3.3. However, if the pilot is unable or unwilling to do so, the aircraft should be flown at a level as defined in 7.3.3.1 for the diversion until a revised ATC clearance is obtained.

7.4 Special procedures for supersonic aircraft

7.4.1 *Turnback procedures*

7.4.1.1 If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

a) when operating on track 'SM', turn north, or if on track 'SO', turn south;

b) when operating on a random track or on track 'SN' or 'SP', turn either left or right as follows:

1) if the turn is to be made to the right, the aircraft should first attain a position 56 km (30 NM) to the left of the assigned track and then turn to the right onto its reciprocal heading, at the greatest practical rate of turn;

2) if the turn is to be made to the left, the aircraft should first attain a position 56 km (30 NM) to the right of the assigned track and then turn to the left onto its reciprocal heading, at the greatest practical rate of turn;

c) while executing the turnback, the aircraft should lose height so that it will be at least 1 850 m (6 000 ft) below the level at which turnback was started (but not below FL 430) by the time the turnback is completed;

d) when turnback is completed, heading should be adjusted to maintain a lateral displacement of 56 km (30 NM) from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

7.4.2 *Procedures when unable to maintain the assigned flight level*

7.4.2.1 A supersonic aircraft compelled to make a descent through MNPS airspace, whether continuing to destination or turning back, should, if its descent will not conflict with an organized track system for subsonic air traffic:

a) plan to descend to a level below FL 280; and

b) contact ATC as soon as practicable and request a revised ATC clearance.

7.4.2.2 A supersonic aircraft compelled to make a descent through MNPS airspace, whether continuing to destination or turning back, should, if its descent will conflict with an organized track system for subsonic air traffic:

a) plan to descend to a level below FL 280;

b) prior to passing FL 410, proceed to a point midway between a convenient pair of subsonic tracks prior to entering that track system from above;

c) while descending between FL 410 and FL 280, maintain a track that is midway between and parallel with the subsonic tracks; and

d) contact ATC as soon as practicable and request a revised ATC clearance.

7.4.2.3 If height is critical to reach the destination, the pilot shall be expected to use the urgency signal (PAN, PAN, PAN) when communicating with air traffic services to request clearance at FL 280 or above.

7.5 Special procedures for lateral offsets within NAT airspace

Note.— The following incorporates lateral offset procedures for both the mitigation of the increasing lateral overlap probability and wake turbulence encounters.

7.5.1 It has been determined that allowing aircraft conducting oceanic flight to fly lateral offsets, not to exceed 2 NM right of centre line, will provide an additional safety margin and mitigate the risk of conflict when non-normal events such as aircraft navigation errors, altitude deviation errors and turbulence-induced altitude-keeping errors occur.

7.5.2 This procedure provides for offsets within the following guidelines. Along a route or track there will be three positions that an aircraft may fly: centre line or one or two miles right. Offsets will not exceed 2 NM right of centre line. The intent of this procedure is to reduce risk (add safety margin) by distributing aircraft laterally across the three available positions.

a) Aircraft without automatic offset programming capability must fly the centre line.

b) Operators capable of programming automatic offsets may fly the centre line or offset one or two nautical miles right of centre line to obtain lateral spacing from nearby aircraft. (Offsets will not exceed 2 NM right of centre line.) An aircraft overtaking another aircraft should offset within the confines of this procedure, if capable, so as to create the least amount of wake turbulence for the aircraft being overtaken.

c) Pilots should use whatever means is available to determine the best flight path to fly.

d) Pilots should also fly one of the three positions shown above to avoid wake turbulence. Aircraft should not offset to the left of centre line nor offset more than 2 NM right of centre line. Pilots may contact other aircraft on frequency 123.45, as necessary, to coordinate the best wake turbulence offset option.

Note.— It is recognized that pilots will use their judgement to determine the action most appropriate to any given situation and have the final authority and responsibility for the safe operations of the aeroplane.

e) Pilots may apply an offset outbound at the oceanic entry point and must return to centre line at the oceanic exit point.

f) Aircraft transiting oceanic radar areas may remain on their established offset positions.

g) There is no ATC clearance required for this procedure and it is not necessary that ATC be advised.

7.6 Weather deviation procedures for oceanic-controlled airspace (A2 — 2.3.1)

7.6.1 *General*

7.6.1.1 The following procedures are intended to provide guidance for deviations around thunderstorms. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions taken. ATC shall render all possible assistance.

7.6.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 7.6.4.

7.6.1.3 The pilot shall inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centre line of its cleared route.

7.6.2 *Obtaining priority from ATC when weather deviation is required*

7.6.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

7.6.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

7.6.3 *Actions to be taken when controller-pilot communications are established*

7.6.3.1 The pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

7.6.3.2 ATC takes one of the following actions:

a) if there is no conflicting traffic in the horizontal plane, ATC will issue clearance to deviate from track; or

b) if there is conflicting traffic in the horizontal plane, ATC separates aircraft by establishing appropriate separation; or

c) if there is conflicting traffic in the horizontal plane and ATC is unable to establish appropriate separation, ATC shall:

1) advise the pilot of inability to issue clearance for requested deviation;

2) advise the pilot of conflicting traffic; and

3) request the pilot's intentions.

SAMPLE PHRASEOLOGY

"UNABLE (*requested deviation*), TRAFFIC IS (*call sign, position, altitude, direction*), ADVISE INTENTIONS."

7.6.3.3 The pilot will take the following actions:

a) advise ATC of intentions; and

1) comply with the ATC clearance issued; or

2) execute the procedures detailed in 7.6.4; and

b) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

7.6.4 *Actions to be taken if a revised ATC clearance cannot be obtained*

7.6.4.1 The provisions of this section apply to situations where a pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

7.6.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

a) if possible, deviate away from the organized track or route system;

b) establish communications with and alert nearby aircraft broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including ATS route designator or the track code) and intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the VHF inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;

f) for deviations of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the following criteria:

Route centre line track	*Deviations >19 km (10 NM)*	*Level change*
EAST 000° – 179° magnetic	LEFT	DESCEND 90 m (300 ft)
	RIGHT	CLIMB 90 m (300 ft)
WEST 180°– 359° magnetic	LEFT	CLIMB 90 m (300 ft)
	RIGHT	DESCEND 90 m (300 ft)

Note.— If, as a result of actions taken under the provisions of 7.6.4.2 b) and c), the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

g) when returning to track, be at its assigned flight level, when the aircraft is within approximately 19 km (10 NM) of centre line; and

h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

8.0 AIR TRAFFIC CONTROL CLEARANCES

8.1 Contents of clearances

(A11 – 3.7; P-ATM, 4.5.4, 4.5.7 and 11.4.2.5.2)

8.1.1 An abbreviated clearance shall only be issued by ATS when clearing an aircraft to follow one of the organized tracks throughout its flight within the NAT control areas, along one of the Polar Tracks within Reykjavik CTA and/or Bodø OCA, or when clearing an aircraft to follow its flight plan route. In all other circumstances, full details of the cleared track shall be specified in the clearance message.

8.1.1.1 When an abbreviated clearance is issued to follow one of the organized tracks or on Polar Tracks it shall include:

a) cleared track specified by the track code;

b) cleared flight level(s);

c) cleared Mach Number (if required);

d) if the aircraft is designated to report meteorological information in flight, the phrase "SEND MET REPORTS".

8.1.1.2 On receipt of an abbreviated clearance the pilot shall read back the contents of the clearance message. In addition, when cleared to follow one of the organized tracks, the pilot of a subsonic aircraft shall read back full details of the track specified by the code letter, except where alternative procedures using VHF techniques exist which include provision for the confirmation of cleared track by the pilot.

8.1.2 When an abbreviated clearance is issued to follow the flight plan route, it shall only be issued using direct controller/pilot communication, and shall include:

a) the expression "cleared via flight planned route";

b) cleared flight level(s);

c) cleared Mach Number (if required).

8.1.3 On receipt of an abbreviated clearance, the pilot shall read back the contents of the clearance message. In addition, when cleared via "flight planned route", the pilot of a subsonic aircraft shall read back full details of the flight plan route.

8.1.4 A pilot-in-command shall, if at any time in doubt, request a detailed description of the route from ATS.

8.1.5 The ATC-approved Mach number shall be included in each clearance given to subsonic turbo-jet aircraft operating within Bodø Oceanic, Gander Oceanic, New York Oceanic, Reykjavik, Santa Maria Oceanic and Shanwick Oceanic control areas.

8.2 Adherence to ATC-approved route
(A2 – 3.6.2)

8.2.1 If an aircraft has inadvertently deviated from the route specified in its ATC clearance it shall forthwith take action to regain such route within 185 km (100 NM) from the position at which the deviation was observed.

8.3 Adherence to ATC-approved Mach number
(A2 – 3.6.2)

8.3.1 Turbo-jet aircraft operating within controlled airspace shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

8.3.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during en-route climbs and descents, pilots of aircraft concerned shall advise ATC at the time of the climb/descent request.

8.4 Clearances relating to flights subject to maintaining own separation and remaining in visual meteorological conditions (VMC)
(A11 – 3.3; P-ATM, 5.9)

8.4.1 Clearances to climb or descend maintaining own separation while in VMC shall not be granted.

9.0 SEPARATION OF AIRCRAFT

9.1 Lateral separation
(P-ATM, 5.4.1 and 5.11)

9.1.1 Minimum lateral separation shall be:

a) 110 km (60 NM) between aircraft which meet the minimum navigation performance specifications (MNPS) provided that a portion of the route of the aircraft is within, above, or below MNPS airspace;

b) 167 km (90 NM) between aircraft operating outside the MNPS airspace and at least one aircraft does not meet the MNPS;

1) between the Iberian Peninsula and the Azores Islands; and

2) between Iceland and points in Scandinavia and in the United Kingdom;

c) 167 km (90 NM) between aircraft operating outside MNPS airspace where no portion of the route of the aircraft is within, above, or below the MNPS airspace:

1) between the United States or Canada and Bermuda; and

2) west of 55°W between the United States, Canada or Bermuda and points in the CAR Region;

d) 223 km (120 NM) between other aircraft;

except that lower minima in 5.4.1.2 of the PANS-ATM (Doc 4444) may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS-ATM provisions are met (see 9.4).

9.1.2 In the practical application of the minima in 9.1.1 a), b), and c), tracks may be spaced with reference to their difference in latitude, using one degree instead of 110 km (60 NM); one and one-half degrees instead of 167 km (90 NM); and two degrees instead of 223 km (120 NM), provided that in any interval of ten degrees of longitude the change in latitude of at least one of the tracks does not exceed:

a) three degrees at or south of 58°N;

b) two degrees north of 58°N and south of 70°N; and

c) one degree at or north of 70°N and south of 80°N.

At or north of 80°N, or where the above rates of change of latitude are exceeded, the required lateral separation must be ensured by reference to the track spacing expressed in nautical miles.

9.2 Longitudinal separation
(P-ATM, 5.4.2 and 5.11)

9.2.1 *Supersonic transport operations*

9.2.1.1 Minimum longitudinal separation between aircraft in supersonic flight shall be:

a) 10 minutes provided that:

1) both aircraft are in level flight at the same Mach number or the aircraft are of the same type and are both operating in cruise climb; and

2) i) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

ii) if the aircraft have **not** reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

Note.— An ATC clearance authorizing the commencement of the deceleration/descent phase of the flight of the aircraft concerned may be issued while the above separation is being applied.

b) 15 minutes between aircraft in supersonic flight but not covered by a).

9.2.2 *Subsonic transport operations*

9.2.2.1 Minimum longitudinal separation between turbo-jet aircraft shall be:

a) 15 minutes; or

b) 10 minutes, provided the Mach number technique is applied whether in level, climbing or descending flight; and the aircraft concerned have reported over a common point to follow continuously diverging tracks until some other form of separation is provided; and:

1) at least 10 minutes longitudinal separation exists at the point where the tracks diverge; and

2) at least 5 minutes longitudinal separation will exist where lateral separation is achieved; and

3) lateral separation will be achieved at or before the next significant point (normally ten degrees of longitude along track(s)) or, if not, within 90 minutes of the time the second aircraft passes the common point or within 1 112 km (600 NM) of the common point, whichever is estimated to occur first.

Note.— The minima contained in 9.2.2.1 b) are in addition to those found in the PANS-ATM (Doc 4444), 5.4.2.4, Longitudinal separation minima with Mach number technique based on time.

