SUMMARY OF DISCUSSIONS AND CONCLUSIONS

OF THE

TWENTIETH MEETING OF THE NAT SYSTEMS PLANNING GROUP

(Paris, 14 - 25 March 1983)

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1. Introduction

1.1 Convening and conduct of the Meeting

1.1.1 The Twentieth Meeting of the NAT Systems Planning Group (NAT SPG) was held in the European Office of ICAO from 14 to 25 March 1983. It was chaired by Mr. F. Rico, the Member from France. A list of participants is given on page v.

1.1.2 In addition to IATA and IFALPA, the Group had, as usual, also invited Denmark, Norway, Spain and the USSR, as well as IAOPA, to attend this Meeting. However, Norway and IAOPA had informed the Group that they could not be represented at this Meeting.

1.1.3 In order to progress its work efficiently, the Group established a number of ad hoc drafting groups to deal with particular aspects of some subjects during the Meeting. The more important of these were :

a) a sub-group charged with the scrutiny of observed gross errors, of which Mr. J. Irving of the United Kingdom acted as Rapporteur;

b) a sub-group dealing with mathematical aspects of lateral, longitudinal and composite separation, of which Mr. R. Stamp of the United Kingdom acted as Rapporteur;

c) a sub-group charged with the review of the HF communications situation in the NAT Region and other matters related to NAT aeronautical telecommunications, of which Mr. R. Whitford of Ireland acted as Rapporteur.

d) a sub-group to examine questions relating to the application of separation standards in the NAT Region, of which Mr. P. McMurray of Canada acted as Rapporteur.

1.1.4 Mr. C. Eigl served as Secretary of the Meeting and was assisted by Messrs. W. Arcangeletti, A. Bruinenberg and E. Cerasi of the European Office of ICAO.

2. Composition of the Agenda

2.1 Prior to the Meeting, a draft Agenda had been circulated, which had been prepared on the basis of proposals received from Members of the Group for items which needed consideration at this Meeting. In the course of the Meeting, it became however apparent that a number of operational matters of current interest also needed review and they were therefore included in the Agenda as they were brought forward.

4. List of Conclusions

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Agenda Item 1 : Review of navigation performance and application of separation standards in the NAT Region

1.1 Introduction

1.1.1 Under this Item, the Group considered the following specific subjects :

a) the situation regarding lateral separation;

b) the situation regarding longitudinal separation;

c) the situation regarding crossing and joining traffic;

d) revised procedures for the monitoring of navigation performance;

e) application of separation standards by Oceanic Area Control Centers (OAC).

1.2 Situation regarding lateral separation

1.2.1 When considering, overall, the situation regarding lateral separation in the NAT Region, the Group concentrated on the following specific aspects :

a) the navigational accuracy achieved in the NAT MNPS airspace;

b) validation of the continued use of 60 NM lateral separation in NAT MNPS airspace;

c) mathematical statistical considerations pertaining to this type of separation;

d) methods of improving the effectiveness of the current monitoring procedures.

Navigational accuracy achieved in NAT MNPS airspace during the period 1 April 1982 to 28 February 1983

1.2.2 The Group completed a scrutiny of observed gross errors in navigation in the NAT Region and found that a total of 58 errors and navigation incidents were reported during the period 1 April 1982 to 28 February 1983. 28 of these errors occurred outside MNPS airspace and of the remaining 30 errors, 17 were not eligible for inclusion in the risk analysis as defined by NAT SPG/17. A further consideration of these 17 errors is outlined at sub-para 1.2.21 of this Summary.

1.2.3 The following Table contains the classification of the 13 errors retained in the analysis, broken down according to the established procedures.

Classification*	ERROR				
	⩾ 30 NM	50 - 70 NM			
		Total Traffic		OTS Traffic	
		Model 1	Model 2	Model 1	Model 2
A	1	-	-	-	-
B	2	2	1.34	1	.12
C	5 ≠	-	1.38	-	1.38
D	1	-	-	-	-
E	1	-	-	-	-
F	2	-	-	-	-
Not classified	1	-	-	-	-
Total	13	2	2.72	1	1.50
Number of errors allowed according to NAT SPG/17 guidelines	37.54	9.21		5.99	
Observed Traffic		70833		46041	

Note 1 : ≠ One error was given a dual classification (A and C) i.e. non MNPS approved and waypoint insertion error. It is shown in the Table as a 'C' error only as this was the dominant cause.

Note 2 : * Letters in Classification Column mean :

'A' : Aircraft not certified for operations in MNPS airspace.

'B' : ATC System Loop Error

'C' : Equipment Control Error, including waypoint insertion error

'D' : Other navigation errors including equipment failure notified to ATC in time for action to be taken.

'E' : Other navigation errors, including equipment failure notified to ATC too late for action.

'F' : As for 'E' but of which notification was not received by ATC.

Not classified : Incident occurred on 20 January 1983, details still awaited.

1.2.4 The Group noted that once again there had been an improvement in navigation performance achieved during the scrutiny period. Of the errors appearing in the Table the major cause was "equipment control errors" (38.5%). This same cause accounted for 46% of the errors examined at NAT SPG/19 and emphasises the importance of adherence to operating procedures by flight crews.

1.2.5 The Group discovered, however, two specific operating problems which would require the attention of all concerned :

a) that occasionally aircraft not authorized to do so by their State of Registry, were entering MNPS airspace; and

b) that flight crews did not always advise ATC immediately when the integrity of the aircraft navigation was in doubt.

1.2.6 In considering the implications of these problems upon ATC, the Group confirmed that the onus of responsibility for the prevention of entry of non-authorized aircraft into MNPS airspace must lie with the State of Registry and the aircraft operator. Clearly, ATC could not be expected to verify the MNPS status of every aircraft requesting clearance into MNPS airspace. However it was essential that ATC should take some action in those instances where it was positively established that an aircraft was not MNPS approved but was nonetheless attempting to enter the MNPS airspace. It was noted that at present some OAC's would refuse to issue a clearance, at an MNPS level, to such aircraft after advising the pilot-in-command of the situation. Other OAC's would grant a clearance by applying appropriate separation standards which would probably penalise other flights as a result of the increased separation minima necessary to accommodate the ocean crossing of the non-authorised aircraft. It was agreed that in all such incidents of attempted or actual intrusion into NAT MNPS airspace the full details should be reported through the appropriate ATC authority to the Operator and the State of Registry concerned for corrective action as necessary. A copy of all correspondence should be sent to the Central Monitoring Agency.

1.2.7 In so far as the second problem was concerned it was accepted that if ATC were advised that an aircraft was experiencing difficulties with navigation equipment, appropriate action could usually be taken to ensure the continued safety of the flight in accordance with the provisions applicable under such circumstances.

1.2.8 Bearing this situation in mind, the Group felt that the attention of States concerned and operators should be drawn to these problems so that the navigation performance situation in NAT MNPS airspace can be improved further in the interest of safety.

CONCLUSION 20/1 - MNPS AIRSPACE OPERATIONS

That States concerned and operators :

a) take action to ensure that aircraft do not enter NAT MNPS airspace unless authorized for such operations by the State of Registry;

b) draw the attention of flight crews operating in NAT MNPS airspace to the necessity of advising ATC immediately when the integrity of the aircraft navigation is in doubt.

1.2.9 The Group noted that lengthy delays were still being encountered by the Monitoring Agency in obtaining information from aircraft operators. This problem was noted by NAT SPG/19 (paras 1.2.9 to 1.2.14). It was hoped that the approval and introduction of the revised monitoring procedures (NAT SPG/19-Summary, para 1.2.13) would provide the desired improvement.

Validation of the continued use of 60 NM lateral separation in NAT MNPS airspace

1.2.10 The Group agreed that, on the basis of the achieved navigational performance in NAT MNPS airspace during the current scrutiny period, the use of 60 NM lateral separation continued to meet the target level of safety.

Mathematical statistical considerations

1.2.11 The Group was presented with a number of working papers covering the mathematical statistical aspects of lateral separation, prepared by its Members from Canada, the United Kingdom and the USA. It noted that the methods of estimating occupancy used by Canada for same direction occupancy at 40°W and the one used by the United Kingdom for same and opposite direction occupancy at 20°W differed in detail. However, it did not feel that the differences were such as to render the material invalid nor to change substantially the resulting risk estimates.

1.2.12 Nevertheless, the Group felt that, for reasons of consistency, an agreed method of estimating occupancy was needed. It therefore agreed that :

a) the vertical limits used for defining the traffic to be used in the estimate of occupancy should be the same as those defining MNPS airspace, i.e. FL 275 to FL 400;

b) the lateral limits should be such as to include as much of the traffic known to the OAC supplying the data as possible;

c) traffic on the Organized Track Structure (OTS) would be defined to be traffic following an OTS track for the whole crossing;

d) averages should be weighted according to the amount of traffic in each subset;

e) the occupancy estimates should be made from the traffic for the 15th day of each calendar month; and

f) consideration should be given to provide guidelines for the interpretation of the summary statistics on occupancy relative to the parameter estimates used in the MNPS derivation.

1.2.13 However the Group was unable, due to lack of quantitative data, to decide on the merits of two further aspects of occupancy, namely :

a) the use of 15 minutes flying time as an approximation to 120 NM for both eastbound and westbound traffic bearing in mind the differences in ground speeds of these 2 groups; and

b) changing the definition of proximate pairs of aircraft from aircraft longitudinally within 120 NM of each other to aircraft longitudinally within 80 NM of each other. A consequential change in the value of the Sx parameter in the risk equation would also be required.

1.2.14 The Group therefore agreed to leave these topics for consideration by the next NAT SPG Meeting in order to allow the required analyses to be undertaken. It was stressed, however, that these issues and the need for consistency of results between different groups making estimates were believed to be matters of detail rather than major substance, and that the estimates presented at this time were suitable for judging the acceptability of 60 NM lateral separation.

1.2.15 Basing its conclusions on these occupancy estimates presented, the Group agreed that :

a) the estimates of same direction occupancy for eastbound traffic presented by Canada and by the UK were in close agreement;

b) as in previous years, the same direction occupancy was greater for the eastbound than the westbound traffic;

c) the OTS same direction occupancy was greater than the value of 0.5 used in the MNPS derivation, and appeared to have increased since last year with no apparent increase in traffic count;

d) the same direction occupancy for the total of OTS and random traffic was below the 0.5 limit for westbound aircraft and slightly above it for eastbound, giving a total for all traffic lower than the limit;

e) the opposite direction occupancy was lower than the 0.013 value used in the MNPS derivation; and

f) taking the occupancy estimates together with data on achieved lateral navigation performance shows that the target level of safety is being met for both the OTS and the total traffic for both the eastbound and westbound flows.

1.2.16 In reaching these conclusions, the Group noted that occupancy data was available for only the Gander and Shanwick airspace, with no data being supplied for other areas of the NAT Region. It also noted that, whilst the navigational accuracy revealed by the monitoring scheme now appeared to give a rate of eta and zeta errors that was becoming stable, the occupancy appears to be increasing and shows considerable variation from day to day. This emphasises the need to continue the monitoring of lateral occupancy on a regular basis.

1.2.17 With the concurrence of the Member from the USA it was agreed that a monitoring methodology proposed by him had been superseded by the agreement to recommend regular monitoring in the existing manner. The approximate methods of detecting changes outlined in this proposal were therefore not required and the Group agreed that the direct estimate used in the Canadian and UK methods was the preferred one.

1.2.18 The Group also reviewed the navigation lateral error criterion and concluded that for flights in MNPS airspace the deviation limit of 25 NM should be retained for the purpose of defining gross errors. It did not see any absolute requirement for monitoring flights outside MNPS airspace except insofar as it provided data on portions of airspace to which MNPS might, in future, be extended. However, if such monitoring is undertaken, the Group agreed that the same 25 NM definition should be used.

1.2.19 Thus at the conclusion of the review of the current situation regarding monitoring of aircraft occupancy, it was agreed that a standardized procedure should be developed which can become the basis of an occupancy monitoring procedure endorsed by the NAT SPG. The discussion indicated that occupancy is the most operationally dependent and variable of all parameters that go into the collision risk model and the MNPS derivation of its criteria, thus the need for regular monitoring.