9.2.2.2 Minimum longitudinal separation between non-turbo-jet aircraft shall be:

a) 30 minutes; and

b) 20 minutes in the West Atlantic Route System (WATRS) area.

Note.— The WATRS area is defined beginning at a point 2700N 7700W direct to 2000N 6700W direct to 1800N 6200W direct to 1800N 6000W direct to 3830N 6000W direct to 3830N 6915W, thence counterclockwise along the New York Oceanic control area/flight information region boundary to the Miami Oceanic control area/flight information region boundary, thence southbound along the Miami Oceanic control area/flight information region boundary to the point of beginning.

9.2.3 *En-route climbs and descents*

9.2.3.1 The application of longitudinal separation between aircraft carrying out climbs/descents en route and other aircraft operating in the same direction shall be based on condition that the required separation between the climbing/descending aircraft and other en-route affected aircraft exists at the time a climb/descent clearance is issued and will continue to exist during climb/descent and at the recleared flight level(s), unless lateral separation is provided.

Note.— Application of longitudinal separation between climbing/descending aircraft when Mach number technique is used is based on the assumption that the last assigned Mach number will be maintained during en-route climbs and descents. In the event that it is not feasible to do so, pilots of aircraft concerned must inform ATC at the time of the climb/descent request or clearance.

9.3 Vertical separation

9.3.1 Between FL 290 and FL 410 inclusive, 300 m (1 000 ft) vertical separation can be applied in the NAT Region.

9.3.2 At or above FL 450, vertical separation between supersonic aircraft, and between supersonic aircraft and any other aircraft, shall be considered to exist if the flight levels of the two aircraft differ by at least 1 200 m (4 000 ft).

9.4 Information on application of separation minima
(A11 – 3.4; P-ATM, 5.4.1, 5.4.2 and 5.11)

9.4.1 Where, circumstances permitting, separation minima lower than those specified in 9.1 and 9.2 will be applied in accordance with the PANS-ATM, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

9.5 Horizontal separation minima relating to airspace reservations

9.5.1 *Separation minima between moving temporary reservations*

9.5.1.1 Lateral separation shall be:

a) 110 km (60 NM) between the closest tracks of any aircraft for which the airspace is reserved, provided all aircraft or formation flights meet the MNPS; or

b) 223 km (120 NM) between the closest tracks of any aircraft for which the airspace is reserved, except that in the New York OCA west of 60°W, 167 km (90 NM) may be applied.

Note.— A formation flight with at least one of the aircraft in the formation meeting MNPS is deemed to meet the requirement for the application of 110 km (60 NM) in a).

9.5.1.2 Longitudinal separation shall be 60 minutes.

9.5.2 *Separation minima between stationary temporary airspace reservations*

9.5.2.1 Lateral separation shall be:

a) 110 km (60 NM) between the boundaries of stationary temporary airspace reservations, provided the requesting agencies have guaranteed to confine their activities to the requested airspace, except that in the New York OCA west of 60°W, 84 km (45 NM) may be applied; or

b) 223 km (120 NM) between the boundaries of the airspace reservations, if no guarantees have been given, except that in the New York OCA west of 60°W, 167 km (90 NM) may be applied.

9.5.3 *Separation minima between moving temporary airspace reservations and other aircraft*

9.5.3.1 Lateral separation shall be:

a) 110 km (60 NM) between the track of an aircraft operating under the control of the ATC unit concerned and the closest track of any of the aircraft for which the airspace is reserved, provided all aircraft meet the MNPS requirements and a portion of the route of the aircraft is within, above or below MNPS airspace; or

b) 110 km (60 NM) between the track of an aircraft operating under the control of the ATC unit concerned and the track of a formation flight for which the airspace has been reserved, provided at least one aircraft in the formation **and** the aircraft operating under the control of the ATC unit meet the MNPS requirements and a portion of the route of the aircraft is within, above or below MNPS airspace; or

c) 223 km (120 NM) between the track of an aircraft operating under the control of the ATC unit concerned and the closest track of any of the aircraft for which the airspace is reserved, except that in the New York OCA west of 60°W, 167 km (90 NM) may be applied.

9.5.4 *Separation minima between stationary temporary airspace reservations and other aircraft*

9.5.4.1 Lateral separation shall be:

a) 56 km (30 NM) between the track of an aircraft operating under the control of the ATC unit concerned or as part of a moving airspace reservation and the nearest limit of the reserved airspace, provided the aircraft meets the MNPS requirements and a portion of the route of the aircraft is within, above or below MNPS airspace **and** the requesting agency has guaranteed to confine its activities to the requested airspace; or

b) 110 km (60 NM) between the track of an aircraft operating under the control of the ATC unit concerned or as part of a moving airspace reservation and the nearest limit of the reserved airspace, provided the aircraft meets the MNPS requirements and a portion of the route of the aircraft is within, above or below MNPS airspace **and** the requesting agency has **not** guaranteed to confine its activities to the requested airspace; or

c) 110 km (60 NM) between the track of an aircraft operating under the control of the ATC unit concerned or as part of a moving airspace reservation and the nearest limit of the reserved airspace, when the aircraft does **not** meet the MNPS requirements **and** the requesting agency has guaranteed to confine its activities to the requested airspace, except that in the New York OCA west of 60°W, 84 km (45 NM) may be applied; or

d) 223 km (120 NM) between the track of an aircraft operating under the control of the ATC unit concerned or as part of a moving airspace reservation and the nearest limit of the reserved airspace, when the aircraft does **not** meet the MNPS requirements and the requesting agency has **not** guaranteed to confine its activities to the requested airspace, except that in the New York OCA west of 60°W, 167 km (90 NM) may be applied.

10.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-ATM, Chapter 8; P-OPS, Vol. I, Part VIII)

10.1 Carriage and operation of pressure-altitude reporting SSR transponders

10.1.1 All aircraft operating as IFR flights in the NAT Region shall be equipped with a pressure-altitude reporting SSR transponder.

10.2 Application of procedures

Note.— Some military aircraft are required to operate IFF transponders for non-air traffic control purposes simultaneously with and independently of their operation in Mode A for air traffic control purposes.

10.2.1 *Operation of transponders*

10.2.1.1 Unless otherwise directed by ATC, pilots of aircraft equipped with SSR flying in NAT flight information regions shall retain the last assigned identity (Mode A) code for a period of 30 minutes after entry into NAT airspace and operate using the identity (Mode A) code 2000 after this period.

Note.— This procedure does not affect the requirement for continuous operation of Mode C (when serviceable equipment is carried) or the use of the special purpose codes (7500, 7600, 7700) in cases of unlawful interference, radio failure, interception or emergency.

10.2.1.2 When it is necessary to stop IFF/SIF transponders from replying on Mode A/3, pilots shall be requested to switch off Mode 3 (see 10.5.1, "STOP SQUAWK THREE"). In no case shall they be requested to switch to STANDBY, since operation of the STANDBY switch stops the IFF/SIF transponder from replying on **all** modes.

10.2.2 *Operation of SSR equipment and displays*

10.2.2.1 SSR-derived information shall be checked by use of special monitoring devices, or by correlation of an identified primary radar blip with the appropriate SSR response.

10.2.2.2 The "all codes" setting shall be used when it is desired to display for air traffic control purposes all aircraft in a specified area that are equipped with SSR or IFF/SIF transponders; the "all aircraft" setting shall be used when it is desired to display also aircraft equipped with basic IFF transponders.

10.3 Use of SSR-derived information for the provision of separation between aircraft

10.3.1 Except when the positional element of an SSR response cannot be resolved (see Note following 10.3.1 d)), SSR-derived information may be used alone for the provision of horizontal separation between aircraft in the circumstances and under the conditions specified below:

a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc.

   In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR response from any aircraft (not necessarily the one being provided separation) coincides with the primary radar echo of the same aircraft.

   Note.— Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

b) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

1) reliable SSR coverage exists within the area;

2) the area is designated as controlled airspace;

3) the control of air traffic in the area is vested in one ATC unit unless adequate means of coordination exist between all ATC units concerned;

4) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

5) density and/or complexity of air traffic in the area and provision of navigational guidance allow to revert safely to other forms of separation in case of SSR failure;

6) the aircraft concerned have previously been identified and identification has been maintained;

7) procedural separation is applied between aircraft with functioning transponders and other aircraft.

c) When primary radar fails and until procedural separation is established, provided that:

1) the positional accuracy of the SSR responses has been verified (see 10.3.1 a) and Note);

2) the pilots of the aircraft concerned have been advised.

d) In the case of aircraft emergency.

Note.— Apart from causes resulting in the inability to resolve the positional element of an SSR response which can occur due to malfunctioning of the equipment, there are two causes which may occur during normal operations. These are the presence of side-lobe responses and reflection.

10.4 Use of SSR alone for other than radar separation purposes

10.4.1 Further to Chapter 8 of the PANS-ATM and in addition to 10.3, information on aircraft derived from SSR alone may be used in areas specified by the controlling authority in order to assist the air traffic services in maintaining an orderly and expeditious flow of air traffic and to resolve specific situations where radar separation is not involved.

10.5 Phraseology
(P-ATM, 12.4.3)

10.5.1 SSR phraseology is shown in Table 1.

11.0 SPECIAL PROCEDURES APPLICABLE IN DESIGNATED AIRSPACES

11.1 Establishment and use of organized track system (OTS)

11.1.1 When necessary in order to permit the optimum use of the airspace, the area control centres serving Gander Oceanic, New York Oceanic, Santa Maria Oceanic and

Table 1. SSR Phraseology

Phrase	*Meaning*
*SQUAWK LOW	Turn master control to "low" sensitivity position, retaining present mode and code.
*SQUAWK NORMAL	Turn master control to "normal" position, retaining present mode and code.
*STOP SQUAWK THREE	Switch off Mode 3.

* This phrase is reserved for use with military aircraft only.

Shanwick Oceanic control areas may, subject to coordination with each other and, when appropriate, with Reykjavik area control centre, establish an organized track system. The following procedures shall then be applied.

11.1.1.1 Operators conducting scheduled or non-scheduled flight operations at or above FL 280 within Gander Oceanic, New York Oceanic, Shanwick Oceanic and Santa Maria (north of 30°N) Oceanic control areas shall provide information to the area control centres concerned regarding the tracks likely to be requested by turbo-jet aircraft during peak traffic periods. Such information shall be provided as far in advance of the anticipated peak periods as practicable and as specified in appropriate aeronautical information publications.

11.1.1.2 Based on the above information, an organized track system may be established. The location of the organized tracks will depend on traffic demand and other relevant factors. The related organized track messages will be disseminated to operators by Shanwick Oceanic area control centre for the predominant westbound flow of air traffic and by Gander Oceanic area control centre for the predominant eastbound flow of air traffic. These messages shall be disseminated at least three hours in advance of each anticipated peak traffic period. Any subsequent change made to the track system shall be notified to the operators as soon as possible.

11.2 Mandatory carriage of OTS message

11.2.1 All aircraft operating in or above MNPS airspace shall carry a copy of the current OTS message.

11.3 Establishment and use of organized tracks for supersonic aircraft operations

11.3.1 Where appropriate, an organized track system may be promulgated for supersonic aircraft operations. When promulgating such an organized track system the requirements for position reporting and the applicability of abbreviated position reports shall be included.

11.4 Special procedures for flights along the northern or southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions

11.4.1 Aircraft operating along tracks through successive points situated on the northern or southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions shall be provided with air traffic services by Gander or Shanwick area control centre as appropriate.

11.5 Special procedures for manned balloon flights

11.5.1 Manned balloon flights authorized to operate in the NAT Region shall operate outside NAT minimum navigation performance specification (MNPS) airspace.

11.5.2 Within the NAT Region, manned balloons shall have a communications capability in accordance with Annex 2.

12.0 FLIGHT INFORMATION SERVICE

12.1 Information on runway conditions
(A11 – 4.2.1; P-ATM, 6.6)

12.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

12.2 Transmission of SIGMET information
(P-ATM, 9.1.3.2)

12.2.1 SIGMET information shall be transmitted to aircraft by VOLMET broadcast, by a general call to a group of aircraft, or by directed transmission to individual aircraft, as determined by the appropriate area control centre according to the circumstances, bearing in mind the need to ensure timely receipt of the information by the aircraft and to keep the load on the HF en-route communications channels to a minimum.

12.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

12.3 Transmission of amended aerodrome forecast
(P-ATM, 9.1.3.5)

12.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information would have been made available through other means.

13.0 AIR TRAFFIC SERVICES MESSAGES

13.1 Flight plan and departure messages
(P-ATM, 11.3.3 and 11.4.2.2)

13.1.1 Filed flight plan messages for flights intending to operate within the NAT Region at a distance of 110 km (60 NM) or less from the northern and southern boundaries of Gander Oceanic and Shanwick Oceanic flight information regions, shall be addressed to the area control centres in charge of the NAT flight information regions along the route and, in addition, to the area control centres in charge of the nearest adjacent NAT flight information regions.

13.1.2 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, filed flight plan messages shall be transmitted to the appropriate area control centres immediately after the flight plan has been submitted.

14.0 ALERTING AND SEARCH AND RESCUE SERVICES

14.1 Routes and equipment of private aircraft
(A6, Part II – 6.3 and 6.4)

14.1.1 General aviation aircraft shall:

a) carry appropriate survival equipment;

b) be equipped with functioning two-way radio communications equipment except that, under special local circumstances, the appropriate authorities may grant exemption from this requirement.

14.2 Alerting services
(P-ATM, 9.2)

14.2.1 The procedures for "Alerting Service" detailed in the PANS-ATM, 9.2, are applicable to all flights operated more than 185 km (100 NM) from the shoreline.

15.0 USE OF AIRBORNE COLLISION AVOIDANCE SYSTEMS (ACAS II)
(A2 – 3.2; A6, Part I – 6.18; A10 – Vol. IV; A11 – 2.4.2; P-OPS, Vol. I, Part VIII; P-ATM, Chapters 4 and 10)

15.1 Carriage and operation of ACAS II

15.1.1 ACAS II shall be carried and operated in the NAT Region by all aircraft that meet the following criteria:

a) All turbine-engined aeroplanes having a maximum certificated take-off mass exceeding 15 000 kg or authorized to carry more than 30 passengers; and

b) with effect from 1 January 2005, all turbine-engined aeroplanes having a maximum certificated take-off mass exceeding 5 700 kg or authorized to carry more than 19 passengers.

NAT REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Radiotelephony network operation (A10, Vol. II - 5.2.2.3)

1.1.1 Procedures for the distribution of the NAT HF aeromobile message traffic of the users on the NAT routes between the various NAT HF families.

Note.- In the following table, under "route flown", the letters "A", "B", "C", "D" and "E" refer to NAT frequency families A, B, C, D and E.

	Route*		
Designated for	Southern	Central	Northern
Aircraft registered in the hemisphere W of 30°W	A	B	B
Aircraft registered in the hemisphere E of 30°W	A	C	C
Aircraft flying northern routes outside OTS tracks	-	-	D#
Aircraft flying southern routes	E	-	-

* Southern routes are those which enter the New York Oceanic or Santa Maria Oceanic flight information regions. The central and northern routes comprise all the others.

\# Use of the NAT-D radiotelephony network frequencies is extended to the Arctic area of the Anchorage flight information region, via Cambridge Bay Radio.

Note.- Aircraft registered in Australia will use Families designated for aircraft registered East of 30°W.

In the event of overloading of a Family actually occurring, or being anticipated, aircraft of one or more operators may be off-loaded from that Family to another appropriate Family, for the expected duration of the condition. The off-loading may be requested by any station, but Shannon and Gander will be responsible for taking a decision after co-ordination with all the NAT stations concerned.

1.2 SELCAL operation in the NAT region

While operating in an HF air-ground communications environment pilots shall maintain a listening watch on the assigned radio frequency. This will not be necessary, however, if a SELCAL watch is maintained and correct operation is ensured. Correct SELCAL operation shall be ensured by:

1) the inclusion of the SELCAL code in the flight plan;

2) the issue of a correction to the SELCAL code if subsequently altered due to change of aircraft or equipment; and

3) an operational check of the SELCAL equipment with the appropriate radio station at or before initial entry into oceanic airspace. This SELCAL check must be completed successfully before commencing SELCAL watch.

Note.- SELCAL watch on the assigned radio frequency should be maintained, even in areas of the region where VHF coverage is available and used for air/ground communications.

2.0 AERONAUTICAL FIXED SERVICE

2.1 Priority of MOTNE message of AFTN

2.1.1 "MOTNE Bulletins" for circulation on the MOTNE system which are handled on the AFTN shall be given FF priority.

3.0 RADIO FREQUENCIES

3.1 Air-to-air VHF channel
(A10, Vol. I, Part II - 4.1.3.2)

3.1.1 The frequency 131.800 MHz has been approved for use as the air-to-air channel in the NAT Region, to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

NAT REGIONAL SUPPLEMENTARY PROCEDURES

PART 3 — METEOROLOGY

These procedures are supplementary to the provisions contained in Annex 3.

1.0 AIRCRAFT OBSERVATIONS AND REPORTS
(A3 – Chapter 5)

1.1 When voice communications are used, all aircraft flying in the Bodø Oceanic, Søndrestrøm, Reykjavik, Gander Oceanic, Shanwick Oceanic, New York Oceanic and Santa Maria Oceanic flight information regions between North America and Europe in either direction shall be required to make and report routine meteorological observations at each designated reporting point and at the intermediate mid-point between such reporting points, except that:

1) the mid-point observation shall not be the subject of a separate report but will be retained for transmission at the next designated reporting point; and

2) aircraft cleared on an organized track shall be required to make and report routine observations only when so designated at the time of receiving their oceanic clearance in accordance with NAT/RAC 5.4.1 and 8.1.

1.2 When voice communications are used, the format to be used for all aircraft reports shall be in accordance with Appendix 1 to *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444).

PACIFIC (PAC)
REGIONAL SUPPLEMENTARY PROCEDURES

TABLE OF CONTENTS — PACIFIC (PAC) SUPPS

PAC REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Parts I and II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Visual flight rules (VFR)
(A2 – 4.7 and 4.8)

1.1.1 Outside the Oakland Oceanic FIR, VFR flights to be operated within a control zone established at an aerodrome serving international flights and in specified portions of the associated terminal control area shall:

a) have two-way radio communications;

b) obtain clearance from the appropriate air traffic control unit; and

c) report positions, as required.

Note.— The phrase "specified portions of the associated terminal control area" is intended to signify at least those portions of the TMA used by international IFR flights in association with approach, holding, departure and noise abatement procedures.

1.2 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.— Annex 2, 2.2 permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.2.1 *Special application of instrument flight rules*

1.2.1.1 Flights shall be conducted in accordance with instrument flight rules (even when not operating in instrument meteorological conditions) when operated more than 100 NM seaward from the shoreline within controlled airspace.

1.3 Changes of flight levels
(A2 – 5.2.2)

1.3.1 All changes of flight levels required by transition from the system of designated cruising levels for flights along controlled routes to the semicircular system of cruising levels, or vice versa, shall be made at points within controlled airspace.

2.0 FLIGHT PLANS

2.1 Contents of flight plans
(A2 – 3.3; P-ATM, 4.4.1 and Appendix 2)

2.1.1 *Mach number*

2.1.1.1 For turbo-jet aircraft intending to operate within Anchorage Oceanic and Oakland Oceanic flight information regions, the Mach number planned to be used shall be specified in Item 15 of the flight plan.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3, and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Time or place of position reports
(A2 – 3.6.3, 3.6.5, 5.3.3; P-ATM, 4.11)

3.2.1 Within the Anchorage Oceanic, Auckland Oceanic, Nadi, Oakland Oceanic (excluding the Honolulu terminal area), and Tahiti control areas/flight information regions, flights shall provide position reports as follows:

a) If operating on a fixed route, report over designated reporting points using the specified name of such points.

Note.— States should establish reporting points at locations fulfilling operational requirements as set forth in Annex 11, 2.13.1, 2.13.3 and Appendix 2. Except where operational considerations dictate otherwise, those points should be located at intervals of 5 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Aircraft traversing 10 degrees of latitude or longitude in 1 hour and 20 minutes or less should normally be required to report only at 10° intervals. Slower aircraft should normally be required to report at 5° intervals.

b) If operating on a route without designated reporting points, report at intervals of 5 or 10 degrees of latitude or longitude (latitude if the route is predominantly north-south, longitude if east-west) north or south of the Equator or east or west of the 180° meridian. Ten degrees will be used if the aircraft traverses 10 degrees in 1 hour and 20 minutes or less.

3.2.1.1 Air traffic services may require any flight to report at any intermediate parallel of latitude or meridian of longitude when deemed necessary.

3.3 Transmission of position reports
(P-ATM, 4.11.1)

3.3.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

3.3.2 Responsibility for the transmission of position reports to the additional ATS units specified in 3.3.1 may be delegated to the appropriate communications station(s) through local arrangement.

3.4 Contents of position reports
(P-ATM, 4.11 and 4.12)

3.4.1 *Position and time*

3.4.1.1 Position reports shall be identified by the spoken word "position" transmitted immediately before or after the aircraft call sign/identification.

3.4.1.2 The aircraft call sign/identification shall be transmitted immediately before or after the word "position".

3.4.1.3 The position of the aircraft shall be transmitted in reference to a reporting point name, name-code designator or, if not named:

a) for flights operating in a predominantly east-west direction:

1) latitude in degrees and minutes; and

2) longitude in degrees only;

b) for flights operating in a predominantly north-south direction:

1) latitude in degrees only; and

2) longitude in degrees and minutes.

3.4.1.4 The time at which the aircraft is over the reporting point shall be transmitted in four digits, giving both the hour and the minutes.

3.4.1.5 The altitude/flight level of the aircraft shall be included in the position report.

3.4.2 *Next position and time*

3.4.2.1 Next position shall normally be expressed as the reporting point name, name-code designator or latitude and longitude as indicated in 3.4.1.3.

3.4.2.2 Estimated time over next position shall be expressed in four digits.

3.4.3 *Ensuing position*

3.4.3.1 Ensuing position information shall include the name, name code or coordinates of the next succeeding reporting point, whether compulsory or not.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

4.1 General procedures

4.1.1 The following general procedures apply to both subsonic and supersonic aircraft. Although all possible contingencies cannot be covered, they provide for cases of inability to maintain assigned level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight. They are applicable primarily when rapid descent and/or turnback or diversion to an alternate airport are required. The pilot's judgement shall determine the sequence of actions taken, taking into account specific circumstances.

4.1.2 If an aircraft is unable to continue flight in accordance with its ATC clearance, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using a distress or urgency signal as appropriate.

4.1.3 If prior clearance cannot be obtained, ATC clearance shall be obtained at the earliest possible time and, until a revised clearance is received, the pilot shall:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including the ATS route designator or the track code), and intentions on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped); and

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations).

4.2 Special procedures for subsonic aircraft requiring rapid descent and/or turnback or diversion to an alternate airport due to aircraft system malfunction or other contingencies

4.2.1 *Initial action*

4.2.1.1 If unable to comply with the provisions of 4.1.2 to obtain a revised ATC clearance, the aircraft should leave its assigned route or track by turning 90 degrees to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system, e.g. whether the aircraft is outside, at the edge of, or within the system. Other factors to consider are the direction to the alternate airport, terrain clearance and the levels allocated to adjacent routes or tracks.

4.2.2 *Subsequent action (RVSM airspace)*

4.2.2.1 In RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track, and:

a) if above FL 410, climb or descend 300 m (1 000 ft); or

b) if below FL 410, climb or descend 150 m (500 ft); or

c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.2.2.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent flight level, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 410, or by 150 m (500 ft) if below FL 410.

4.2.3 *Subsequent action (non-RVSM airspace)*

4.2.3.1 In non-RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track, and:

a) if above FL 290, climb or descend 300 m (1 000 ft); or

b) if below FL 290, climb or descend 150 m (500 ft); or

c) if at FL 290, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.2.3.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent flight level, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 290, or by 150 m (500 ft) if below FL 290.

4.2.3.3 DIVERSION ACROSS THE FLOW OF ADJACENT TRAFFIC. Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 4.2.1 or 4.2.2 or 4.2.3. However, if the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level as defined in 4.2.2.1 or 4.2.3.1 until a revised ATC clearance is obtained.

4.2.3.4 EXTENDED RANGE OPERATIONS BY AEROPLANES WITH TWO-TURBINE POWER-UNITS (ETOPS) AIRCRAFT. If these contingency procedures are employed by a twin-engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation, reminding ATC of the type of aircraft involved, and request expeditious handling.

4.3 Weather deviation procedures for oceanic-controlled airspace

4.3.1 *General*

4.3.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions taken and ATC shall render all possible assistance.