1.2.20 Since current documentation was not sufficiently explicit to assure that different groups making calculations of occupancy from the same data and environment would produce the same estimates, it was agreed that :

a) the NAT MNPS monitoring requires a regular and systematic monitoring of occupancy and that results should be reported regularly to the NAT SPG as a basis for decisions concerning the operation of the NAT MNPS airspace; and

b) the mathematical experts produce by the next NAT SPG a consensus on how to estimate occupancy in the NAT Region.

Methods of improving the effectiveness of current monitoring procedures

1.2.21 In a consideration of the 17 errors which were confirmed as not being "eligible for analysis" (para 1.2.2 refers) the Group agreed that, whilst these errors should not be included in any statistical considerations of risk analysis, they should nevertheless be scrutinised, and reported upon, in the monthly letters from the Central Monitoring Agency. In this way these errors could serve to :

a) reinforce or modify conclusions drawn from the analysis of "eligible" errors; and

b) give early warning of error trends which might not be apparent otherwise.

1.2.22 The Group therefore agreed that the monthly monitoring tables distributed by the Central Monitoring Agency should contain the following modified Tables :

a) Table "A" :

TABLE OF MNPS ERRORS ELIGIBLE FOR CONSIDERATION IN RISK ANALYSIS REPORTED SINCE PREVIOUS SCRUTINY EXERCISE.

b) Table "B" :

TABLE OF MNPS ERRORS ELIGIBLE FOR SCRUTINY BUT NOT INCLUDED IN RISK ANALYSIS.

c) Table "B" should include two additional columns :

i) Suggested Classification;

ii) Reason for Non-Inclusion in Risk Analysis.

d) Table "C" :

TABLE OF OBSERVED NAT GROSS ERRORS OCCURRING IN NON-MNPS AIRSPACE.

1.2.23 In this connexion, the Group noted that if the proposed procedure for a more detailed scrutiny of the errors reported in Table "B" were applied to the 17 errors mentioned in 1.2.21, a breakdown into classification of errors would appear as follows :

Proposed Classification	Number of errors	Remarks
A	2	aircraft not MNPS approved
B	4	3 x ATC system loop errors on entry to Oceanic
C	3	equipment control errors
D	-	
E	-	
F	4	failures not advised to ATC
not yet classified	4	

The two points emerging from this are :

i) the occurrence of ATC System Loop Errors on entry to Oceanic Airspace; and

ii) a confirmation that some pilots are not advising ATC of navigational difficulties.

1.2.24 The Group then discussed Table "C" - TABLE OF OBSERVED NAT GROSS ERRORS OCCURRING IN NON-MNPS AIRSPACE. It was agreed that it was not realistic to carry out detailed investigations of all navigational errors $\geqslant$ 25NM for NON-MNPS aircraft. Some degradation of navigational accuracy is implicit in operations which are not MNPS authorized. The Group therefore agreed that only navigational errors $\geqslant$ 50NM should be notified to operators by the observing facility to determine the cause. However, it was considered necessary that errors $\geqslant$ 25NM should be recorded and reported to the Aviation Authorities in those States of Registry who desire the information.

1.2.25 The Group then considered a report by the Member from the United Kingdom on a method for the random monitoring of MNPS approvals of flights present in the MNPS airspace. It found that at present there was no sufficient data to assess the value of the exercise. The Group therefore agreed that further spot checks should be carried out by the United Kingdom with further scrutinies during June 1983 and September 1983. The checks should concentrate on those flights which planned to operate within MNPS airspace and did not include an "X" in Field 10 of the flight plan and a further report should be submitted to the next regular Meeting of the NAT SPG.

1.2.26 Finally, the Group was informed that Canada planned to further extend the Gander/Moncton window for the radar observation of aircraft leaving Oceanic airspace. The coverage provided will extend from 45°N to 55°N along 50°W with effect from 1 June 1983. The Group welcomed this improvement of the facilities for the monitoring of navigation performance in the Region.

1.3 Situation regarding longitudinal separation

1.3.1 With respect to the use of 10 minutes longitudinal separation within NAT MNPS airspace, the Group noted that no reports of significant erosion of longitudinal separation had been received by the central monitoring agency. Nothing had therefore occurred that would lead the Group to believe that the use of this separation minimum under the circumstances specified was not acceptable.

1.4 Situation regarding crossing and joining traffic

1.4.1 The Group recalled its Conclusion 19/4 of the NAT SPG/19 Meeting which called for NAT provider States to continue their efforts to improve the procedures allowing flights to join and cross the NAT OTS at desired flight levels.

1.4.2 Reviewing developments since then, it was found that the situation regarding crossing and joining traffic had improved considerably. It was pointed out that Canada and the United Kingdom and their respective OACs Gander and Shanwick had been very co-operative and cases where crossing traffic had to descend to lower flight levels to pass under the Organized Track Structure have become less in number, and distances to be covered at these levels have become shorter because of the reduction in lateral extent of the OTS.

1.4.3 It was hoped that this encouraging trend would continue and that the situation may further improve in the future.

1.5 Revised procedures for the monitoring of navigation performance

1.5.1 By Conclusion 19/1 c) of the NAT SPG/19 Meeting, the United Kingdom was requested to develop a consolidated description of the revised monitoring procedures for inclusion in the ICAO NAT Guidance and Information Material. A draft was circulated to States in September 1982 for review. Taking into account the comments made, the Group developed an agreed updated version of those procedures which are contained in Attachment A to this Item.

1.5.2 It was understood that the material would be circulated by the European Office of ICAO to States anf interested International Organizations as an amendment to the third edition of the NAT Guidance and Information Material.

1.6 Application of separation standards by NAT Oceanic Area Control Centers (OACs)

1.6.1 The Group noted that, for some time, the application of the horizontal separation minima by the various OACs in the NAT Region had given rise to a number of difficulties due to differing interpretations. As a result, there was a need to develop a common method of application of the separation criteria.

1.6.2 The Group realized that the current separation minima included in Doc 7030 had been developed in piecemeal fashion over several years and that there was now a pressing need to review them with a view to their rationalization. It was found that there were two distinct approaches to resolving this problem :

a) developing an agreed common method of application; and

b) reviewing and clarifying the existing minima.

1.6.3 With respect to the former point, no consensus was reached on a common interpretation of all the various horizontal separation minima that are applied in the NAT Region. The Group therefore agreed that this subject needed to be studied further by operational experts of the States concerned with a view to developing appropriate material. This matter was therefore inscribed in the work programme of the NAT SPG for discussion at its next regular Meeting (para 3.2 and Item 16 refer).

1.6.4 With regard to the existing minima, there was an urgent requirement to clarify certain aspects pertaining to the application of longitudinal separation. It therefore undertook a detailed review of the current procedures contained in the NAT Regional SUPPs (Doc 7030, para 7.2), taking into account proposals for amendment of these SUPPs which were being processed at this time. The Group found that the longitudinal separation criteria needed to be modified in the following areas :

a) the 12 minute longitudinal separation criteria at track entry point to be applied between SST aircraft;

b) the conditions for the application of 15 minutes longitudinal separation;

c) the longitudinal/lateral separation to be applied between aircraft entering the OCA at the same entry point and following diverging tracks, or following the same track and subsequently diverging tracks;

d) the longitudinal separation to be applied between aircraft in cases where the preceding aircraft is faster than the following aircraft when the Mach Number technique is applied;

e) the application of 10 minutes longitudinal separation between climbing/descending aircraft in MNPS airspace.

1.6.5 The minimum longitudinal separation currently applied between SST aircraft operating on the same track and cruise-climb profile is 10 minutes provided that 12 minutes separation exists at the track entry point. No similar qualification is applied to the 10 minute separation minimum between subsonic aircraft operating on the same track, flight level and Mach Number. The retention of the 12 minute separation criteria for aircraft does therefore not appear warranted, particularly as such flights, when longitudinally separated on the same flight profile, normally have an additional element of vertical separation. The Group therefore agreed to delete the 12 minute longitudinal separation criteria for SST aircraft at the track entry point.

1.6.6 In previous discussions related to longitudinal separation, the Group had concentrated its attention on those aspects directly affecting the major flow of traffic, i.e. the Organized Track System (OTS). However, the Group noted that recent changes to the OTS, intended to improve flexibility of operation, have had the effect of significantly increasing the number of random track operations.

1.6.7 Apart from the application of the reduced lateral separation of 60 NM, no other benefits have accrued to random track operations by the implementation of MNPS. The longitudinal separation minimum applied between aircraft at the same flight level on crossing and/or opposite direction tracks has remained at 20 minutes, thus giving no recognition to the demonstrated improvement in navigation performance and, more importantly, no differentiation between MNPS and non-MNPS operations.

1.6.8 The Group recalled that, as a result of the agreement reached at NAT SPG/19, a proposal for amendment of the SUPPs (NAT SUPPs/RAC/15) to permit the application of 15 minutes longitudinal separation between an aircraft joining the track of another aircraft was currently being processed within ICAO. In the light of further discussion, it was agreed that the 15 minutes longitudinal separation minima should be applied in all cases between aircraft which meet the MNPS and operate wholly or partly in MNPS airspace.

1.6.9 The Group agreed that in view of the foregoing, the most appropriate course of action to take now would be to withdraw amendment proposal NAT SUPPs-RAC/15 and to proceed with a revised amendment proposal. The Member from the United Kingdom agreed to make the necessary arrangements within his Administration to formally advise ICAO accordingly.

1.6.10 While on this matter, the Member from the USA expressed the view that the NAT SPG should now undertake further study to determine the appropriate steps necessary to introduce a longitudinal separation minimum of 10 minutes that could be applied in all cases. The Group agreed that this question should be retained for further study.

1.6.11 The Group noted that two aircraft which follow diverging tracks, or are initially on the same track and subsequently follow continuously diverging tracks until another form of separation is established, are considered separated if, in MNPS airspace they have the required longitudinal separation at the point of divergence and will attain the required lateral separation by the next significant point. The larger the degree of divergence the quicker lateral separation is achieved and while longitudinal separation may decrease between significant points there is a corresponding increase in lateral separation. It was agreed however that a limit should be set on a reduction in longitudinal separation in such cases so that half the longitudinal separation required at the point of divergence is planned to exist at the point where 60NM lateral separation is achieved.

1.6.12 The Group therefore agreed that aircraft which enter oceanic airspace at the same point and then diverge, or initially follow the same track and subsequently follow diverging tracks should be considered as separated if, in MNPS airspace, they have :

a) the required longitudinal separation at the point where tracks diverge; and

b) at least one half of the required longitudinal separation where 60 NM lateral separation is achieved; and

c) the 60 NM lateral separation is achieved by the next significant point.

1.6.13 The Group noted that the current 10 minute longitudinal separation used in MNPS airspace did not apply for climb or descent of an aircraft which has joined a track outside radar coverage but is established on that track and has reported over the same reporting point as the other aircraft on that track. The Group agreed that 10 minutes separation could be applied between MNPS aircraft climbing or descending operating in the same direction and wholly or partly in MNPS airspace, provided that the Mach Number technique is applied and the aircraft are established on the same track. and have both reported over a common significant point.

1.6.14 With regard to the application of the Mach Number technique, the Group was informed of a number of difficulties which had arisen with the processing of amendment proposal NAT SUPPS-RAC/14 (para 6.3 refers). It was recalled that the text of the proposal NAT SUPPS-RAC/14 had been drawn from the revised guidance material on the application of the Mach Number technique which had been developed at NAT SPG/18 for submission to ICAO as an amendment of PANS-RAC. After some discussion of these points that had been raised, it was accepted that the current text in the proposal was too descriptive in nature and that only the essential procedural elements should be retained for inclusion in the Regional SUPPS. Some clarification was also required regarding the conditions governing the application by ATC of the prescribed longitudinal separation.