4.3.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 4.3.4.

4.3.1.3 The pilot shall advise ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centre line of its cleared route.

4.3.2 *Obtaining priority from ATC when weather deviation is required*

4.3.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

4.3.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

4.3.3 *Actions to be taken when controller-pilot communications are established*

a) Pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

b) ATC takes one of the following actions:

1) if there is no conflicting traffic in the horizontal dimension, ATC will issue clearance to deviate from track; or

2) if there is conflicting traffic in the horizontal dimension, ATC separates aircraft by establishing vertical separation; or

3) if there is conflicting traffic in the horizontal dimension and ATC is unable to establish appropriate separation, ATC shall:

i) advise the pilot of inability to issue clearance for requested deviation; and

ii) advise the pilot of conflicting traffic; and

iii) request pilot's intentions.

SAMPLE PHRASEOLOGY:

"UNABLE (*requested deviation*), TRAFFIC IS (*call sign, position, altitude, direction*), ADVISE INTENTIONS."

c) Pilot will take the following actions:

1) advise ATC of intentions by the most expeditious means available; and

2) comply with ATC clearance issued; or

3) execute the procedures detailed in 4.3.4. (ATC will issue essential traffic information to all affected aircraft); and

4) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

4.3.4 *Actions to be taken if a revised ATC clearance cannot be obtained*

4.3.4.1 The provisions of this section apply to situations where the pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

4.3.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including the ATS route designator or the track code), and intentions (including the magnitude of the deviation expected) on the frequency in use, as well as on frequency 121.5 MHz (or, as a back-up, the VHF inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

Note.— If, as a result of actions taken under 4.3.4.2 b) and c), the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;

f) for deviations of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the criteria in Table 1;

g) when returning to track, be at its assigned level, when the aircraft is within approximately 19 km (10 NM) of centre line; and

h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

5.0 AIR TRAFFIC CONTROL CLEARANCES

5.1 Contents of clearances
(A11 – 3.7; P-ATM, 4.5.4 and 4.5.7 and 11.4.2.5.2)

5.1.1 The ATC-approved Mach number shall be included in each clearance given to subsonic turbo-jet aircraft operating within the Anchorage Oceanic and Oakland Oceanic flight information regions, when Mach number technique is to be applied.

Table 1.

Route centre line Track	*Deviations >19 km (10 NM)*	*Level change*
EAST 000–179° magnetic	LEFT RIGHT	DESCEND 90 m (300 ft) CLIMB 90 m (300 ft)
WEST 180–359° magnetic	LEFT RIGHT	CLIMB 90 m (300 ft) DESCEND 90 m (300 ft)

5.2 Adherence to ATC-approved route
(A2 – 3.6.2)

5.2.1 If an aircraft on a long over-water flight has inadvertently deviated from the route specified in its ATC clearance, it shall forthwith take action to regain such route within 200 NM from the position at which the deviation was observed.

5.3 Adherence to ATC-approved Mach number
(A2 – 3.6.2)

5.3.1 Turbo-jet aircraft operating within Anchorage Oceanic and Oakland Oceanic flight information regions shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.3.2 If it is not feasible, for operational reasons, to maintain the last assigned Mach number, pilots of aircraft concerned shall advise ATC at the time of initial clearance or subsequent climb/descent request or clearance.

6.0 SEPARATION OF AIRCRAFT

6.1 Lateral separation
(A11 – Attachment B; P-ATM, 5.4.1 and 13.5)

6.1.1 Minimum lateral separation shall be 100 NM, except:

a) where aircraft are transiting into an airspace with a larger lateral minimum than the airspace being exited provided:

   1) the smaller separation minimum exists; and

   2) flight paths diverge by 15° or more until the larger minimum is established; and

   3) it is possible to ensure, by means approved by the appropriate ATS authority, that the aircraft have the navigation capability necessary to ensure accurate track guidance; or

b) that lower minima in 5.4.1.2 of the PANS-ATM may be applied, or further reduced in accordance with 5.11, where the conditions specified in the relevant PANS-ATM provisions are met.

6.1.2 For flights on designated controlled oceanic routes or areas within the Anchorage, Auckland Oceanic, Nadi, Oakland Oceanic and Tahiti FIRs, a lateral separation minimum of 93 km (50 NM) may be applied provided that the aircraft and the operator have been approved by the State of Registry or the State of the Operator, as appropriate, to meet the following requirements (or equivalent):

a) aircraft navigation performance shall be such that the standard deviation of lateral track errors shall be less than 4.7 NM (8.7 km) (or the aircraft approved to RNP 10); and

b) operator programmes shall be established to mitigate the occurrence of large navigational errors due to equipment malfunction or operational error:

   1) operator in-flight operating drills shall include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft from inadvertent deviation from ATC-cleared route; and

   2) the operator shall establish programmes to provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

6.1.2.1 The letter R shall be inserted in Item 10 (Equipment) of the flight plan to indicate that the aircraft has been appropriately approved and can comply with all the conditions of that approval.

6.1.2.2 The following criteria are to be used in the operational assessment of airspace system safety:

a) the proportion of the total flight time spent by aircraft 25 NM (46 km) or more off the cleared track shall be less than 7.0×10^{-4}; and

b) the proportion of the total flight time spent by aircraft between 40 and 60 NM (74 and 111 km) off the cleared track shall be less than 4.1×10^{-5}.

6.1.3 For flights on designated controlled oceanic routes or areas within the Anchorage, Auckland Oceanic, Nadi, Oakland Oceanic and Tahiti FIRs, a lateral separation minimum of 55.5 km (30 NM) may be applied provided:

a) the aircraft are approved by the State of Registry or the State of the Operator to RNP 4;

b) direct controller-pilot voice communications or controller-pilot data link communications (CPDLC) are maintained;

c) surveillance is maintained using an automatic dependent surveillance (ADS) system; and

d) an ADS lateral deviation change event contract is established, with a lateral deviation threshold of 9.3 km (5 NM).

6.1.4 The letter R shall be inserted in Item 10 (Equipment) of the flight plan, to indicate that the aircraft is approved to RNP 4 and can comply with all the conditions of that approval.

6.1.5 Prior to implementation, States shall undertake a system verification of sufficient duration and integrity to demonstrate that the maximum acceptable rate of lateral deviations greater than or equal to 27.8 km (15 NM) will not exceed those listed in Table B-1 in Annex 11, Attachment B, 3.4.1 e). The verification should be conducted after the minimum navigation, communications and surveillance requirements listed above have been met.

6.1.6 Following implementation, a monitoring programme shall be established to periodically verify that the system's actual rate of lateral deviations greater than or equal to 27.8 km (15 NM) does not exceed the maximum prescribed in Table B-1 in Annex 11, Attachment B, 3.4.1 e).

6.2 Longitudinal separation
(P-ATM, 5.4.2 and 13.5)

6.2.1 Except as provided for in 6.2.2, the minimum longitudinal separation between turbo-jet aircraft operating within Anchorage Oceanic, Auckland Oceanic, Nadi, Oakland Oceanic and Tahiti FIRs shall be:

a) 10 minutes, or 80 NM, derived by RNAV, when the Mach number technique is applied and whether in level, climbing or descending flight, provided that:

   1) the aircraft concerned have reported over a common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

   2) if the aircraft have **not** reported over a common point, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; or

b) between 9 and 5 minutes inclusive, provided:

   1) it is possible to ensure, by radar or other means approved by the State, that the required time interval will exist at the common point from which they either follow the same track or continuously diverging tracks; and

   2) the preceding aircraft is maintaining a greater Mach number than the following aircraft in accordance with the following table:

      — 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft

      — 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft

      — 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft

      — 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft

      — 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

Note.— Application of longitudinal separation between aircraft when the Mach number technique is used is based on the assumption that the last assigned Mach number will be maintained at all times, including during any climbs and descents. In the event that for operational reasons it is not feasible to do so, the pilot must inform ATC at the time of initial clearance or subsequent climb/descent request or clearance.

6.2.2 *Longitudinal distance-based separation between aircraft equipped with RNAV and holding an appropriate RNP approval.*

6.2.2.1 For flights on designated controlled oceanic routes or areas within the Anchorage, Auckland Oceanic, Nadi, Oakland Oceanic and Tahiti FIRs, a longitudinal separation minimum of 93 km (50 NM) derived by RNAV may be applied between RNAV-equipped aircraft approved to RNP 10 or better, in accordance with the provisions of PANS-ATM, 5.4.2.6.

Note.— The provisions of PANS-ATM, 5.4.2.6.1 to 5.4.2.6.2.3 apply in all cases. Where ADS is not available, the provisions of PANS-ATM, 5.4.2.6.3 apply. Where ADS is available, the provisions of PANS-ATM, 5.4.2.6.4 apply.

6.2.2.2 For flights on designated controlled oceanic routes or areas within the Anchorage, Auckland Oceanic, Nadi, Oakland Oceanic and Tahiti FIRs, a longitudinal separation minimum of 55.5 km (30 NM) may be applied between RNAV-equipped aircraft approved to RNP 4 or better, in accordance with the provisions of PANS-ATM, 5.4.2.6.

Note.— ADS is required for the application of this minimum; therefore the applicable provisions will be those of PANS-ATM, 5.4.2.6.1 to 5.4.2.6.2.3 and 5.4.2.6.4.

6.2.2.3 For all operations in airspace or on ATS routes where an RNP type has been designated, the pilot shall insert the letter R in Item 10 (Equipment) of the flight plan, to indicate that the aircraft has the appropriate RNP approval, and can comply with all the conditions of that approval.

6.2.2.4 Pilots shall advise ATC of any deterioration or failure of the navigation equipment below the navigation performance required for the designated RNP type. ATC shall then, as required, apply alternative separation minima.

6.2.2.5 Both the 93 km (50 NM) and 55.5 km (30 NM) longitudinal separation minima using ADS were developed in accordance with collision risk analyses which dictate conditions under which the minima can be applied. For airspace planning purposes, the frequencies of observed or estimated separations between successive aircraft at the same level should be such that no more than 4 per cent of separations will fall in any one 19 km (10 NM) band, from the minimum separation of 93 km (50 NM) to a separation of 556 km (300 NM) in the case of the 93 km (50 NM) minimum, and from the minimum separation of 55.5 km (30 NM) to a separation of 533 km (280 NM) in the case of the 55.5 km (30 NM) minimum.

6.3 Composite separation
(A11 – 3.3.4 c))

6.3.1 For aircraft operating at or above FL 290 within the flexible Pacific Organized Track Systems (PACOTS), North Pacific (NOPAC) composite route system between the United States and Japan and the composite route system between Hawaii and the west coast of the United States, within the Tokyo, Oakland Oceanic and Anchorage Oceanic flight information regions, composite separation consisting of a combination of at least 50 NM lateral and 300 m (1 000 ft) vertical separation may be applied.

6.3.2 The type of separation in 6.3.1 may be applied between aircraft operating in the same or opposite directions (see also 8.1.1).

6.4 Information on application of separation minima
(A11 – 3.4; P-ATM, 5.4.2 and 5.11)

6.4.1 Where, circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 will be applied in accordance with the PANS-ATM, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

6.5 Vertical separation

The minimum vertical separation that shall be applied between FL 290 and FL 410 inclusive is 300 m (1 000 ft).

6.5.1 *Area of applicability*

6.5.1.1 The reduced vertical separation minimum (RVSM) shall be applied for flights within the Anchorage Arctic, Anchorage Continental, Anchorage Oceanic, Auckland Oceanic, Los Angeles, Nadi, Oakland, Oakland Oceanic, Seattle, Tahiti and Vancouver flight information regions (FIRs).

Note.— Several FIRs detailed above are contained in the ICAO North America (NAM) Region. They are integrated in 6.5.1.1 as they are FIRs where transition to/from RVSM flight levels will take place.

6.5.2 *RVSM approval*

6.5.2.1 The minimum separation in 6.5 shall only be applied between aircraft and operators that have been approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and that are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

6.5.3 *MASPS*

6.5.3.1 The MASPS height-keeping requirements are as follows:

a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;

b) for groups of aircraft that are nominally of identical design and build with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft);

c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft, the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

   1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3};

   2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6};

   3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6};

   4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7}; and

   5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7}.

Note.— Guidance material regarding the initial achievement and continued maintenance of the height-keeping performance in 6.5.3.1 is contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia/Pacific Region.