1.6.15 With regard to the use of the Mach Number technique, the Group believed that an acceptable reduction of longitudinal separation could be applied when the preceding aircraft is maintaining a specified higher Mach Number than the following aircraft. It was agreed that it would be safe to introduce a sliding Mach Number scale to permit the application of reduced longitudinal separation between such aircraft. It was therefore proposed that, in MNPS airspace, when the Mach Number technique is being applied, longitudinal separation could be reduced to :

- 9 minutes if the preceding aircraft is M0.02 faster than the following aircraft;
- 8 minutes if the preceding aircraft is M0.03 faster than the following aircraft;
- 7 minutes if the preceding aircraft is M0.04 faster than the following aircraft;
- 6 minutes if the preceding aircraft is M0.05 faster than the following aircraft; and
- 5 minutes if the preceding aircraft is M0.06 faster than the following aircraft.

1.6.16 In the light of these discussions, the Group developed a revised text as shown in Attachment B to this Item to serve as a basis for amendment to the NAT Regional Supplementary Procedures concerning longitudinal separation and the application of the Mach Number technique. The Member from the United Kingdom agreed to make the necessary arrangements within his Administration for a formal proposal for amendment of Doc 7030 to be presented to ICAO.

CONCLUSION 20/2 - AMENDMENT TO THE NAT REGIONAL SUPPS

That :

a) the NAT Regional SUPPS regarding longitudinal separation and the application of the Mach number technique in the NAT Region (Doc 7030/3-NAT, Part I, paras 6.2 and 7.2) be amended in accordance with the material contained in Attachment B to the Summary on Item 1; and

b) the Member from the United Kingdom take the necessary action within his Administration to present to ICAO a formal proposal for amendment of Doc 7030.

1.6.17 In connexion with the application of the Mach number technique, the Group developed a table showing, in terms of distance to fly, (in still air) the separation that would be required at the entry point in cases where the following aircraft is maintaining a Mach number greater than the preceding aircraft. The Group agreed that it would be useful if this table were included with the revised guidance material on the application of the Mach Number technique to be published in the ATS Planning Manual currently being developed by ICAO. The table is shown at Attachment C to this Item. The Member from Canada undertook to make the necessary arrangements within his Administration to have this table forwarded to ICAO.

1.6.18 In this context, the Group was informed that the revised guidance material regarding the application of the Mach number technique had recently been approved by the Air Navigation Commission and that it would be incorporated in the first edition of the ATS Planning Manual which was expected to be issued later in 1983. The Commission also agreed to recommend to Council, in due course, that the current Attachment H to the PANS-RAC be deleted. The Group expected that the Secretariat would ensure that appropriate references to the new world-wide guidance material on the application of the Mach number technique would be inserted in Doc 7030, preferably in association with the processing of the amendment proposal referred to in Conclusion 20/2 above.

1.6.19 The Member from Canada also informed the Group that his Administration has submitted to ICAO a proposal for amendment of the NAT SUPPs regarding the spacing of parallel tracks by reference to their difference in latitude. It is proposed that, in practical application of the lateral separation minima, the change of latitude in any 10° interval of longitude should not exceed :

a) three degrees south of 58°N;

b) two degrees between 58°N and 70°N; and

c) one degree between 70°N and 80°N.

1.6.20 The Group agreed that this was a correct interpretation of the application of the minima. A diagram illustrating this practical application is at Attachment D to this Item.

Attachment A
to Item 1

REPLACEMENT MATERIAL FOR SECTION 4, PART III OF THE NAT GUIDANCE MATERIAL

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4. Periodic review of navigation performance

4.1 Apart from the monitoring functions by operators and States having jurisdiction over operators involved in NAT operations, it was believed essential by the LIM NAT RAN Meeting (1976) to ensure continuation and expansion of the monitoring of the actual navigation performance achieved in normal flight operations as observed by radar at those ATC units providing air traffic control in the NAT Region. This belief has been reaffirmed at successive NAT SPG meetings.

4.2 This monitoring function by the ATC units of provider States covers, in fact, four distinct phases :

a) the acquisition and use of monitoring data;

b) action in the case of radar observed deviations of individual flights by the ATC unit observing such a deviation, and consequential follow-up action by the operator and/or State concerned with such a flight;

c) the issue at periodic intervals of a summary of radar-observed deviations to all interested States and International Organizations to serve as a means of appreciation of the general situation existing in the NAT Region regarding navigation performance achieved by flights; and

d) the conduct of specific and specially organized data collections on navigational performance by all flights to serve as a basis for the assessment of compliance with the MNPS by all the traffic in the NAT Region concerned by their application and this in relation to the safety of separation standards used.

4.3 With respect to the monitoring activities described above, the LIM NAT RAN Meeting (Doc 9182, LIM NAT (1976), para 1.2.5.3 refers) developed general guidance material for use by those concerned. The procedures have subsequently been modified and the current procedures are described in Appendix C to this Part of the Document.

4.4 With regard to para. 4.2 a), the LIM NAT RAN Meeting (1976) noted that ATC units of a few provider States in the NAT Region had been conducting monitoring of actual navigation performance for years. It felt, however, that with the application of MNPS, it would be highly desirable that such activities should be expanded as much as possible and States concerned were therefore invited to do so in a Recommendation of the LIM NAT RAN Meeting (1976) as follows :

*Secretariat comment :

Page numbers in parentheses and the paragrah numbering are in line with the numbering used in the NAT Guidance and Information material. Changes from that material are identified by vertical lines in the margin.

RECOMMENDATION 1.2/2 - EXPANSION OF MONITORING ACTIVITIES IN THE NAT REGION

That all States with the necessary capability extend monitoring of the navigation performance of flight operations in the North Atlantic by :

a) the use of all those facilities likely to be useful in this respect;

b) the establishment of new facilities where required; and

c) the provision of adequate manpower and arrangements to permit the continuous performance of monitoring functions by the ATC units concerned.

Council action : The Council approved the Recommendation noting that supplementary provisions regarding monitoring activities are contained in Appendix B to the Report of that Meeting.

4.5 At the 13th Meeting of the NAT SPG, the Member from Canada presented the Group with a detailed description of the method used by Canadian ATC units. It was found that this method closely resembled the manner in which other ATC units conducted their monitoring and the Group felt that it would be useful for operators and other parties concerned to have this description included in this Guidance Material for information. It is therefore shown in Appendix D to this part of the Document.

4.6 With respect to the acquisition and use of monitoring data acquired by means of radar observations, the LIM NAT RAN Meeting (1976) found it essential to ensure that such data was presented in a uniform manner by the various collecting units, not only to facilitate its collective presentation at specific intervals as described below but also to facilitate its use in the assessment process described in Appendix C hereafter.

4.7 As regards the action described in para 4.2 b), the LIM NAT RAN Meeting (1976) agreed that any radar-observed deviation from assigned track by 25 NM or more should be subject to specific action in the form of :

a) immediate advice by the observing unit to the pilot of the aircraft concerned regarding the observed deviation and other relevant circumstances; and

b) a letter to the operator and, if appropriate, to the State having jurisdiction over the flight in question requesting appropriate action.

4.8 The detailed procedures required to give effect to the above were developed by the NAT SPG at its 13th Meeting and updated subsequently in the light of practical experience. The latest version is contained in Appendix E to this part of the Document.

4.9 At its 17th Meeting in March 1980, the NAT SPG realized that after the implementation of 60 NM lateral separation minima, special importance would have to be placed on the monitoring and assessment of navigation performance. The Group therefore agreed to a proposal for the United Kingdom to set up a central monitoring agency to collect, collate and circulate to States participating in the monitoring data regarding navigation performance in the NAT Region. At a Special Co-ordination Meeting in September 1980, the NAT SPG further developed these procedures in the light of experience gained during the Summer 1980, and further changes have been incorporated at later meetings. The current procedures regarding the operation of the central monitoring agency are contained in Appendix F to this Part of the Document.

4.10 The LIM NAT RAN Meeting (1976) also felt that in those cases where radar-observed deviations from track by individual flights, as reported by the observing ATC unit, had to be brought to the attention of States, the States concerned were expected to take prompt and efficient follow-up action in order to prevent repetition of such occurrences (Recommendation 1.2/4 of the LIM NAT RAN Meeting (1976) as shown on page 3-3 refers). As regards the action required from operators this is covered in Appendix A to this Part of the Document.

4.11 As to the issue, at periodic intervals, of a summary of radar-observed deviations from track by flights in the NAT Region, mentioned in c) of paragraph 4.2, this has already been done for a number of years by the European Office of ICAO and will be continued in the future based on data made available to that Office by the Central Monitoring Agency. Summaries are issued twice yearly, covering the periods January-June and July-December. The format used in the presentation of the Summary is shown in Appendix G to this Part of the Document.

4.12 With respect to the specific data collections mentioned in d) of paragraph 4.2, these will be organized by the NAT SPG as required, and necessary arrangements will be concluded directly between the Group, provider States and International Organizations concerned.

4.13 Experience with the monitoring process showed that a proportion of the observed gross errors was attributable to aircraft subsequently found to have been operating in MNPS airspace without the approval of their State of Registry. For this reason ATC units concerned have been requested to notify the central monitoring agency of any flights, identified as a result of random checks, which operated in MNPS airspace but which are considered may not have been certified by the State of Registry for operation within that airspace. The central agency will seek clarification from the State of Registry as indicated in Appendix H to this Part of the Document.

APPENDIX C to PART III

MONITORING OF NAVIGATION PERFORMANCE IN THE NAT REGION

1. Outline of the monitoring process used in the NAT Region

1.1 Radar Stations capable of monitoring the boundaries of NAT Oceanic Airspace will collect data to be used in the monitoring process. The data collected will comprise information on MNPS airspace flights derived from agreed Radar Stations, together with other data from other Radars or on non-MNPS airspace flights. The former data gives a direct input into the risk modelling of the MNPS airspace, whilst the latter provides a wider appreciation of navigation in the NAT Region and allows follow up action to be taken on a larger sample of flights which are believed to have had a navigational error.

1.2 The data collection process will consist of two parts :

a) continuous collection of all deviations of 25 NM or more;

b) collection of data on the deviations of less than 25 NM as required.

1.3 When a deviation from track of 25NM or more by a flight has been detected the appropriate authority of the State which collects the data will investigate the causes for each deviation in co-operation with the operator and will notify the authorities of the State having jurisdiction over the operator of the aircraft. Such a procedure is already applied by the UK, Ireland, Iceland, France and Canada.

1.4 All information about the detected deviations, all information concerning the causes of the large deviations and any other information relating to navigation performance within the NAT Region will be made available to the NAT SPG by the Central Agency. The data will be provided on a monthly basis in a format permitting ready determination of whether the criteria upon which the MNPS are based are being met. Such analysis will be made :

a) on all available data, in order to determine the overall safety; and

b) on the data concerning specific navigation systems or specific operators, if it is suspected that they may no longer meet the specification.

1.5 If it is found that one or more of the criteria of the MNPS are exceeded, the NAT SPG will review the data and, if necessary, propose appropriate action. It should be borne in mind that there are at least two general classes of error which can result in large lateral deviations. One of these concerns a progressive deviation from track because of navigation inaccuracy, and the other covers cases where the aircraft flies to or along a track adjacent to its intended track as the result of some operational error. The second type, though extremely dangerous, cannot be prevented by increasing the lateral separation but must be eliminated by improvements to the operating procedures.

1.6 If there is an indication from the summary statistics that the MNPS criteria are exceeded by a large amount, rapid response to the causes of the problem may be necessary. In such a case, the States responsible for ATC in the NAT Region will take prompt action, after consultation with at least the major affected users. An example where such prompt action may be necessary could be a serious disturbance of the coverage of station-referenced systems, for instance due to unserviceability of ground stations or to very severe ionospheric disturbances. Such action must be possible even when the number of large deviations in the limited area in which the navigation performance is monitored is not excessive, if there is reason to believe that large errors might occur elsewhere.

1.7 When the exceedance of the criteria indicated by the summary statistics is not very great or when the observed performance merely shows a trend toward degradation, it will be more useful to have a detailed investigation made, for instance by the NAT SPG. This may take several months, but it must be kept in mind that the target level of safety is equivalent to expecting about one collision every 150 years and that a small increase in the statistical probability of collision during a six (or twelve) month period is therefore acceptable. Such an investigation may show that the cause for the large deviations can be eliminated by improved procedures. Such procedures will then be proposed and be brought to the attention of the operators and/or controllers through the appropriate channels. Results of the actions will then be closely observed. If the causes cannot be eliminated quickly States of registry of the aircraft concerned should temporarily exclude offending types or operators from operation in the MNPS airspace. An increase in lateral separation, in order to restore the situation, should be made only in extreme cases and only when other actions have failed to produce the desired results.

2. Some practical aspects related to the execution of performance monitoring in the NAT Region

2.1 The data collected by radar observations for the monitoring procedure will, in the main, relate to aircraft towards the end of a NAT Oceanic crossing. The assumption will be that this data will be representative of the deviations throughout the MNPS airspace, i.e. that the relative amount of time spent outside each value of the lateral deviation will be the same as the proportion of measurements outside the same lateral deviation observed near the Eastern and Western boundaries of the Oceanic area. It is relevant to look at the consequences of this assumption more closely :

a) For INS-equipped aircraft, it is known that the normal navigation errors tend to increase with the time elapsed since the last alignment or updating of the INS equipment. As far as blunder-type errors are concerned, there seems to be no reason to suppose that the occurrence of this type of error near the Eastern and Western boundaries will not be representative of the whole Oceanic Area. Taking these two aspects into account, the collision risk calculated on the basis of these data will probably be higher than if data for the whole ocean were available. This over-estimation may be appreciable if adjacent tracks are used for same-direction traffic. As the traffic over the North Atlantic is predominantly unidirectional, it would seem that the above-mentioned assumption would only have a small effect on the calculated collision risk.

b) For aircraft navigating on station-referenced navigation aids with sufficient coverage throughout the MNPS airspace, it seems likely that the lateral deviations will be independent of the time flown. For these cases the above-mentioned assumption seems correct.

c) For aircraft using station-referenced navigation aids with insufficient coverage outside the area where the measurements are made, a calculation of the collision risk based only on measurements in that area would provide too low a value of the collision risk. Special care may have to be taken with temporary effects on this coverage, such as those caused by station outages.

(page 3 - 22 blank)

APPENDIX D to PART III

DESCRIPTION OF THE MONITORING METHOD USED BY CANADIAN ATC UNITS

Note : The method described here resembles closely that used by other ATC units. It is therefore included for information.

Participating Units : Gander Area Control using Gander, Stephenville and Trepassey SSR.
Moncton Area Control Centre using Goose SSR.

1. Centre Procedures

1.1 A member of the control staff monitors westbound targets entering radar coverage in the NAT area.

1.2 The target is identified and the position determined by range and azimuth from the radar station.

1.3 The position is plotted and the across track deviation measured perpendicular to the cleared track of the flight to obtain the distance off track.

1.4 If the measured distance is less than 25 NM, no further action is taken.

1.5 If the measured distance is 25 NM or more, the details are logged for subsequent action by supervisory staff and the pilot of the aircraft observed is informed of the apparent deviation, whenever this is possible. Any comments by the pilot at the time will be recorded.

2. Action by the supervisory staff for processing gross error reports in MNPS airspace

2.1 Teletype message sent to operator, State of Registry, and Regional and Ottawa Headquarters.

2.2 When deviations of 25 NM or more have been logged, a brief letter is sent to the concerned operator, within 24 hours where possible, providing relevant details and requesting the operator to investigate and comment on the apparent deviation.

2.3 A copy of the letter to the operator is forwarded to ATS Ottawa and Regional Headquarters for information. The operator is requested to reply to Ottawa Headquarters.

2.4 A monthly summary is sent to ATS Ottawa Headquarters showing the number of observations taken during the month and those observed to be 25 NM or more off cleared track.

3. Action by supervisory staff for processing gross errors reports outside MNPS airspace

3.1 Where the observed deviation from track is 25 NM or more, but less than 50 NM, notify Ottawa HQ, Regional Headquarters, and the Central Monitoring Agency of the deviation with the least possible delay (AFTN, telex) using the message format shown on Page 3 - 27. This should be followed as soon as possible by a written confirmation where this is deemed necessary.

3.2 Where the observed deviation from track is 50 NM or more the procedure detailed in Section 2 will be followed.

4. Action by Ottawa Headquarters

4.1 Copies of letters sent by the Gander/Moncton ACCs to operators, together with replies are reviewed. Certain States of Registry of the aircraft concerned may be notified of the circumstances of the apparent deviation.

4.2 Copies of all signals, letters, etc. relating to observed deviations of 25 NM or more in MNPS airspace and 50 NM or more outside MNPS airspace are sent to the Central Monitoring Agency on a monthly basis, together with data concerning the volume of traffic observed.

APPENDIX E to PART III

PROVISIONS REGARDING FOLLOW-UP ACTION ON OBSERVED AND REPORTED DEVIATIONS

Note : The following material was developed by the NAT SPG.

1. Notification by the observing authority

1.1 Taking into account that slightly different administrative arrangements within the States engaged in monitoring will exist, follow-up action on observed deviations from track by 25 NM or more should, in general, be as follows :

1.1.1 For aircraft operating within MNPS airspace :

a) the observing ATC unit should, if at all possible, inform the pilot of the aircraft concerned of the observed error and also that an error report will be processed; any comment made by the pilot at the time of notification should be recorded;

b) all operators, including military, and other relevant Area Control Centres should be notified, either directly by the observing ATC unit or by any other agency designated by the States concerned, by the speediest means available (telephone, AFTN, telex as appropriate) and with the least possible delay of the observed deviation (for the format of such a message see page 3-27). This should be followed as soon as possible by a written confirmation (see pages 3-28 to 3-30). All notifications should be copied to the Central Monitoring Agency.

c) States of Registry of the operator concerned should receive a copy of the written confirmation (see page 3-30A), and, if so indicated to the monitoring authority, of the AFTN telex notification.

Note : Canada, Denmark, France, Iceland, Ireland, Norway, Portugal, Sweden, the UK and the USA have already stated this requirement. (Deviations involving SAS flights need only be addressed to Sweden.)

1.1.2 For aircraft operating outside MNPS airspace :

a) the observing ATC unit should, if at all possible, inform the pilot of the aircraft concerned of the observed error and also that an error report may be processed; any comment made by the pilot at the time of notification should be recorded;

b) where the observed deviation from track is 25 NM or more, but less than 50 NM, the observing ATC unit, or other agency designated by the State, should notify the Central Monitoring Agency of the deviation with the least possible delay (AFTN, telex) using the message format shown on page 3-27. This should be followed as soon as possible by a written confirmation where this is deemed necessary. The Central Monitoring Agency will then advise the State of Registry (see page 3-30B) if that particular State had indicated a requirement for notification of such errors or if the circumstances of the error require further investigation;

c) where the observed deviation from track is 50 NM or more the procedure detailed in sub-paras 1.1.1 (b) and (c) will be followed.

2. Further follow-up action by the operator and/or State of Registry

2.1 Subsequent follow-up action on observed deviations of 25 NM or more, notified in accordance with the above provisions, should initially be conducted between the operator and a designated agency of the State having responsibility for the ATC unit which observed the deviation on the understanding that :

a) the errors outlined in sub-para 1.1.2 b) (i.e. deviations $\geqslant 25$ NM but <50 NM occurring outside the MNPS airspace) will not normally require further action. If an investigation is deemed necessary it will be conducted by the State of Registry.

b) monitoring States may, if they so wish, request the assistance of other States in monitoring activities;

c) the State of Registry of the operator concerned should be requested to conduct a further investigation if deemed necessary;

d) all correspondence should be copied to the Central Monitoring Agency;

e) the ICAO European Office will assist in those cases where no response is obtained from either the operator concerned or the State of Registry.

MESSAGE FORMAT FOR THE INITIAL NOTIFICATION OF OPERATORS AND/OR STATES OF REGISTRY AND THE CENTRAL MONITORING AGENCY OF AN OBSERVED DEVIATION

The following format should be used for messages serving as an initial notification of an observed deviation of 25 NM or more from track.

This format should be used regardless of the means of communication chosen for the transmission of the initial notification.

GROSS NAVIGATION ERROR REPORT MESSAGE

REPORTING AGENCY

DATE

TIME

AIRCRAFT IDENTIFICATION (and operator if not evident from identification)

LOCATION AND EXTENT OF OBSERVED DEVIATION

FULL REPORT FOLLOWS

PLEASE ACKNOWLEDGE RECEIPT

FORMAT OF WRITTEN CONFIRMATION TO OPERATORS OF AN OBSERVED DEVIATION

The following is the agreed format of the written confirmation which should be sent to operators following their initial notification.

This written confirmation should be sent as soon as possible after the observed deviation to permit investigation while records are still available. It should consist of the letter shown hereafter and two copies of the error Investigation Form, one of which is intended for retention by the operator.

If no initial notification could be sent the written report should nevertheless be made in the same way.

GROSS NAVIGATION ERROR REPORT

Dear Sir,

States responsible for the provision of air traffic services in the North Atlantic Region have been instructed by ICAO to monitor and notify operators and States concerned of aircraft deviations of 25 NM or more from assigned track so that they may take prompt and effective action to prevent a repetition.

A gross navigation error has been reported in respect of the following flight :

Aircraft Identification: Type:

Departure: Destination:

Date: Cleared Track:

Flight Plan Track:

Actual track (if known):

Cleared flight level:

The notification should then contain information on the following :

- Radar observed position and time;
- Displacement from cleared track;
- Action taken by ATC (if any).

Comments by crew on being notified of error:

Other comments:

Detailed explanation should be provided on the attached Error Investigation Form and an investigation of this gross navigation error is requested. In your reply, you are also requested to indicate the corrective action taken.

Yours faithfully

SAMPLE OF ERROR INVESTIGATION FORM

REPORTING AGENCY	REPLY ADDRESS

PLEASE COMPLETE PART 2 (AND PART 3 IF APPLICABLE) OF THIS FORM AND RETURN ONE COPY TOGETHER WITH COPIES OF RELEVANT FLIGHT DOCUMENTATION (FUEL FLIGHT PLAN, ATC FLIGHT PLAN AND ATC CLEARANCE) TO THE ABOVE REPLY ADDRESS WITH THE LEAST POSSIBLE DELAY. THANK YOU FOR YOUR CO-OPERATION.

PART 1

OPERATORS NAME:

AIRCRAFT IDENTIFICATION:

DATE AND TIME OF OBSERVED DEVIATION:

POSITION AND EXTENT OF OBSERVED DEVIATION:

OBSERVED BY: (STATE RADAR UNIT)

FLIGHT LEVEL:

PART 2

2.1 Type and Number of Navigation Equipment on Board Aircraft (Mark as appropriate). Please indicate system used for steering and, if available, reference of the Navigation System Programme used when the error occured.

INS	OMEGA	DOPPLER	OTHER (specify)
Single Dual Triple	Single Dual	Single Dual	
Model	Model	Model	
Programme reference	Programme reference		

2.2 Give detailed description of incident including your assessment of the track of the aircraft while in MNPS airspace and duration of any equipment failure. (Continue overleaf if required).

PART 3

(Only to be completed in case of partial or full navigation equipment failure).

Indicate number of equipment units which failed

INS	OMEGA	DOPPLER	OTHER

Circle estimated longitude (to nearest 5 degrees) at time of failure : 60W 55W 50W 45W 40W 35W 30W 25W 20W 15W 10W 05W 00

FORMAT OF COVERING LETTER TO STATE OF REGISTRY

Dear Sir,

NORTH ATLANTIC - GROSS NAVIGATION ERROR

Please find attached a copy of a letter that has been sent in respect of a North Atlantic gross navigation error attributed to an aircraft registered in your State. You will note that the operator has been requested to provide an explanation of the incident; this is in accordance with the NAT monitoring procedures set out in the ICAO Document T13/5N "Guidance and Information Material concerning Air Navigation in the NAT Region" prepared and distributed by the European Office of ICAO.

Should the operator fail to reply to the request, a further letter will be sent to you seeking your assistance in obtaining the information requested.

It would be appreciated if you would confirm that the flight in question was in possession of approval to operate in MNPS airspace.