6.5.4 *Target level of safety (TLS)*

6.5.4.1 Application of RVSM in the airspace designated in 6.5.1.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

6.5.5 *Approval status and aircraft registration*

6.5.5.1 Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

6.5.6 *Operation of aircraft not approved for RVSM*

6.5.6.1 Aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the State provided that 600 m (2 000 ft) vertical separation is applied.

6.5.7 *Monitoring*

6.5.7.1 Adequate monitoring of flight operations in the Asia and Pacific RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 6.5.3.1. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 6.5.4.1 is not exceeded.

Note.— Details of the policy and procedures for monitoring established by the Asia/Pacific Air Navigation Planning and Implementation Regional Group are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the Airspace of the Asia/Pacific Region.

6.5.8 *Wake turbulence procedures*

6.5.8.1 The following special procedures are applicable to mitigate wake turbulence encounters in the Asia and Pacific airspace where RVSM is applied.

6.5.8.1.1 An aircraft that encounters wake turbulence should notify air traffic control (ATC) and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:

a) the pilot should establish contact with other aircraft, if possible, on the appropriate VHF inter-pilot air-to-air frequency; and

b) one (or both) aircraft may initiate lateral offset(s) not to exceed 2 NM from the assigned route(s) or track(s), provided that:

1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and

2) the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).

Note.— In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

7.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)
(P-ATM, Chapter 8; P-OPS, Vol. I, Part VIII)

7.1 Use of SSR-derived information for the provision of separation between aircraft

7.1.1 Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

a) reliable SSR coverage exists within the area;

b) the area is designated as controlled airspace;

c) the control of air traffic in the area is vested in one ATC unit unless adequate means of coordination exist between all ATC units concerned;

d) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

e) density and/or complexity of air traffic in the area and provision of navigational guidance allow a safe reversion to other forms of separation in case of SSR failure;

f) the aircraft concerned have previously been identified and identification has been maintained;

g) procedural separation is applied between aircraft with functioning transponders and other aircraft.

7.2 Carriage and operation of pressure-altitude reporting SSR transponders

7.2.1 *In respect of international general aviation aeroplanes*

7.2.1.1 All aeroplanes shall be equipped with a pressure-altitude reporting transponder of a type certified by the State as meeting the relevant provisions of Annex 10.

7.2.2 *In respect of international helicopter operations, etc. — general aviation*

7.2.2.1 All helicopters shall be equipped with a pressure-altitude reporting transponder of a type certified by the State as meeting the relevant provisions of Annex 10.

8.0 SPECIAL PROCEDURES APPLICABLE IN DESIGNATED AIRSPACES

8.1 Use of composite routes

8.1.1 When composite separation is used in accordance with 6.3.1, the following procedures apply:

a) An aircraft may be cleared to join an outer route of the system at other than normal entry points provided:

1) longitudinal or non-composite vertical separation exists between that aircraft and any others on that route; and

2) composite separation exists between that aircraft and any other on the next adjacent route.

b) An aircraft may be cleared to leave an outer route of the system at other than the normal exit point provided its course diverges so that lateral spacing from the route increases until longitudinal or non-composite lateral or non-composite vertical separation exists between that aircraft and any other aircraft in the system.

c) An aircraft may be cleared to change from one route to an adjacent route in the system provided:

1) longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on the route being vacated until that aircraft is established on the route to which it is proceeding;

2) longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on the route to which that aircraft is proceeding; and

3) composite separation exists between that aircraft and any other aircraft on the next adjacent route.

d) An aircraft may be cleared to cross the system provided longitudinal or non-composite lateral or non-composite vertical separation exists between that aircraft and any other aircraft in the system.

e) An aircraft may be cleared to change altitude on a route if longitudinal or non-composite vertical separation exists between that aircraft and any other aircraft on that route and regardless of any other aircraft on adjacent routes.

Note.— Non-composite separation referred to above is separation in accordance with the minima in 6.1.1 and 6.2.1 and those in PANS-ATM, 5.3.2.

8.2 Flexible Pacific Organized Track Systems (PACOTS)

8.2.1 To optimize the use of airspace across the Northern, Central and South Pacific, flexible organized track systems may be established within the Tokyo, Oakland Oceanic, Anchorage Oceanic, Nadi, Tahiti, Auckland Oceanic, Sydney, Brisbane and Port Moresby flight information regions.

8.2.2 The area control centres providing air traffic service within the concerned flight information regions will provide information to users regarding the PACOTS tracks generated for use. The location of the tracks will depend on traffic demand, prevailing winds, significant weather and other relevant factors. Unless otherwise stated, tracks will apply at FL 290 and above.

8.2.3 PACOTS track messages to users specifying track details will be disseminated daily by one of the area control centres. Messages will be disseminated in a timely manner to accommodate the flight planning requirements of users. Any subsequent changes will be issued promptly. Pilots are expected to flight plan in accordance with the daily track message.

Note.— PACOTS guidelines containing detailed information on track generation, lateral track spacing, level assignment, position-reporting requirements and other relevant details shall be published in the Aeronautical Information Publications or associated supplements of those States which utilize a flexible track system within their airspace or areas of responsibility.

8.3 Use of lateral offsets other than those special procedures prescribed to mitigate wake turbulence and distracting aircraft system alerts

8.3.1 Pilots of flights in designated oceanic controlled airspace (OCA) or remote airspace, and outside radar controlled airspace, within the Auckland Oceanic, Easter Island, Nadi and Tahiti FIRs are authorized to apply a 1.9 km (1 NM) lateral offset under the following conditions:

a) the offset shall only be applied by aircraft that use GNSS in the navigation solution;

b) the offset shall only be made to the **right** of the centre line relative to the direction of flight;

c) the offset shall only be applied in OCA or remote area airspace, and outside radar controlled airspace;

d) the offset shall only be applied during the en-route phase of flight;

e) the offset shall **not** be applied at levels where obstacle clearance would be affected;

f) the offset shall **not** be applied in addition to an offset of 3.8 km (2 NM) that was applied because of tempor-

ary wake turbulence or distracting aircraft system alert, i.e. shall not result in an offset of 5.6 km (3 NM); and

g) the offset shall **not** be applied in parallel route systems where the track spacing is less than 93 km (50 NM).

8.3.2 Pilots shall not be required to notify ATC that a 1.9 km (1 NM) offset is being applied.

Note.— Pilots need to be aware that different lateral offset procedures may apply in different airspaces.

9.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS
(P-ATM, 4.10 and 4.10.3)

9.1 The lowest usable flight level for holding and approach manoeuvres shall be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

Note 1.— The lowest usable flight level will provide a terrain clearance of at least 300 m (1 000 ft) and, for operation in the vicinity of an aerodrome, will not be established below 450 m (1 500 ft) above aerodrome elevation.

Note 2.— MET Offices will inform ATS units when, in abnormal conditions, pressure goes below the minimum climatological value, in order that appropriate steps can be taken to cancel temporarily the use of the lowest flight level or levels that would not ensure the minimum terrain clearance.

9.2 Based on current and anticipated atmospheric pressure distribution, area control centres shall coordinate, where required, the lowest flight level to be used.

10.0 FLIGHT INFORMATION SERVICE

10.1 Information on runway conditions
(A11 – 4.2.1; P-ATM, 6.6)

10.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

10.2 Transmission of SIGMET information
(P-ATM, 9.1.3.2)

10.2.1 Transmission of SIGMET information to aircraft shall be at the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

10.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

11.0 AIR TRAFFIC SERVICES COORDINATION

11.1 Coordination between units providing area control service
(P-ATM, 10.4.2)

11.1.1 If a flight should enter an adjacent area, information concerning any revision of estimate of three minutes or more shall be forwarded to the adjacent area control centre normally by telephone.

12.0 AIR TRAFFIC SERVICES MESSAGES

12.1 Flight plan and departure messages
(P-ATM, 11.3.3 and 11.4.2.2)

12.1.1 Provided reliable ATS speech circuits exist between the successive ATS units concerned with the flight, departure messages may be omitted for IFR flights operated within areas or along routes designated by mutual agreements between the States concerned.

13.0 ALERTING AND SEARCH AND RESCUE SERVICES

13.1 Routes and equipment of private aircraft
(A6, Part II – 6.3 and 6.4)

13.1.1 General aviation aircraft shall:

a) carry appropriate survival equipment;

b) be equipped with functioning two-way radio communications equipment except that under special local circumstances the appropriate authorities may grant exemption from this requirement.

13.2 Alerting services
(P-ATM, 9.2)

13.2.1 The procedures for "Alerting Service" detailed in the PANS-ATM, 9.2, are applicable to:

a) all flights operated more than 100 NM from the shoreline;

b) all flights within the Auckland Oceanic, Easter Island and Nadi flight information regions except those conducted wholly in the vicinity of an aerodrome when exempted by the appropriate air traffic control unit.

PAC REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 RADIO FREQUENCIES

1.1 Air-to-air VHF channel
(A10, Vol. I, Part II - 4.1.3.2)

1.1.1 The frequency 128.950 MHz has been approved for use as the air-to-air channel in the PAC Region, to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

2.0 AERONAUTICAL FIXED SERVICE

2.1 Technical aspects of AFTN rationalization

2.1.1 To support data communication requirements and to provide needed data integrity and minimal transit time, the CCITT X.25 protocol should be used between Main AFTN COM Centres and between Main and Tributary COM Centres.

SOUTH AMERICAN (SAM)
REGIONAL SUPPLEMENTARY PROCEDURES

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SAM REGIONAL SUPPLEMENTARY PROCEDURES

PART 1 — RULES OF THE AIR, AIR TRAFFIC SERVICES AND SEARCH AND RESCUE

These procedures are supplementary to the provisions contained in Annex 2, Annex 6 (Part II), Annex 11, PANS-ATM (Doc 4444) and PANS-OPS (Doc 8168).

1.0 FLIGHT RULES

1.1 Instrument flight rules (IFR)
(A2 – 2.2 and Chapter 5)

Note.— Annex 2, 2.2, permits a choice for a flight to comply with either the instrument flight rules or the visual flight rules when operated in visual meteorological conditions subject to certain limitations in Chapter 4 of the Annex. The following indicates certain further restrictions to that choice.

1.1.1 *Special application of instrument flight rules*

1.1.1.1 Flights shall be conducted in accordance with the instrument flight rules (even when not operating in instrument meteorological conditions) when operated more than 37 km (20 NM) seaward from the shoreline, for a duration of more than one hour, except that compliance with IFR minimum levels is not required during the day in visual meteorological conditions.

1.2 Air traffic advisory service
(P-ATM, 8.1.4)

Note.— The PANS-ATM leaves it to the discretion of the pilot whether or not to obtain air traffic advisory service when available. The following procedures make it compulsory to obtain such service under certain circumstances.

1.2.1 All IFR flights shall comply with the procedures for air traffic advisory service when operating in advisory airspace.

2.0 FLIGHT PLANS

2.1 Contents of flight plans
(A2 – 3.3; P-ATM, 4.4.1 and Appendix 2)

2.1.1 *Mach number*

2.1.1.1 For turbo-jet aircraft intending to operate:

a) along the specified routes between San Juan (Peru) and Tongoy or Antofagasta (Chile) and on the specified routes between the west coast of Peru and Chile and the adjacent control areas of the PAC Region;

b) at or above FL 250 within the Dakar Oceanic, Recife and Sal Oceanic flight information regions; or

c) along area navigation routes;

the Mach number planned to be used shall be specified in Item 15 of the flight plan.

3.0 AIR-GROUND COMMUNICATIONS AND IN-FLIGHT REPORTING

Note.— Annex 2, 3.6.3, 3.6.5.1 and 5.3.3, and PANS-ATM, 4.11, require controlled flights and certain IFR flights outside controlled airspace to maintain a continuous listening watch on the appropriate radio frequency and to report positions in specified circumstances. The following expands such requirements and specifies additional details regarding the transmission and contents of in-flight reports.

3.1 Application
(A2 – 3.6.3, 3.6.5, 5.3.3;
P-ATM, 4.11)

3.1.1 All aircraft on VFR flights, and aircraft on IFR flights outside controlled airspace, shall maintain a watch on a radio station furnishing communications for the unit providing flight information service in the flight information region and file with that station information as to their position unless otherwise authorized by the State overflown.

3.2 Contents of position reports
(P-ATM, 4.11 and 4.12)

3.2.1 *Position and time*

3.2.1.1 Unless air-ground communication is direct with the area control centre concerned, all times shall be

expressed in four digits, giving both the hour and minutes, when making position reports within oceanic control areas.