FORMAT OF LETTER TO STATE OF REGISTRY
IN RESPECT OF DEVIATIONS ≥ 25NM BUT < 50NM
OCCURRING IN NAT REGION BUT OUTSIDE MNPS AIRSPACE

Dear Sir,

NORTH ATLANTIC - GROSS NAVIGATION ERROR

Please find attached a copy of the notification of a North Atlantic gross navigation error attributed to an aircraft registered in your State.

As this aircraft was operating outside MNPS airspace (ICAO Doc 7030 - NAT/RAC, Chapter 2) and the observed deviation was less than 50 NM no further action is called for by the NAT monitoring procedures set out in the ICAO Document T 13/5N "Guidance and Information Material Concerning Air Navigation in the NAT Region" prepared by the ICAO European Office.

*) However, should you decide to investigate the circumstances of the incident, it would be appreciated if you would advise this Office of your findings. This information would be of interest to us in fulfilling our responsibilities as the nominated monitoring agency of navigation errors in the North Atlantic Region.

*) Where the circumstances of the incident indicate that further investigation is necessary, this paragraph should be deleted and replaced by a request for such action. Specific reasons for the request should be given.

APPENDIX F TO PART III

PROCEDURES FOR THE CENTRAL MONITORING AGENCY

Note : The following material was developed by the NAT SPG

Monitoring after 60 NM lateral separation is applied

1. With regard to the monitoring of navigation performance, the NAT SPG noted that, after the application of 60 NM lateral separation in the MNPS airspace, these activities assumed particular importance, at least during the initial stages of the use of this separation minima. This applied, however, not only to the monitoring itself but also to the assessment of data obtained from monitoring in order to permit Provider States, either individually or collectively, to determine whether a general or partial degradation of navigation performance was taking place and what corrective action was required. In this connexion it was reiterated that the appreciation of a degradation in navigation performance, its sources and their elimination is a very complex process and that it was, for this reason, not possible to prescribe, a priori, standard methods for their resolution but that this would rather have to be decided in the light of circumstances. However, there was general agreement that, under normal circumstances (i.e. those excluding partial or widespread failure of specific components of the air navigation system) the sequence of action should be :

a) specific corrective action with regard to identified offenders; and

b) an increase in separation if a) is not producing the required results within a specific period.

2. As to the monitoring activities themselves, it was noted that at present, apart from NAT SPG meetings, there existed no occasion which permitted all Provider States in the NAT Region to be continuously aware of development in the navigation situation throughout the Region except through half-yearly Summaries published by the European Office of ICAO, which were however received too late to be of more than informative value.

3. In view of this situation the Member of the UK proposed that a central agency be designated for the collection and collation of information on the navigation situation throughout the NAT Region both in MNPS airspace and elsewhere and he offered the services of his Administration for this purpose. The proposals made for the operation of such a central data collecting and distributing agency were :

a) the agency designated by the UK should receive information from Canada, France, Iceland, Ireland, Portugal, the UK and the USA;

b) the information provided should consist of :

i) monthly routine reports on the number of MNPS flight operations (OTS and random) observed by radar during the month;

ii) reports on gross errors in navigation or ATC System Loop Errors observed by radar, supplemented by information on causes, response by operators and/or States to reported errors and corrective action taken as and when this comes to hand; and

iii) information similar to that in ii) above on errors not observed by radar but having become known through other means or from other sources.

c) the agency will, in turn, provide all participating States routinely, i.e. on a monthly basis, with a Summary of the total information provided by individual participating States so that these will be kept current of overall developments;

d) in the case of need, the agency will provide participating States with special reports on developments should this be required in order to permit Provider States to decide on a common course of action;

e) revisions to the above arrangement, especially as regards to the frequency of the submission of routine reports by participating States and the distribution of Summaries by the Agency, should be made the subject of the consultation of all parties concerned taking due account of relevant developments in the Region.

4. With regard to the errors mentioned in b) iii) above (those not observed by radar) the Group felt that their inclusion and investigation could provide useful information on likely corrective action required. This applied particularly with respect to errors and/or omissions resulting from non-compliance with the prescribed position reporting procedures and errors due to misunderstandings with regard to clearances and/or differences in interpretation between pilots and ATC regarding instructions received.

Additional Procedures for Monitoring Agency

5. In addition to arrangements made outside the context of the monitoring agency whereby NAT gross navigation errors are notified directly to some States of Registry, the monitoring agency will circulate monthly reports to NAT SPG participants with the following contents :

(i) a table of NAT MNPS Gross Navigation Errors eligible for inclusion in the risk analysis and which have occurred since the previous scrutiny exercise. This will be termed TABLE "A";

(ii) a table of NAT MNPS Gross Navigation Errors eligible for scrutiny but not included in the risk analysis and which have occurred since the previous scrutiny exercise. This will be termed TABLE "B";

(iii) a table of NAT Gross Navigation Errors which occurred in non-MNPS Airspace and which have been reported since the previous scrutiny exercise. This will be termed TABLE "C";

(iv) traffic figures relating to the navigation errors in (i) above;

(v) copies of all documentation relevant to NAT navigation incidents;

(vi) a graphical representation of the results of the immediately previous twelve months in respect of gross navigational errors of greater than 30 NM and of 50-70 NM, related to the MNPS criteria;

(vii) such other information (e.g. results of specific data collections) as is relevant to the monitoring process; and

(viii) reports relating to significant erosion of longitudinal separation.

Issue of Summaries by ICAO

6. In making these arrangements the Group wanted to have it understood that the European Office of ICAO should continue to produce and distribute its half-yearly Summaries on observed navigation errors in the NAT Region (Rec. 1.2/3 (b) of LIM NAT RAN Meeting (1976) refers) because it felt that these constituted a worthwhile reminder, especially to NAT User States, to keep developments in this Region under review. (The format of half-yearly Summaries is shown at Appendix G).

APPENDIX G to PART III

The data to be circulated by the European Office of ICAO will be derived from the tables of MNPS gross errors (see paras 5(i) and 5(ii) on page 3 - 33). The identity of the operator will be omitted from the presentation. The data will be related to six monthly periods which may not coincide with the periods used by the Central Monitoring Agency. The format used is :

RADAR OBSERVED DEVIATIONS FROM TRACK OF 25NM OR MORE BY AIRCRAFT OPERATING IN NAT MNPS AIRSPACE

(Period _____ to _____)

Date	Aircraft Type	Navigation Equipment	FL	Deviation	In or out of OTS	Remarks) (eg cause)

APPENDIX H to PART III

Letter to be used to States of Registry in cases where it is considered by a Provider State that an aircraft operated in MNPS airspace may not have been so authorized.

Dear Sir,

MNPS OPERATION

You will be aware that ICAO Doc 7030, Regional Supplementary Procedures, contains a requirement, in NAT/RAC 2.1.1, for States of Registry or States of Operators to verify the navigation performance of aircraft operating within the NAT MNPS airspace.

It has been reported that flight (IDENT) was conducted within MNPS airspace on (DATE), and I should be grateful for your confirmation that this flight was conducted with your approval.

LIST OF ADDRESSES OF STATE AUTHORITIES TO BE NOTIFIED IN THE EVENT OF A GROSS NAVIGATION ERROR BY AN AIRCRAFT REGISTERED IN THEIR STATE

STATE	NAME	ADDRESS	REMARKS
CANADA		Transport Canada ATP/T Ottawa, Ontario KIA ON8 Tel. (613) 995 5542 Telex 053 3130 AFTN : CYHQYY ATTN ATP/T	
DENMARK		Air Traffic Division Directorate of Civil Aviation Kigkurren 6-8 DK-2300 COPENHAGEN S. Telex 31535 Nats DK AFTN : EKCBYALL	
FRANCE		Direction de la Navigation Aérienne, DNA/1 3, avenue de Friedland 75008 - Paris Tel. 563 19 00 Telex : 280081	
ICELAND	G. Matthiasson	Chief, ATS Section Directorate of Civil Aviation Reykjavik Airport P.O. Box 350 101 Reykjavik Tel. (91) 17430 Telex 2250 FALCON ISLAND AFTN : BICAYA	
IRELAND	J.V. Feehan	Chief Executive Officer Air Navigation Services Office Department of Transport Kildare Street Dublin 2 Tel. (01) 789522 Ext 460 or (01) 763716 (Direct) Telex 4651	

STATE	NAME	ADDRESS	REMARKS
KINGDOM OF THE NETHERLANDS	W. Aardoom	Head ATS Studies and Research Department of ATS and Telecommunications Koninginnegracht 19-21 P.O. Box 20903 2500 EX The Hague Tel. (020) 5162127 Telex 31435	
PORTUGAL	L.D. Lopes	Direcçao de Planeamento ANA-EP Rua D, Edificio 120 Aeroporto de Lisboa Apartado 8131 1802 - Lisboa CODEX Tel. 808044 Ext. 216 Telex 14738 ANA EP P AFTN : LPPTYGPL	
SPAIN	J.M. Fonseca	Servicio de Control Direccion General de Navegacion Aerea Avenida de America 25 Madrid 2 AFTN : LEMDYASC	
UNITED KINGDOM (Central Monitoring Agency)	J. Irving	National Air Traffic Services CAA House - T 904 45-59 Kingsway London WC2B 6TE Tel. (01) 379 73 11 Ext. 2478 Telex : 883092 AFTN : EGGAYACG	
UNITED STATES OF AMERICA	J. Matt	AIA - 102 Federal Aviation Administration 800 Independence Av. Washington D.C. 29591 Tel. : 202 426 31 70 Telex : 892562 AFTN : KRWAYA	Copy also to AFO 260
UNION OF SOVIET SOCIALIST REPUBLICS	V. Sagin	Executive Secretary of USSR Commission for ICAO Leningradsky Prospect 37 Moscow Tel. 155 56 96	

MATERIAL TO BE USED AS A BASIS* FOR AMENDMENT TO THE NAT REGIONAL SUPPS REGARDING LONGITUDINAL SEPARATION AND APPLICATION OF THE MACH NUMBER TECHNIQUE

Delete para 7.2 in toto and insert :

7.2 Longitudinal separation

(P/RAC PART III - 8 & 9 P/RAC Att. H)

7.2.1 Minimum longitudinal separation shall be :

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

i) 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

ii) 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 decelaration/descent phase of the flight of the aircraft concerned may be issued while the above separation is being applied. This separation 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 that 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.

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* The final text of the formal amendment proposal will be developed on the basis of this material before submission to ICAO.

7.2.1 2) a) 10 minutes between turbojet aircraft in level flight meeting the Minimum Navigation Performance Specifications (MNPS) and operating wholly or partly in MNPS airspace 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 track, continuously diverging tracks, or initially the same track and then continuously diverging tracks until some other form of separation is established. This separation may be reduced on a sliding scale to 5 minutes at the entry point into oceanic controlled airspace if the preceding aircraft is maintaining a speed of a greater Mach number than the succeeding aircraft in accordance with the following table :

- 9 minutes if the preceding aircraft is M.02 faster than the succeeding aircraft;
- 8 minutes if the preceding aircraft is M.03 faster than the succeeding aircraft;
- 7 minutes if the preceding aircraft is M.04 faster than the succeeding aircraft;
- 6 minutes if the preceding aircraft is M.05 faster than the succeeding aircraft;
- 5 minutes if the preceding aircraft is M.06 faster than the succeeding aircraft;

b) 10 minutes between turbojet aircraft meeting the MNPS climbing or descending operating in the same direction, wholly or partly within MNPS airspace provided the Mach Number technique is applied and the aircraft concerned are established on the same track and have reported at the same significant point.

Note : In the practical application of the minima contained in 7.2.1 1) and 7.2.1 2) a) above in the cases where aircraft enter oceanic controlled airspace at the same entry point and then diverge, or initially follow the same track and subsequently follow continuously diverging tracks, the minima can be used provided that :

a) the required longitudinal separation exists at the point where the tracks diverge ; and

b) at least half the longitudinal separation required at the point of divergence is planned to exist at the point where 60NM lateral separation is achieved.

c) the 60NM lateral separation is achieved by the next significant point.

7.2.1 3) 15 minutes between turbojet aircraft meeting the MNPS and operating wholly or partly in MNPS airspace but not covered by 7.2.1 2) a) or b) above, i.e. on joining, crossing or reciprocal tracks.

7.2.1 4) 15 minutes between turbojet aircraft 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 track, continuously diverging tracks or follow the same track initially and subsequently follow diverging tracks until some other form of separation is established.

This separation may be reduced to :

a) 10 minutes at the entry point into oceanic controlled airspace if the preceeding aircraft is maintaining a speed of at least M 0.03 greater than that of the following aircraft; and

b) 5 minutes at the entry point into oceanic controlled airspace if the preceding aircraft is maintaining a speed of at least Mach.06 greater than that of the following aircraft.

Note : The separation minima mentioned in 7.2.1 2) a) and 7.2.1 4) a) and b) above may also be applied between aircraft which have not reported over the same entry point into oceanic controlled airspace (but otherwise comply with all 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 in 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 continuously diverging tracks.

5) 20 minutes between :

a) turojet aircraft not covered by 7.2.1 2), 7.2.1 3) or 7.2.1 4) above;

b) other than turbojet aircraft operating within the New York Oceanic control area along routes extending between the United States, Canada or Bermuda and Caribbean terminals, or between the United States, Canada or Bermuda.

6) 30 minutes between other than turbojet aircraft except those covered by 5) above.

7.2.2 When the Mach Number technique is used to provide longitudinal separation between aircraft carrying out step-climbs and descents and other aircraft on the same track, the application of the prescribed longitudinal separation shall be based on the conditions that :

1) such separation already exists between the climbing/descending aircraft and other aircraft on the same track at both the intermediate level(s) and the recleared level; and

2) the separation is planned to continue to exist :

a) at the intermediate level(s) until the intermediate level(s) are crossed;

b) at the recleared level;

c) at each subsequent significant point along the common track to the exit point of the area concerned.

Para 6.3

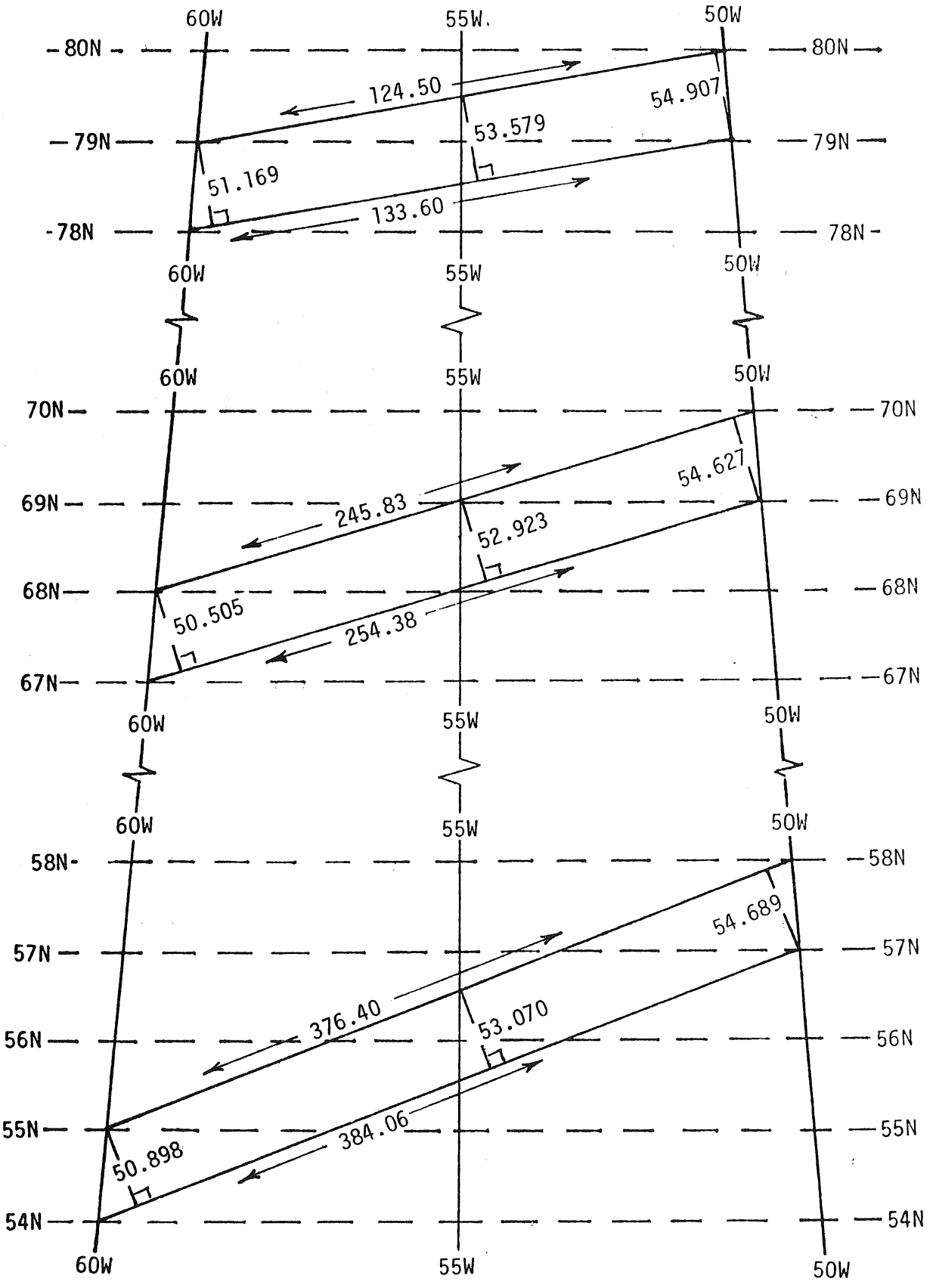
Add the following new para 6.3.2 :

"6.3.2 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."

APPLICATION OF THE MACH NUMBER TECHNIQUE WHEN THE FASTER AIRCRAFT IS BEHIND

Difference in Mach.	Distance to Fly				
	Separation in minutes required at entry point				
	001-600 NM	601-1200 NM	1201-1800 NM	1801-2400 NM	2401-3000 NM
.01	11	12	13	14	15
.02	12	14	16	18	20
.03	13	16	19	22	25
.04	14	18	22	26	30
.05	15	20	25	30	35
.06	16	22	28	34	40
.07	17	24	31	38	45
.08	18	26	34	42	50
.09	19	28	37	46	55
.10	20	30	40	50	60

ILLUSTRATION OF PRACTICAL APPLICATION OF LATERAL SPACING OF TRACKS BY REFERENCE TO DIFFERENCE IN LATITUDE



Agenda Item 2 : Possible use of composite separation 30NM/1000ft in NAT MNPS airspace

2.1 Introduction

2.1.1 The Group had discussed the possibility of introducing composite separation in MNPS airspace of the NAT Region already at its 18th and 19th Meetings and had agreed that preparatory work was required both in the operational and mathematical statistical fields regarding the use of this separation. At this Meeting the Group considered the Item under the following aspects :

a) mathematical statistical considerations;

b) cost-effectiveness considerations; and

c) practical operational questions related to the implementation of this type of separation.

2.2 Mathematical statistical considerations

2.2.1 Further to the mathematical statistical considerations reflected in NAT SPG/19-Summary, para 3.2, the Group confirmed that the existing MNPS criteria were inadequate to fully protect the safety of a 30 NM composite system. In particular the risk in a 30NM/1000ft composite system was much more dependent on the standard deviation in the core of the lateral navigational deviation distribution than was the case for a 60 NM rectangular system. A new set of criteria, additional to the existing MNPS was therefore required.

2.2.2 The Group envisaged more than one way that any new criteria could be implemented, either as part of a new MNPS requiring re-certification of the aircraft fleet, or as a new set of monitoring procedures within the existing MNPS framework. The new criteria now under development could equally serve either purpose.

2.2.3 In developing new criteria it was noted that the incidence of step climbs within the NAT Region might have a significant effect on the risk within a 30NM/1000ft composite system and it will therefore be necessary to collect data on the incidence of step climbs in the existing OTS, so that the provisional values used so far can be verified.

2.2.4 Although the methodology proposed by the United Kingdom for the design of monitoring criteria for composite separation appeared to be the right approach, the Member from the USA wished to consider the derived criteria in greater detail than was possible in the time available. The exact numerical values suggested for the revised criteria will therefore need reviewing at the next NAT SPG Meeting.

2.2.5 This review would also need to consider the setting of threshold values of future achieved performance, as revealed by agreed monitoring procedures, relative to the new criteria. If achieved performance were to deteriorate beyond these thresholds, the NAT SPG would need to determine the appropriate course of action required to restore an acceptable level of safety.

2.2.6 In addition, the Group noted that, if implementation were to occur in, say, 1986, the 1981 lateral core sample would be some years old. It would therefore appear advisable to collect a new core sample before any implementation of 30NM/1000ft composite separation.

2.2.7 The Group also considered the possibility of prohibiting the use of 30NM/1000ft composite separation between opposite direction traffic. Bearing in mind the observed opposite direction occupancy in the current system, it was not felt that opposite direction traffic would be a major contribution to risk in a 30NM/1000ft system. A prohibition was not therefore suggested at this time, although it remained a possible course of future action, should opposite direction occupancy increase.

2.3 Cost-effectiveness considerations

2.3.1 At the outset of the discussion on the cost-effectiveness aspects and the operational considerations of composite separation in NAT MNPS airspace, the Representative of IATA referred to Recommendation 1.2/9 of the Limited NAT RAN Meeting (1976) which advocated the introduction of this type of separation in as early as 1978. He then referred to earlier discussions in the NAT SPG, particularly at its 18th and 19th Meetings and pointed out that independent studies regarding the economic justification of the introduction of composite separation had indicated a potential cost-saving to the operators ranging from 2 to 2.9 million US $. Although this may appear to be a comparatively small saving compared to the overall cost of NAT flight operations, IATA nevertheless felt that it would still be worthwhile pursuing the matter.

2.3.2 In this connexion it was pointed out, however, that these savings were theoretical and that there was no guarantee that they could actually be achieved in practice. The related studies were based on a number of theoretical assumptions, the validity of which was regarded by some of the Group as somewhat doubtful. In particular, cost-saving calculations had assumed :

a) that composite separation would be implemented for both Eastbound and Westbound Organized Track Structures;

b) that the number of Organized Tracks and thereby optimum flight levels would be increased;

c) that in all cases where aircraft could not be cleared to their requested profile, a lateral deviation to the next adjacent track could be effected; and

d) that no penalties would arise due to problems in the oceanic/domestic airspace interface.

2.3.3 In addition, it was argued that, if a new set of MNPS criteria for application in a composite separation environment was necessary, this could result in a need to upgrade onboard navigation equipment, require re-certification of aircraft for MNPS operation and could therefore lead to additional investments on the part of operators which were likely to offset the theoretical savings expected.

2.4 Practical operational questions related to implementation

2.4.1 As to the practical operational aspects of the implementation of composite separation in NAT MNPS airspace, IATA pointed out that the application of 60NM/1000ft composite separation before the introduction of MNPS and the related reduction of lateral separation to 60 NM, had always been considered safe and had never given rise to incidents resulting from this type of separation. It would therefore appear that with the demonstrated improvement of navigation performance in present MNPS airspace, the use of 30NM/1000ft composite separation should meet the target level of safety. It was recognized, however, that a number of operational problems would require careful consideration and resolution before this type of separation could be implemented and IATA felt that every effort should be made to accelerate work in this field so that earliest possible implementation could be achieved.

2.4.2 In this connexion it was pointed out, however, that the necessary criteria for the monitoring of actual navigation performance had not yet been developped and that the question whether such criteria should apply only to the monitoring or also to the certification of aircraft had still to be resolved (para 2.2.2 above refers).

2.4.3 As to the particular operational problems which needed further study, the Group identified the following :

a) the extent of use of composite separation;

b) the effects of the increase in the number of tracks;

c) the operational preference for vertical or lateral diversion of aircraft in case the requested track/flight level was not available;

d) oceanic/domestic airspace interface problems;

e) emergency and turn-back procedures;

f) permeability of a composite Organized Track Structure.