3.2.2 *Next position and time over*

3.2.2.1 "Next position" shall normally be expressed at the significant point at which the aircraft is next required to report its position.

3.2.2.2 Time over next position shall be expressed in four digits, giving both the hour and minutes, when making position reports within oceanic control areas.

3.2.2.3 The name or location of the ensuing significant point following the "next position and estimated time" shall be given when making position reports within oceanic control areas.

3.2.2.4 If the estimated time for the next position last reported to air traffic control is found to be in error by three minutes or more, a revised estimate shall be transmitted to the ATS unit concerned as soon as possible.

3.2.3 *Level*

3.2.3.1 Aircraft cleared for cruise climb shall report their level to the nearest 30 m (100 ft).

Note.— Levels so reported, e.g. 354, may not necessarily be flight levels as defined in PANS-OPS, Part III.

3.2.4 *Abbreviated reports*

3.2.4.1 When operating along designated ATS routes for supersonic aircraft, position reports may be abbreviated as notified by the appropriate ATS authority concerned.

3.2.4.2 Abbreviated position reports for supersonic aircraft shall consist of aircraft identification, position and time only.

3.3 Transmission of position reports
(P-ATM, 4.11.1)

3.3.1 The last position report before passing from one flight information region to an adjacent flight information region shall also be made to the ATS unit serving the airspace about to be entered.

3.3.2 Responsibility for the transmission of position reports to the additional ATS units specified in 3.3.1 may be delegated to the appropriate communications station(s) through local arrangement.

4.0 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES

4.1 Introduction

4.1.1 The following procedures are intended for guidance only and will be applicable within the EUR/SAM corridor. Although all possible contingencies cannot be covered, they provide for cases of:

a) inability to maintain assigned flight level due to weather, aircraft performance, pressurization failure and problems associated with high-level supersonic flight;

b) loss of, or significant reduction in, the required navigation capability when operating in parts of the airspace where the navigation performance accuracy is a prerequisite to the safe conduct of flight operations; and

c) en-route diversion across the prevailing EUR/SAM traffic flow.

4.1.2 With regard to 4.1.1 a) and c) above, the procedures are applicable primarily when rapid descent, turnback, or both, are required. The pilot's judgement shall determine the sequence of actions taken, having regard to the specific circumstances. Air traffic control (ATC) shall render all possible assistance.

4.2 General procedures

4.2.1 The following general procedures apply to both subsonic and supersonic aircraft.

4.2.1.1 If an aircraft is unable to continue flight in accordance with its ATC clearance, and/or an aircraft is unable to maintain the navigation performance accuracy specified for the airspace, a revised clearance shall, whenever possible, be obtained prior to initiating any action, using the distress or urgency signals as appropriate. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and the overall air traffic situation.

4.2.1.2 If prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time and, until revised clearance is received, the pilot shall:

a) if possible, deviate away from an organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, aircraft position (including ATS route designator or the track code) and intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) switch on the SSR transponder at all times; and

f) initiate such action as necessary to ensure safety of the aircraft.

4.3 Subsonic aircraft

4.3.1 *Initial action*

4.3.1.1 If unable to comply with the provisions of 4.2 to obtain a revised ATC clearance, the aircraft should leave its assigned route or track by turning 90 degrees to the right or left whenever this is possible. The direction of the turn should, where possible, be determined by the position of the aircraft relative to any organized route or track system (e.g. whether the aircraft is outside, at the edge of, or within the system). Other factors that may affect the direction of the turn are the direction to an alternative airport, terrain clearance and the flight levels allocated to adjacent routes.

4.3.2 *Subsequent action (RVSM airspace)*

4.3.2.1 In RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

a) if above FL 410, climb or descend 300 m (1 000 ft); or

b) if below FL 410, climb or descend 150 m (500 ft); or

c) if at FL 410, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.2.2 An aircraft that is unable to maintain its assigned flight level should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent level flight, select a level which differs from those normally used by 300 m (1 000 ft) if above FL 410, or by 150 m (500 ft) if below FL 410.

4.3.3 *Subsequent action (non-RVSM airspace)*

4.3.3.1 In non-RVSM airspace, an aircraft able to maintain its assigned flight level should turn to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track and:

a) if above FL 290, climb or descend 300 m (1 000 ft); or

b) if below FL 290, climb or descend 150 m (500 ft); or

c) if at FL 290, climb 300 m (1 000 ft) or descend 150 m (500 ft).

4.3.3.2 An aircraft unable to maintain its assigned level flight should:

a) initially minimize its rate of descent to the extent that it is operationally feasible;

b) turn while descending to acquire and maintain in either direction a track laterally separated by 46 km (25 NM) from its assigned route or track in a multi-track system spaced at 93 km (50 NM) or otherwise, at a distance which is the mid-point from the adjacent parallel route or track; and

c) for the subsequent level flight, a level should be selected which differs from those normally used by 300 m (1 000 ft) if above FL 290 or by 150 m (500 ft) if below FL 290.

4.3.4 *En-route diversion across the prevailing SAT air traffic flow*

4.3.4.1 Before diverting across the flow of adjacent traffic, the aircraft should climb above FL 410 or descend below FL 280 using the procedures specified in 4.3.1 or 4.3.2 or 4.3.3. However, if the pilot is unable or unwilling to carry out a major climb or descent, the aircraft should be flown at a level as defined in 4.3.2.1 or 4.3.3.1 until a revised ATC clearance is obtained.

4.3.5 *Extended range operations by aeroplanes with two-turbine power-units (ETOPS)*

4.3.5.1 If these contingency procedures are employed by a twin-engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation reminding ATC of the type of aircraft involved, and request expeditious handling.

4.4 Supersonic aircraft

4.4.1 *Turnback procedures*

4.4.1.1 If a supersonic aircraft is unable to continue flight to its destination and a reversal of track is necessary, it should:

a) when operating on an outer track of a multi-track system, turn away from the adjacent track;

b) when operating on a random track or on an inner track of a multi-track system, turn either left or right as follows:

   1) if the turn is to be made to the right, the aircraft should attain a position 46 km (25 NM) to the left of the assigned track and then turn to the right into its reciprocal heading, at the greatest practical rate of turn;

   2) if the turn is to be made to the left, the aircraft should attain a position 46 km (25 NM) to the right of the assigned track and then turn to the left into its reciprocal heading, at the greatest practical rate of turn;

c) while executing the turnback, the aircraft should lose height so that it will be at least 1 850 m (6 000 ft) below the level at which turnback was started, by the time the turnback is completed;

d) when turnback is completed, heading should be adjusted to maintain a lateral displacement of 46 km (25 NM) from the original track in the reverse direction, if possible maintaining the flight level attained on completion of the turn.

Note.— For multi-track systems where the route spacing is greater than 93 km (50 NM), the mid-point distance should be used instead of 46 km (25 NM).

4.5 Weather deviation procedures

4.5.1 *General*

4.5.1.1 The following procedures are intended to provide guidance. All possible circumstances cannot be covered. The pilot's judgement shall ultimately determine the sequence of actions taken. ATC shall render all possible assistance.

4.5.1.2 If the aircraft is required to deviate from track to avoid weather and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the aircraft shall follow the procedures detailed in 4.5.4 below.

4.5.1.3 The pilot shall inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to the centre line of its cleared route.

4.5.2 *Obtaining priority from ATC when weather deviation is required*

4.5.2.1 When the pilot initiates communications with ATC, rapid response may be obtained by stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response.

4.5.2.2 The pilot still retains the option of initiating the communications using the urgency call "PAN PAN" (preferably spoken three times) to alert all listening parties to a special handling condition which will receive ATC priority for issuance of a clearance or assistance.

4.5.3 *Actions to be taken when controller-pilot communications are established*

4.5.3.1 The pilot notifies ATC and requests clearance to deviate from track, advising, when possible, the extent of the deviation expected.

4.5.3.2 ATC takes one of the following actions:

a) if there is no conflicting traffic in the horizontal plane, ATC will issue clearance to deviate from track; or

b) if there is conflicting traffic in the horizontal plane, ATC separates aircraft by establishing appropriate separation; or

c) if there is conflicting traffic in the horizontal plane and ATC is unable to establish appropriate separation, ATC shall:

1) advise the pilot of inability to issue clearance for requested deviation;

2) advise the pilot of conflicting traffic; and

3) request the pilot's intentions.

SAMPLE PHRASEOLOGY

"UNABLE (*requested deviation*), TRAFFIC IS (*call sign, position, altitude, direction*), ADVISE INTENTIONS"

4.5.3.3 The pilot will take the following actions:

a) advise ATC of intentions; and

1) comply with the ATC clearance issued; or

2) execute the procedures detailed in 4.5.4 below; and

b) if necessary, establish voice communications with ATC to expedite dialogue on the situation.

4.5.4 *Actions to be taken if a revised ATC clearance cannot be obtained*

4.5.4.1 The provisions of this section apply to the situation where a pilot has the need to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.

4.5.4.2 If a revised ATC clearance cannot be obtained and deviation from track is required to avoid weather, the pilot shall take the following actions:

a) if possible, deviate away from the organized track or route system;

b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: flight level, aircraft identification, aircraft position (including ATS route designator or the track code) and intentions, on the frequency in use and on frequency 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);

c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

e) for deviations of less than 19 km (10 NM), aircraft should remain at a level assigned by ATC;

f) for deviation of greater than 19 km (10 NM), when the aircraft is approximately 19 km (10 NM) from track, initiate a level change based on the following criteria:

Route centre line track	*Deviations > 19 km (10 NM)*	*Level change*
EAST 000° — 179° magnetic	LEFT	DESCEND 90 m (300 ft)
	RIGHT	CLIMB 90 m (300 ft)
WEST 180° — 359° magnetic	LEFT	CLIMB 90 m (300 ft)
	RIGHT	DESCEND 90 m (300 ft)

Note.— If, as a result of actions taken under the provisions of 4.5.4.2 b) and c) above, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

g) when returning to track, be at its assigned level, when the track is within approximately 19 km (10 NM) of centre line; and

h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

5.0 AIR TRAFFIC CONTROL CLEARANCES

5.1 Contents of clearances
(A11 – 3.7; P-ATM, 4.5.4, 4.5.7 and 11.4.2.5.2)

5.1.1 A pilot-in-command shall, if at any time in doubt, request a detailed description of the route from ATS.

5.2 Adherence to ATC-approved Mach number
(A2 – 3.6.2)

5.2.1 Turbo-jet aircraft operating along the specified routes between San Juan (Peru) and Tongoy or Antofagasta (Chile) and on the specified routes between the west coast of Peru and Chile and the adjacent control areas of the PAC Region, as well as those operating at or above FL 250 within the Dakar Oceanic, Recife and Sal Oceanic flight information regions, shall adhere to the Mach number approved by ATC and shall request ATC approval before making any change thereto. If essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.2.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during en-route climbs and descents, pilots of aircraft concerned shall advice ATC at the time of the climb/descent request.

6.0 SEPARATION OF AIRCRAFT

6.1 Lateral separation
(A11 – Attachment B; P-ATM, 5.4.1 and 5.11)

6.1.1 Minimum lateral separation between aircraft operating over the Atlantic Ocean shall be 223 km (120 NM) except as provided for in 6.1.1.1, 6.1.1.2 and 6.1.2 below.

6.1.1.1 A lateral separation minimum of 185 km (100 NM) shall be applied between aircraft operating within the Dakar Oceanic, Recife and Sal Oceanic FIRs except:

6.1.1.2 Where aircraft are transiting into an airspace with a larger lateral minimum than the airspace being exited, lateral separation will continue to exist provided that:

a) the smaller separation minimum exists;

b) flight paths diverge by 15° or more until the larger minimum is established; and

c) it is possible to ensure, by means approved by the appropriate ATS authority, that the aircraft have navigation capability necessary to ensure accurate track guidance.

6.1.2 For flights on designated controlled oceanic routes or areas within the Canarias FIR (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs, the minimum lateral separation that shall be applied between RNAV-equipped aircraft approved to RNP 10 or better shall be 93 km (50 NM).

6.1.2.1 The letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed.

6.1.2.2 Operators shall establish programmes to mitigate the occurrence of large lateral track errors due to equipment malfunction or operational error, which:

a) ensure that operating drills include mandatory navigation cross-checking procedures to identify navigation errors in sufficient time to prevent aircraft inadvertently deviating from an ATC-cleared route; and

b) provide for the continued airworthiness of aircraft navigation systems necessary to navigate to the degree of accuracy required.