2.4.4 With respect to the extent of use of composite separation (a) above) the Group felt that, as was the case in the earlier 60NM/1000ft composite separation environment, the use of 30NM/1000ft composite separation in present NAT MNPS airspace would also be predominant in the Eastbound Organizaed Track Structure. If this were the case, the anticipated cost-savings discussed in para 2.3 above would be nearly halved.

2.4.5 With respect to the expected increase in the number of tracks within the Organized Track Structure (2.4.3 b) refers) it was mentioned that, overall, the number of organized tracks had been reduced in order to improve system flexibility by providing more airspace for use by random track operations. If this strategy were maintained, the introduction of composite tracks in a 30NM/1000ft configuration would result in an Organized Track Structure comprising a maximum of five tracks contained within a band of 2° of latitude. With such a narrow structure, the accuracy of MET forecasting would become critical to the track placement, because any error in judgement would entirely offset the operational benefit expected from such a structure.

2.4.6 As to the matter raised in para 2.4.3 c), it was pointed out that a detailed analysis carried out in 1982 had revealed that pilots generally showed a preference to a vertical diversion of 2000ft to a lateral diversion to an adjacent track if the originally requested flight level on the chosen track was not available. This situation and its underlying reasons would merit some more study to assess whether it would also prevail in a composite separation environment because, if it continued, a somewhat unbalanced traffic distribution over the available tracks would remain.

2.4.7 With regard to the problems likely to occur in the oceanic/domestic airspace interface, particularly in the Eastbound case, it was pointed out that the compression of the lateral dimensions of the major NAT traffic flow to 120NM could, in a typical peak traffic flow situation, lead to congestion in UK domestic airspace which may result in en-route delays, uneconomic flight levels and other restrictions. The suggested possibility to increase lateral spacing between composite tracks to 60NM as of 20°W would result in increased flight distance at least for some flights involved and would therefore further reduce any potential cost-savings.

2.4.8 A further item which will require very careful consideration is the question of action to be taken by pilots in cases of emergency or when the need for a turn-back arises (2.4.3 e) refers). While the existing emergency and turn-back procedures are perfectly adequate for the current 60NM/2000ft environment, the lateral and vertical protection of flights executing such procedures will be somewhat more difficult to achieve in a compressed 30NM/1000ft environment. Detailed and safe procedures will yet have to be developed to cover cases of in-flight contingency.

2.4.9 Finally, with respect to the permeability of a composite Organized Track Structure and with respect to the possibility of flights wishing to join that structure, IATA pointed out that the expected concentration of traffic to higher flight levels should in fact result in operational benefits to flights wishing to cross the OTS since they could probably be cleared to do so at higher levels than before. Flights intending to join the outer tracks of the OTS would not meet with problems different from the present ones. In any case, the Group agreed that this question would also need to be carefully reviewed before introduction of composite separation in NAT MNPS airspace.

2.4.10 The representative of IATA asked for the opportunity to allay some of the concerns which had been voiced. Regarding the cost-effectiveness considerations, he reminded the Group that two entirely separate studies, one carried out in the United Kingdom, and the other in the USA, had indicated the potential for reducing costs which was offered by using 30NM/1000ft composite separation. It was true that both studies had indicated that this type of separation should be used to increase the number of tracks; this was a point which had been repeatedly stressed by IATA in its presentation. Therefore the fears relating to a structure only 120NM wide were groundless, both as regards the accuracy of MET forecasts, and as regards the domestic interface. If the OTS was just as wide following the introduction of composite separation, it would require more changes of flight level to be provided, but it was difficult to see how this could seriously affect congestion in United Kingdom airspace.

2.4.11 As to the practicability of an early implementation date for a composite separation, the Member from the United Kingdom pointed out that during 1984 the Shanwick Oceanic Area Control Center (OAC) would move to a new operations room and would be provided with entirely new equipment which would considerably change the present working environment in that unit. This programme obviously included extensive system evaluation and acceptance trials as well as staff training and related activities. It was expected that the new system would become fully operational in the first half of 1985 and it would therefore seem to be prudent to wait with the introduction of any major changes to the NAT system until sometime towards the end of 1985 at the earliest.

2.4.12 In the light of its discussion the Group agreed that considerable further study was required on the operational aspects of 30NM/1000ft composite separation in NAT MNPS airspace and that these studies should continue within national administrations concerned, particularly with respect to the establishment of new MNPS criteria and monitoring procedures so that benefits theoretically derived could be achieved in practice as soon as circumstances permitted. With this in mind the Group confirmed the continued validity of its Conclusion 18/5 of the NAT SPG/18 Meeting which is hereby re-stated.

CONCLUSION 20/3 - APPLICATION OF COMPOSITE SEPARATION WITHIN THE OTS OF THE NAT REGION

That preparatory work required both in the operational and mathematical statistical fields regarding the use of composite separation within the Organized Track System of the NAT Region and between FL 290 and FL 390 be pursued with the objective that its practical application may become feasible by the end of 1985.

Agenda Item 3 : Possible improvements to air traffic services provided in the NAT Region

3.1 When discussing the question of further measures that could be taken in order to improve the provision of air traffic services in the NAT Region, the Group found that its many efforts made in the past in this respect had led to a situation where the scope and the remaining possibilities of further fine-tuning the current Air Navigation System had become very limited. It was recognized that the current system was labour intensive and that worthwhile improvements could only be brought about through an increased automation of the ground system which could only be expected to be achieved progressively.

3.2 Nevertheless, a number of particular areas were identified which merited further study to determine whether some improvement could be achieved. These were the following :

a) the situation in the oceanic/domestic transition areas;

b) the method of clearance delivery;

c) position reporting;

d) an expansion of the datum line technique;

e) application and refinement of separation standards ;

f) the Organized Track Structure (lateral extent and hours of validity);

g) increased possibilities for random routing;

h) step-climb and cruise climb possibilities;

i) airspace organization to achieve operational improvements ; and

j) a further extension of MNPS airspace in the NAT Region.

3.3 Due to lack of time and the complexity of the issues involved, the Group was unable at this Meeting to develop any specific proposals. It therefore agreed that these matters should be studied by the operational and technical experts of the States concerned in order to determine where improvements could be achieved. The Group also agreed that a specialized sub-group will be established during its next regular Meeting to review these subjects in the light of suggestions received and to develop proposals for action.

3.4 In an initial exchange of views on questions related to the Organized Track Structure (3.2 f) refers), the Member from Canada stated that his Administration was prepared to consider a reduction in track validity time on a trial basis during the off-peak traffic period commencing in approximately October 1983. The Member from the United Kingdom stated, however, that his Administration was not prepared to consider any changes to the validity times of the Westbound OTS. He anticipated that favourable consideration could be given to operators' requests to operate on random tracks across the Organized Track Structure (OTS) during the last two hours of its validity time. The Group noted also that, as a consequence of the changes to the OTS procedures, increased workload had resulted in both the Shanwick and Gander OACs.

3.5 In this connexion, the representative of IATA referred to the changes to the OTS initiated by Gander and Shanwick during 1981 and 1982. It was the view of IATA that the reduction in the number of Organized Tracks, and the scaling down of the hours during which the OTS was in force, had been of considerable overall benefit to airlines, not only permitting a greater proportion of aircraft to fly random paths but additionally helping some of the "crossing traffic". Of course IATA appreciated that these changes had affected workload in Oceanic Centres, and that further progress in scaling down the OTS might take some time to achieve. IATA could also appreciate that it was sometimes difficult for Shanwick OAC to devise a day-time Structure consisting of less than six tracks and yet be confident that it would satisfy demand. Nevertheless IATA asked for the following objectives to remain under active review, in the hope that they could be achieved as conditions permit :

a) to make further small reductions in the effective hours of each structure, to perhaps five hours at night and five and a half hours during the day (this might be feasible during the months November 1983 to March 1984);

b) to keep the number of published tracks to a reasonable minimum, e.g. not more than four at night and preferably not more than five during the day ;

c) to refrain from promulgating FL310 on the night-time structure and, depending on demand, to consider other opportunities for reduction in the OTS vertical dimensions.

3.6 Finally, recalling that recognition had been paid to the Oceanic Area Control Centres for their work in the last 18 months, the representative from IATA added that his Organization would also like to compliment those ACCs responsible for the oceanic/domestic transition areas. For example, as mentioned in para 3.7, the changes to the North American Route (NAR) System had improved the interface on the west side of the NAT Region and the efforts made by Moncton ACC in implementing these were appreciated. On the East side of the Atlantic, Shannon ACC had continued to provide an excellent transition service during a period of considerable change.

3.7 In the course of its discussions of this Item, the Group was informed of the recent improvements brought about to the North American Route (NAR) System, which gave operators the possibility of flight planning direct routings from the oceanic coast-in points across North American domestic airspace. The representative of IATA paid tribute to the United States and Canadian Administrations for these improvements, which resulted in significant fuel savings for the operators.

3.8 In this connexion, the Group felt that the possibility of providing a similar routing system on the Eastern side of the North Atlantic should be explored. It was however pointed out that there were severe limitations to introducing such a system within the EUR Region due to the air traffic flow management situation and the large number of airspace restrictions.

3.9 Furthermore, it was mentioned that the possibility of establishing a fourth OTS anchor point in the Shannon UIR would assist considerably in the construction of a better Eastbound Organized Track Structure. The Member from Ireland stated that this would pose no particular difficulty provided that it would not create a requirement for an additional navigation aid. He added that, however, there were certain constraints in having a fourth track established through the Shannon UIR , since the main traffic flow still had to enter United Kingdom airspace via Strumble or Wallasey due to airspace restrictions in the Irish sea. He added that, in general, Eastbound aircraft were granted direct clearances where possible by ATC.

Agenda Item 4 : Consideration of problems associated with flight planning in the NAT Region

4.1 Before entering into a detailed discussion of this Item, the Group noted with appreciation the initiative taken by Canada to organize a NAT Flight Planning Seminar which was held in Montreal in October 1982. This Seminar had provided a forum to discuss the various problems encountered in flight planning in the NAT Region, and had given an opportunity to assess the underlying reasons and to identify areas of shortcomings. There was general praise for the Canadian Administration's efforts and it was hoped that a similar gathering could be organized at some suitable location in the future.

4.2 As a result of this Seminar, it had been possible to identify a number of specific points which merited the attention of the NAT SPG in order to overcome particular difficulties involved. It was found that these difficulties were not related to the ICAO flight plan format itself but rather stemmed from the fact that different States had chosen different options for the insertion of data which were available within the framework of the ICAO world-wide provisions. It was noted that the ICAO ATS Data Acquisition Processing and Transfer (ADAPT) Panel had developed a new flight plan format for world-wide use which was currently under consideration within ICAO. The Group felt that the results of that work, which would not be applicable in the very near future, would not provide the immediate relief required.

4.3 In fact, what was most urgently needed was a uniform method of application of the relevant ICAO world-wide provisions regarding completion, filing and transmission of flight plans for operations in the NAT Region, on the basis of which personnel involved in flight planning could be instructed and trained. This would lead to uniformity and would eliminate most of the difficulties currently encountered in the treatment of flight plan information, especially in automatic processing.

4.4 With this in mind, the Group established a special Task Force composed of Canada, Denmark, Iceland, Portugal, the United Kingdom, the USA and IATA. While expert advice was desirable primarily with regard to the operational requirements, it appeared nevertheless prudent to include in the Task Force expertise in the field of automated data processing to ensure that solutions proposed were practicable and could be implemented with a minimum of additional costs to States.

4.5 Since it was felt to be important to maintain close liaison with ICAO on this matter in order to keep abreast of new developments in this field, it was agreed that the Member from Canada should act as Rapporteur and Co-ordinator for the Task Force.

4.6 As to the working methods, the Group was conscious of the need to keep travel and related expenses to a minimum and therefore agreed that the main work of the Task Force should be carried out by correspondence. In the event that a meeting of the Task Force becomes necessary, this should be arranged by the Rapporteur in consultation with the other members of the Task Force. It was expected that the Task Force would report progress to the next regular Meeting of the NAT SPG so that the Group may determine further action required.