Note.— Detailed guidance material on RNP is contained in the Manual on Required Navigation Performance (RNP) *(Doc 9613).*

6.1.2.3 A target level of safety (TLS) of 5×10^{-9} fatal accidents per flight hour per dimension shall be established for route systems operating a 93 km (50 NM) lateral separation minimum. The safety level of such airspace shall be determined by an appropriate safety assessment.

Note.— Detailed guidance material on conducting safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.1.2.4 The following criteria are used in the operational assessment of airspace system safety:

a) the proportion of the total flight time spent by aircraft 46 km (25 NM) or more off the cleared track shall be less than 7.0×10^{-4}; and

b) the proportion of the total flight time spent by aircraft between 74 and 111 km (40 and 60 NM) off the cleared track shall be less than 4.1×10^{-5}.

6.1.2.5 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the lateral navigation performance capabilities of RNP 10 and 6.1.2.4 above. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.— Detailed guidance is contained in the Air Traffic Services Planning Manual *(Doc 9426) and the* Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.2 Longitudinal separation
(P-ATM, 5.4.2 and 5.11)

6.2.1 Minimum longitudinal separation between aircraft in supersonic flight shall be:

a) 15 minutes, except as specified below;

b) 10 minutes, provided that:

1) both aircraft are in level flight at the same Mach number or the aircraft are of the same type and are both operating in cruise climb; and

2) the aircraft concerned have reported over a common entry point into oceanic-controlled airspace and follow the same track or continuously diverging tracks until some other form of separation is provided; or

3) if the aircraft have **not** reported over a common entry point into oceanic-controlled airspace, it is possible to ensure, by radar or other means approved by the State, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks.

6.2.2 Minimum longitudinal separation between aircraft in subsonic flight shall be:

a) 30 minutes between aircraft operating over the Atlantic Ocean, except as specified below:

b) 15 minutes between turbo-jet aircraft operating:

1) on the specified routes between San Juan (Peru) and Tongoy or Antofagasta (Chile) and on the specified routes between the west coast of Peru and Chile and the adjacent control areas of the PAC Region; or

2) at or above FL 250 within the Dakar Oceanic, Recife and Sal Oceanic FIRs, provided that the Mach number technique is applied and, whether in level, climbing or descending flight, the aircraft have reported over the same entry point to the ATS routes or a common entry point into oceanic-controlled airspace and follow the same track or continuously diverging tracks; or

c) 10 minutes or 150 km (80 NM), derived by RNAV, when the Mach number technique is applied on designated controlled oceanic routes in the EUR/SAM corridor within the Dakar Oceanic, Recife and Sal Oceanic FIRs.

6.2.2.1 For flights in the EUR/SAM corridor (Canarias (southern sector), Dakar Oceanic, Recife and Sal Oceanic FIRs), the minimum longitudinal separation minima between RNAV-equipped aircraft approved to RNP 10 or better on the same track shall be 93 km (50 NM) provided that:

a) the letter R shall be annotated in Item 10 (Equipment) of the flight plan to indicate that the aircraft meets the RNP type prescribed; and

b) a target level of safety of 5×10^{-9} fatal accidents per flight hour per dimension shall be established and the safety level of such airspace shall be determined by an appropriate safety assessment.

6.2.2.2 Adequate monitoring of flight operations shall be conducted to provide data to assist in the assessment of continuing compliance of aircraft with the longitudinal navigation performance capabilities of RNP 10. Such data shall include operational errors due to all causes. A safety assessment shall be carried out periodically, based on the data collected, to confirm that the safety level continues to be met.

Note.— Detailed guidance on monitoring is contained in the Air Traffic Services Planning Manual *(Doc 9426) and the* Manual on Airspace Planning Methodology for the Determination of Separation Minima *(Doc 9689).*

6.3 Vertical separation

The minimum vertical separation that shall be applied between FL 290 and FL 410 inclusive is 300 m (1 000 ft).

6.3.1 *Area of applicability*

The reduced vertical separation minimum (RVSM) shall be applied for flights between FL 290 and FL 410 inclusive, within the Canarias (southern sector), Dakar Oceanic, Recife (oceanic portion) and Sal Oceanic FIRs.

Note.— Implementation will be carried out in phases and will be promulgated by appropriate AIP Supplements and included in the respective AIPs.

6.3.2 *Establishment of RVSM transition areas*
(A2 — Appendix 3; A6, Parts I and II, 7.2.3;
A11 — 3.3.4; P-ATM, 5.3.2)

6.3.2.1 In order to allow for the transition of flights to and from EUR/SAM RVSM airspace, the ATS authorities responsible for Canarias, Dakar Oceanic, Recife and Sal Oceanic FIRs may establish designated RVSM transition areas. A 300 m (1 000 ft) vertical separation minimum can be applied between RVSM-approved aircraft within these transition areas.

6.3.2.2 An RVSM transition area shall have a vertical extent of FL 290 to FL 410 inclusive, be contained within horizontal dimensions determined by the provider States, be overlapping with or contained within EUR/SAM RVSM airspace and should have direct controller-pilot communications.

6.3.3 *RVSM approval*

The minimum separation in 6.3 shall only be applied between aircraft and operators that have been approved by the State of Registry or the State of the Operator, as appropriate, to conduct flights in RVSM airspace and that are capable of meeting the minimum aircraft system performance specification (MASPS) height-keeping requirements (or equivalent).

6.3.4 *MASPS*

The MASPS height-keeping requirements are as follows:

a) for all aircraft, the differences between cleared flight level and the pressure altitude actually flown shall be symmetric about a mean of 0 m (0 ft), shall have a standard deviation no greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing magnitude at a rate which is at least exponential;

b) for groups of aircraft that are nominally of identical design and built with respect to all details that could influence the accuracy of height-keeping performance in the RVSM flight envelope (FL 290 to FL 410 inclusive):

   1) the mean altimetry system error (ASE) of the group shall not exceed 25 m (80 ft) in magnitude; and

   2) the sum of the absolute value of the mean ASE and of three standard deviations of ASE shall not exceed 75 m (245 ft);

c) for non-group aircraft for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aircraft: the ASE shall not exceed 61 m (200 ft) in magnitude in the RVSM flight envelope (FL 290 to FL 410 inclusive); and

d) the following criteria shall be used in the operational assessment of airspace system safety: the total vertical error (TVE), which is the difference between the geometric height of the aircraft and the geometric height of the flight level to which it is assigned, is required to be such that:

   1) the probability that TVE equal to or greater than 91 m (300 ft) in magnitude is equal to or less than 2.0×10^{-3};

   2) the probability that TVE equal to or greater than 152 m (500 ft) in magnitude is equal to or less than 5.0×10^{-6};

   3) the probability that TVE equal to or greater than 200 m (650 ft) in magnitude is equal to or less than 1.4×10^{-6};

   4) the probability that TVE between 290 m and 320 m (950 ft and 1 050 ft), inclusive, in magnitude is equal to or less than 1.7×10^{-7}; and

   5) the proportion of time that aircraft spend at incorrect flight levels, 300 m (1 000 ft), or multiples thereof, away from assigned flight levels is equal to or less than 7.1×10^{-7}.

Note.— Guidance material regarding the initial achievement and continued maintenance of the height-keeping performance in 6.3.4 is contained in the Guidance Material on the Implementation of a 300 m (1 000 ft)

Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.

6.3.5 *Target level of safety (TLS)*

Application of RVSM in the airspace designated in 6.3.1 shall meet a TLS of 5×10^{-9} fatal accidents per aircraft flight hour due to all causes of risk in the vertical dimension.

6.3.6 *Approval status and aircraft registration*

Item 10 of the flight plan (Equipment) shall be annotated with the letter W if the aircraft and operator have received RVSM State approval. Furthermore, the aircraft registration shall be indicated in Item 18 of the flight plan.

6.3.7 *Operation of aircraft not approved for RVSM*

6.3.7.1 Except for areas where transition areas have been established, aircraft not meeting the requirements of 6.3.4 shall not be allowed to operate in EUR/SAM RVSM airspace.

6.3.7.2 Exceptionally, aircraft that have not received RVSM State approval may be cleared to operate in airspace where RVSM may be applied in accordance with policy and procedures established by the State provided that 600 m (2 000 ft) vertical separation is applied.

Note.— Transitions to and from EUR/SAM RVSM airspace will normally take place in the first FIR in EUR/SAM RVSM airspace.

6.3.8 *Monitoring*

Adequate monitoring of flight operations in the EUR/SAM RVSM airspace shall be conducted to assist in the assessment of continuing compliance of aircraft with the height-keeping capabilities in 6.3.4. Monitoring shall include assessment of other sources of risk to ensure that the TLS specified in 6.3.5 is not exceeded.

Note.— Details of the policy and procedures for monitoring established by the South Atlantic Monitoring Agency (SATMA) are contained in the Guidance Material on the Implementation of a 300 m (1 000 ft) Vertical Separation Minimum (VSM) for Application in the EUR/SAM Corridor.

6.3.9 *Wake turbulence procedures*

6.3.9.1 The following special procedures are applicable to mitigate wake turbulence encounters in the airspace where RVSM is applied.

6.3.9.2 An aircraft that encounters wake turbulence should notify ATC and request a revised clearance. However, in situations where a revised clearance is not possible or practicable:

a) the pilot should establish contact with other aircraft, if possible, on the air-to-air frequency 123.45 MHz; and

b) one (or both) aircraft may initiate lateral offset(s) not to exceed 3.7 km (2 NM) from the assigned route(s) or track(s), provided that:

   1) as soon as it is practicable to do so, the offsetting aircraft notify ATC that temporary lateral offset action has been taken and specify the reason for doing so; and

   2) the offsetting aircraft notify ATC when re-established on assigned route(s) or track(s).

Note.— In the contingency circumstances above, ATC will not issue clearances for lateral offsets and will not normally respond to action taken by pilots.

6.4 Vertical separation

6.4.1 Above FL 450, vertical separation between supersonic aircraft, and between supersonic aircraft and any other aircraft, shall be considered to exist if the flight levels of the two aircraft differ by at least 1 200 m (4 000 ft).

6.5 Information on application of separation minima

(A11 – 3.4; P-ATM, 5.4.1, 5.4.2 and 5.11)

6.5.1 Where, circumstances permitting, separation minima lower than those specified in 6.1 and 6.2 will be applied in accordance with the PANS-ATM, appropriate information should be published in Aeronautical Information Publications so that users of the airspace are fully aware of the portions of airspace where the reduced separation minima will be applied and of the navigation aids on the use of which those minima are based.

7.0 USE OF SECONDARY SURVEILLANCE RADAR (SSR)

(P-ATM, Chapter 8; P-OPS, Vol. I, Part VIII)

7.1 Application of procedures

7.1.1 *Assignment of SSR codes*

7.1.1.1 Except when otherwise prescribed by bilateral agreement between adjacent area control centres located in different ICAO Regions, area control centres providing air traffic services in flight information regions adjacent to other regions should, when properly equipped, assign individual SSR codes to aircraft entering their flight information regions from the adjacent regions. Such codes should be selected from the subset allocated to the area control centres for assignment to international flights.

7.1.1.2 As a general rule, an individual SSR code assigned to an international flight may be reassigned to another flight:

a) three hours after the departure of the lead aircraft; or

b) when it is estimated that the lead aircraft has landed;

whichever is the earlier.

7.2 Use of SSR-derived information for the provision of separation between aircraft

7.2.1 Secondary surveillance radar information may be used alone for the provision of horizontal separation between properly equipped aircraft in the circumstances and under the conditions specified below:

a) Within the coverage area of the associated primary radar, in order to overcome known deficiencies of that radar, e.g. the fact that primary radar echoes of certain aircraft are not, or not continuously, presented on the radar display due to the reflecting characteristics of such aircraft, clutter, etc. In this case, SSR responses may be used for the separation of transponder-equipped aircraft and, additionally, for the separation of transponder-equipped aircraft from other known aircraft not using SSR but displayed clearly on the primary radar display, provided that the SSR response from any aircraft (not necessarily the one being provided separation) coincides with the primary radar echo of the same aircraft.

Note.— Where SSR accuracy cannot be verified by means of monitor equipment or by visual correlation of the SSR response with the primary radar echo from a given aircraft, SSR responses alone may be used only to provide identification.

b) Outside the coverage area of the associated primary radar, or in certain areas (which shall be defined horizontally as well as vertically) and under circumstances specified by the appropriate authority in consultation with the operators, provided:

1) reliable SSR coverage exists within the area;

2) the area is designated as controlled airspace;

3) the control of air traffic in the area is vested in one ATC unit unless adequate means of coordination exist between all ATC units concerned;

4) actual operating experience has shown that loss of SSR responses is not occurring at a rate affecting the safety of operations and adequate measures for earliest possible detection of such losses have been developed;

5) density and/or complexity of air traffic in the area and provision of navigational guidance allow to revert safely to other forms of separation in case of SSR failure;

6) the aircraft concerned have previously been identified and identification has been maintained;

7) procedural separation is applied between aircraft with functioning transponders and other aircraft.

c) When primary radar fails and until procedural separation is established, provided that:

1) the positional accuracy of the SSR responses has been verified (see 7.2.1 a) and Note);

2) the pilots of the aircraft concerned have been advised.

d) In the case of aircraft in emergency.

Note.— Apart from causes resulting in the inability to resolve the positional element of an SSR response which can occur due to malfunctioning of the equipment, there are two causes which may occur during normal operations. These are the presence of side-lobe responses and reflections.

8.0 ALTIMETER SETTING PROCEDURES APPLICABLE TO AIR TRAFFIC SERVICES AND MINIMUM LEVELS
(P-ATM, 4.10 and 4.10.3.2)

8.1 The lowest usable flight level for holding and approach manoeuvres shall be calculated from actual QNH, unless the pressure variation is so small that reference to climatological data is acceptable.

Note 1.— The lowest usable flight level will provide a terrain clearance of at least 300 m (1 000 ft) and, for operation in the vicinity of an aerodrome, will not be established below 450 m (1 500 ft) above aerodrome elevation.

Note 2.— MET Offices will inform ATS units when, in abnormal conditions, pressure goes below the minimum climatological value, in order that appropriate steps can be taken to cancel temporarily the use of the lowest flight level or levels that would not ensure the minimum terrain clearance.

8.2 In determining the transition level, the table at Appendix A should be used. This table shows the transition level directly as a function of the transition altitude of the aerodrome and of the current QNH altimeter setting value.

9.0 FLIGHT INFORMATION SERVICE

9.1 Information on runway conditions
(A11 – 4.2.1; P-ATM, 6.6)

9.1.1 Unless otherwise provided, area control centres shall have available for transmission to aircraft on request, immediately prior to descent, information on the prevailing runway conditions at the aerodrome of intended landing.

9.2 Transmission of SIGMET information
(P-ATM, 9.1.3.2)

9.2.1 Transmission of SIGMET information to aircraft shall be at the initiative of the appropriate ATS unit, by the preferred method of directed transmission followed by acknowledgement, or by a general call when the number of aircraft would render the preferred method impracticable.

9.2.2 SIGMET information passed to aircraft shall cover a portion of the route up to two hours' flying time ahead of the aircraft.

9.3 Transmission of amended aerodrome forecasts
(P-ATM, 9.1.3.5)

9.3.1 Amended aerodrome forecasts shall be passed to aircraft within 60 minutes from the aerodrome of destination, unless the information was made available through other means.

9.4 Transmission of trend forecasts
(A11 – 4.2.2)

9.4.1 The latest trend forecast available to the ATS unit, provided it is no more than one hour old, shall always be transmitted to an aircraft together with the latest report of routine or special observation, when the aircraft requests the latter information.

10.0 AIR TRAFFIC SERVICES MESSAGES

10.1 Flight plan and departure messages
(P-ATM, 11.4.2.2)

10.1.1 For coordination between ATS units providing air traffic control or air traffic advisory service, where direct speech communications exist, the "step-by-step" method shall be used to transmit information from the ATS unit at the aerodrome of origin to the point where the chain of direct speech communications can be established without interruption.

10.1.2 The ATS unit serving the aerodrome where the flight originated shall send a Filed Flight Plan (FPL) message, followed by a departure message, to the ATS unit where the chain of direct speech communications is interrupted and also to the remaining ATS units along the route, in accordance with the procedures for the routing of messages contained in the PANS-ATM.

10.2 Arrival messages
(P-ATM, 10.4.2.2.7)

10.2.1 No arrival message shall be sent in respect of an aircraft for which a transfer message has been sent and acknowledged.

11.0 ALERTING AND SEARCH AND RESCUE SERVICES

11.1 Routes and equipment of private aircraft
(A6, Part II – 6.3 and 6.4)

11.1.1 General aviation aircraft operating over designated areas, land or sea, where search and rescue operations would be difficult, should:

a) carry appropriate survival equipment;

b) follow the routes or specified procedures if not equipped with two-way radio, except that under special circumstances, the appropriate authority may grant specific exemptions from this requirement.

APPENDIX A
(Reference 8.2)

TABLE TO DETERMINE THE TRANSITION LEVEL WHICH WILL AT LEAST COINCIDE WITH THE FLIGHT LEVEL CORRESPONDING TO THE TRANSITION ALTITUDE

To determine the transition level for a transition layer of 150 m (500 ft), 300 m (1 000 ft), etc., it will suffice to add the figure 5, 10, etc., to the transition level shown in the appropriate table.

The columns on the left show the values that can be assigned to transition altitudes and the top lines indicate the pressure ranges in millibars between which the QNH values of the aerodrome fluctuate. The transition level for a transition layer of at least 0 m (0 ft) appears in each consolidated table in the form indicated below.

Note.— The values for transition altitude, indicated in metres and feet, are given merely for the purpose of identifying typical transition altitudes. Although pairs of values are given in each column, this does not necessarily mean that they are equivalent.

Example explaining the use of the table

Assuming a given QNH value (e.g. 1 012.5 mb) and a given transition altitude (e.g. 1 410 m), the transition level (under the conditions indicated) is FL 50. Should a transition layer of at least 300 m (1 000 ft) be required, then the flight level corresponding to the transition level is 60.

Since the transition altitude for each location has a fixed value, the only line of the table to be used at all times is that which includes this altitude. For example, in the case of an aerodrome with a transition altitude of 1 560 m, (5 200 ft), it could be:

QNH / T.A. m	T.A. ft	From 949.1 to 966.5	From 966.6 to 984.2	From 984.3 to 1 002.2	From 1 002.3 to 1 020.5	From 1 020.6 to 1 039.1	From 1 039.2 to 1 057.9
1 560	5 200	70	65	60	55	50	45

QNH / T.A. m	T.A. ft	QNH / T.A. m	T.A. ft	QNH / T.A. m	T.A. ft	QNH / T.A. m	T.A. ft	QNH / T.A. m	T.A. ft	From 942.2 to 959.4	From 959.5 to 977.1	From 977.2 to 995.0	From 995.1 to 1 013.2	From 1 013.3 to 1 031.6	From 1 031.7 to 1 050.3
										From 945.6 to 963.0	From 963.1 to 980.7	From 980.8 to 998.6	From 998.7 to 1 016.8	From 1 016.9 to 1 035.3	From 1 035.4 to 1 054.1
										From 949.1 to 966.5	From 966.6 to 984.2	From 984.3 to 1 002.2	From 1 002.3 to 1 020.5	From 1 020.6 to 1 039.1	From 1 039.2 to 1 057.9
										From 952.6 to 970.0	From 970.1 to 987.8	From 987.9 to 1 005.9	From 1 006.0 to 1 024.2	From 1 024.3 to 1 042.8	From 1 042.9 to 1 061.7
										From 956.1 to 973.5	From 973.6 to 991.4	From 991.5 to 1 009.5	From 1 009.6 to 1 027.9	From 1 028.0 to 1 046.6	From 1 046.7 to 1 065.5
450	1 500	480	1 600	510	1 700	540	1 800	570	1 900	35	30	25	20	15	10
600	2 000	630	2 100	660	2 200	690	2 300	720	2 400	40	35	30	25	20	15
750	2 500	780	2 600	810	2 700	840	2 800	870	2 900	45	40	35	30	25	20
900	3 000	930	3 100	960	3 200	990	3 300	1 020	3 400	50	45	40	35	30	25
1 050	3 500	1 080	3 600	1 110	3 700	1 140	3 800	1 170	3 900	55	50	45	40	35	30
1 200	4 000	1 230	4 100	1 260	4 200	1 290	4 300	1 320	4 400	60	55	50	45	40	35
1 350	4 500	1 380	4 600	1 410	4 700	1 440	4 800	1 470	4 900	65	60	55	50	45	40
1 500	5 000	1 530	5 100	1 560	5 200	1 590	5 300	1 620	5 400	70	65	60	55	50	45
1 650	5 500	1 680	5 600	1 710	5 700	1 740	5 800	1 770	5 900	75	70	65	60	55	50
1 800	6 000	1 830	6 100	1 860	6 200	1 890	6 300	1 920	6 400	80	75	70	65	60	55
1 950	6 500	1 980	6 600	2 010	6 700	2 040	6 800	2 070	6 900	85	80	75	70	65	60
2 100	7 000	2 130	7 100	2 160	7 200	2 190	7 300	2 220	7 400	90	85	80	75	70	65

SAM REGIONAL SUPPLEMENTARY PROCEDURES

PART 2 - COMMUNICATIONS

These procedures are supplementary to the provisions contained in Annex 10.

1.0 AERONAUTICAL MOBILE SERVICE

1.1 Languages to be used in radiotelephony
(A10, Vol. II - 5.2.1.1.2, Note 2)

1.1.1 In English-speaking countries the alternative shall be Spanish.

1.1.2 When the language used by the station on the ground, in accordance with Annex 10, Volume II, 5.2.1.1.1 is English, Spanish should be available at the request of the aircraft. Until this procedure is implemented, the aircraft operating agency shall be allowed to provide an interpreter under the condition specified in Annex 10, Volume II, 5.2.1.1.3 and 5.2.1.1.4.

2.0 RADIO FREQUENCIES

2.1 Air-to-air VHF channel
(A10, Vol. I, Part II - 4.1.3.2)

2.1.1 The frequency 130.550 MHz has been approved for use as the air-to-air channel in the SAM Region, to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

ICAO TECHNICAL PUBLICATIONS

The following summary gives the status, and also describes in general terms the contents of the various series of technical publications issued by the International Civil Aviation Organization. It does not include specialized publications that do not fall specifically within one of the series, such as the Aeronautical Chart Catalogue *or the* Meteorological Tables for International Air Navigation.

International Standards and Recommended Practices are adopted by the Council in accordance with Articles 54, 37 and 90 of the Convention on International Civil Aviation and are designated, for convenience, as Annexes to the Convention. The uniform application by Contracting States of the specifications contained in the International Standards is recognized as necessary for the safety or regularity of international air navigation while the uniform application of the specifications in the Recommended Practices is regarded as desirable in the interest of safety, regularity or efficiency of international air navigation. Knowledge of any differences between the national regulations or practices of a State and those established by an International Standard is essential to the safety or regularity of international air navigation. In the event of non-compliance with an International Standard, a State has, in fact, an obligation, under Article 38 of the Convention, to notify the Council of any differences. Knowledge of differences from Recommended Practices may also be important for the safety of air navigation and, although the Convention does not impose any obligation with regard thereto, the Council has invited Contracting States to notify such differences in addition to those relating to International Standards.

Procedures for Air Navigation Services (PANS) are approved by the Council for world-wide application. They contain, for the most part, operating procedures regarded as not yet having attained a sufficient degree of maturity for adoption as International Standards and Recommended Practices, as well as material of a more permanent character which is considered too detailed for incorporation in an Annex, or is susceptible to frequent amendment, for which the processes of the Convention would be too cumbersome.

Regional Supplementary Procedures (SUPPS) have a status similar to that of PANS in that they are approved by the Council, but only for application in the respective regions. They are prepared in consolidated form, since certain of the procedures apply to overlapping regions or are common to two or more regions.

The following publications are prepared by authority of the Secretary General in accordance with the principles and policies approved by the Council.

Technical Manuals provide guidance and information in amplification of the International Standards, Recommended Practices and PANS, the implementation of which they are designed to facilitate.

Air Navigation Plans detail requirements for facilities and services for international air navigation in the respective ICAO Air Navigation Regions. They are prepared on the authority of the Secretary General on the basis of recommendations of regional air navigation meetings and of the Council action thereon. The plans are amended periodically to reflect changes in requirements and in the status of implementation of the recommended facilities and services.

ICAO Circulars make available specialized information of interest to Contracting States. This includes studies on technical subjects.

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