CONCLUSION 20/4 - NAT SPG FLIGHT PLANNING TASK FORCE

That, in order to advance work on the development of a uniform method of application of ICAO flight planning procedures for NAT flight operations, a Task Force be established in accordance with the Terms of Reference set out in the Attachment to Item 4.

Attachment
to Item 4

TERMS OF REFERENCE AND WORK PROGRAMME OF THE NAT SPG FLIGHT PLANNING TASK FORCE

1. COMPOSITION

Canada, Denmark, Iceland, Portugal, United Kingdom, USA, IATA.

Rapporteur : Canada.

2. TERMS OF REFERENCE

To develop a uniform method of application of the relevant ICAO world-wide provisions regarding completion, filing and transmission of flight plans for flights in the NAT Region.

3. SPECIFIC TASKS

3.1 The following specific problems have been identified which need to be considered :

a) methods to identify flight plans replacing previously filed flight plans;

b) insertion of FIR boundary estimates;

c) insertion of Mach number and/or True Airspeed, particularly with respect to meeting the related requirements for operations in oceanic airspace and on ATS routes in continental airspace;

d) the use of the term "direct" (DCT);

e) determination of significant points in the NAT Region used for flight planning purposes;

f) requirements to indicate step climbs;

g) requirements to insert route information after inserting the climb group;

h) requirements to indicate SIDs and STARs;

i) method of indicating domestic routings to and from oceanic FIR boundaries;

j) method of indicating authorization of the flight to operate within NAT MNPS airspace;

k) problems associated with flight planning to airports short of destination.

3.2 The Task Force should also consider suitable measures that could be taken to eliminate the occurrence of format and addressing errors in the transmission of flight plans.

3.3 The Task Force should review the existing procedures in Doc 7030 regarding flight plans with a view of their updating and expansion as necessary.

4. REFERENCE DOCUMENTATION

a) NAT SPG/20 - WP/14 (NAT flight processing format errors);

b) NAT SPG/20 - WP/17 (NAT flight planning);

c) NAT SPG/20 - IP/1 (Report on NAT flight planning Seminar, October 1982);

d) NAT SPG/19 - WP/7 (Automated Data Processing in NAT OACs).

Agenda Item 5 : Possible improvements in the quality and availability of MET information

5.1 Under this Item, the Group discussed two specific subjects :

a) provision of in-flight MET reports suitably distributed in space to allow improved weather forecasting; and

b) NAT HF VOLMET broadcasts.

5.2 In-flight MET reporting

5.2.1 At the NAT SPG/19 Meeting, it had been pointed out that the availability of in-flight MET reports (AIREPs) better distributed in space, would improve the quality of MET forecast charts prepared by Bracknell and Suitland. Additional studies were undertaken since then and it appeared now that routine transmission of AIREPs for intermediate positions would be highly desirable from those flights which are required to submit meteorological information.

5.2.2 In this connexion it was pointed out that the requirement for such additional information was probably limited to specific time periods related to the preparation of the MET forecasts and would not therefore justify the transmission of such information throughout the day. It was also suggested that the increased number of flights on random tracks through the NAT Region, which all had to transmit AIREPs, could satisfy the need for additional MET information.

5.2.3 In addition, some doubt was expressed as to the actual use that would be made of the supplementary MET information by the forecasting centres. The Members from the United Kingdom and the USA both gave the assurance that this information was required and would be used by their respective Services for the intended purpose. It was also pointed out that the additional MET information would be critical to the placement of the OTS, should this be based on separation of less than 60 NM.

5.2.4 Furthermore, it appeared that a considerable increase of work-load, both on the ground and in the air, could result from this requirement, particularly during periods of bad radio propagation. It was feared that the inclusion in the routine position report of a set of geographical co-ordinates to describe the intermediate point at which the supplementary MET observation was made, could lead to confusion and perhaps increase the incidence of ATC loop errors. To overcome this, it was suggested to use the term "mid" in lieu of co-ordinates to identify MET information pertaining to the intermediate position. In that case, however, particular care would be required to ensure that the MET information is related to the correct intermediate position (which depends on the direction of flight) when it reached the MET forecasting centre concerned.

5.6 Nevertheless, there was agreement in the Group to implement a procedure on a trial basis requiring flights designated to submit AIREPs to provide also information on the observed MET situation at intermediate longitudes (i.e. 25°, 35° and 45° West). This trial would allow an assessment to be made of the effect of workload increase and its degree of magnitude, the nature of operational problems encountered and the usefulness of the additional information provided to the MET Services concerned.

5.7 The Member from the United Kingdom undertook to make the necessary arrangements within his Administration for the development of a suitable draft NOTAM, taking into account the views expressed at the Meeting, for circulation to all NAT provider States for review and comment before promulgation. It was intended to commence the trial before the next regular Meeting of the NAT SPG so that preliminary results may be available at that time.

NAT HF VOLMET Broadcast

5.8 At the NAT SPG/19 Meeting, the requirements for content of the New York, Gander and Shannon HF COM VOLMET broadcasts were discussed in some detail (NAT SPG/19-Summary, para 8.4 refers). It had been found that expansion in content could not be accommodated other than by replacing the present content by new information which may be required more urgently. This matter was also related to the provision, eventually, of Operational Flight Information Service (OFIS) type information as foreseen in ICAO Annex 11 and for which Regional air navigation agreement was required.

5.9 In this connexion, IATA pointed out that, although it would like to see several more aerodromes included in the Shannon broadcast, an evaluation of the situation revealed no additional requirements for HF VOLMET broadcast content over and above the current one and that a requirement for OFIS type information did not exist for airlines operating in the NAT Region. The representative of IFALPA however stated his Organization's continued interest in the provision of such information.

5.10 With reference to experience gained so far with the provision of OFIS broadcasts, the Member from the Netherlands reported on results of a trial carried out at Amsterdam which highlighted considerable problems with the acquisition of the required basic information, its processing and updating. In addition, the operational usefulness of this type of service appeared to be increasingly doubtful.

5.11 In view of this discussion, the Group agreed that no specific action was required on the subject of HF VOLMET in the NAT Region at this time. It also agreed that the entire matter would merit more detailed consideration at the LIM NAT (RAC/COM/MET) RAN Meeting.

5.12 Concluding its discussion on this subject, the Group expressed surprise at difficulties which seemed to have occurred with its suggestion to reflect the requirement for the Shannon HF VOLMET broadcast in the ICAO NAT/NAM/PAC Regional Air Navigation Plan Publication. As stated in para 8.3.2 of NAT SPG/19-Summary, the broadcast primarily serves the civil aviation requirements of the NAT Region and forms as such an integral part of the air navigation system of that Region. Since these views were also shared by the EANPG, the Group hoped that ICAO would find its suggestion acceptable and that the related text would be included in Doc 8755.

Agenda Item 6 : Review of the situation with regard to proposals for amendment to the NAT Regional Supplementary Procedures

6.1 The Group was informed by the Secretariat of the situation with respect to the processing of current proposals for amendment to the NAT Regional SUPPS in the light of developments since its previous Meeting. This review covered the following proposals :

a) the extension of the area of application of 60 NM lateral separation (NAT/SUPPS-RAC/12);

b) the special procedure to be followed by aircraft in the event of inability to continue flight in accordance with the ATC clearance (NAT/SUPPS-RAC/13);

c) the provisions regarding the application of the Mach number technique (NAT/SUPPS-RAC/14);

d) the longitudinal separation to be applied in the case of aircraft joining the track of another aircraft (NAT/SUPPS-RAC/15); and

e) the extension of MNPS airspace within CTA Reykjavik to the North Pole (NAT/SUPPS-RAC/16).

6.2 Processing of the various proposals which had not yet been completed was still under way, with the exception of the proposal NAT/SUPPS-RAC/14. The Group also noted that satisfactory arrangements had now been concluded regarding the extension of MNPS airspace to the North Pole and that the relevant proposal for amendment of Doc 7030 (NAT/SUPPS-RAC/16) was in course of being circulated.

6.3 With regard to amendment proposal NAT/SUPPS-RAC/14 concerning the application of the Mach Number technique, the Group was informed that comments received following its circulation raised a number of points which had not been previously considered by the NAT SPG. In the circumstances, further processing of the proposal had been suspended to allow the NAT SPG an opportunity to consider these matters in detail. The problems associated with this proposal were considered by the Group during the discussion on Item 1 (para 1.6.14 refers).

6.4 In addition, the Group noted that, resulting from the discussions under Item 1, the Member from the United Kingdom would take the necessary action within his Administration for the withdrawal of amendment proposal NAT/SUPPS-RAC/15 which had now been overtaken by events (para 1.6.9 refers).

Agenda Item 7 : Review of progress in ATS contingency planning in the NAT Region

7.1 The Group briefly recalled the discussions held at its 18th Meeting on this subject which resulted in Conclusion 18/14 (paras 13.3.2 to 13.3.6 of NAT SPG/18-Summary refer). This Conclusion, which calls for action by States and OACs, was being largely followed and was considered to remain valid.

7.2 In this connexion, the Group noted the action taken by the last NAT OAC Chiefs meeting (Køben havn, September 1982) which updated the various basic arrangements set up by OACs to allow rapid and orderly ad hoc action to be taken in cases of contingencies. As such, these arrangements did not constitute a formal contingency plan for the NAT Region, but served as a basis for the co-ordination that would have to be initiated. Actual measures taken in any given situation would depend very much on the nature and duration of the contingency (e.g. communications black-out, facility failures, etc.). In the event of a prolonged duration, the measures applied would be continuously updated and improved as necessary in order to optimize their effectiveness under the circumstances encountered.

7.3 Generally, it was felt that at present the philosophy of avoiding those portions of the airspace directly affected by a contingency was sound and likely to be the most promising immediate course of action in most cases. It was recognized, nevertheless, that significant increases in traffic densities might occur elsewhere, especially in the oceanic/continental interface areas, where oceanic and domestic traffic flows might inter-mix.

7.4 In view of this situation, it was confirmed that operational contingencies should be dealt with on an ad hoc basis on the understanding that all parties concerned would make every effort to keep the detrimental effects of the contingency on normal operations as small as possible.

7.5 In this context, a particular problem was mentioned which concerned traffic on the Eastern side of the NAT Region which, if diverted to the South in cases of contingencies, would reach landfall within the France UIR/Brest FIR. In order to facilitate integration of this traffic into domestic airspace and the resolution of traffic conflicts with the North-South traffic flows across the Gulf of Biscay, it would be desirable for NAT flights to enter France UIR on a more northerly track. Such a routing would, however, traverse the South-East portion of Shanwick OCA and could therefore not easily be resolved within the framework of the existing arrangements.

7.6 The Group then had an exchange of views on action currently underway within ICAO on ATS contingency planning and noted in particular Council WP/7614 which constituted a Report by the Air Navigation Commission to the Council on the subject. Considering that, in due course, States and International Organizations would be consulted on this matter, the Group did not wish to enter into any further discussion at this time. Depending on the final outcome of ICAO action, it might become necessary for the NAT SPG to revert to the subject at some future occasion.

7.7 Concluding the discussion of this Item, the Representatives of IATA and IFALPA wished to record their appreciation of the excellent co-operation which they received from the Oceanic Area Control Centers concerned and from other ATS units involved, during the difficult aftermath of the situation created by the strike of air traffic controllers in the USA and the resulting capacity constraints. This could have led airlines, particularly those operating through the North Atlantic Region, into extremely difficult situations and this was avoided to a great extent through the positive and co-operative attitude of all concerned.

Agenda Item 8 : Consideration of problems regarding IGA operations in the NAT Region

8.1 In follow-up of the discussion at NAT SPG/19, the Group returned to the consideration of problems associated with IGA operations in the NAT Region. The Group was informed that difficulties were still being encountered by the air traffic services with regard to these operations. A number of incidents involving overdue position reports had occurred during 1982 which had given rise to the declaration of alerts, and in one case a distress action had been initiated. It was subsequently found that all of the incidents were due to a lack of or unserviceable HF communications equipment on board the aircraft concerned and the required position reports could not be made.

8.2 The Group recalled the agreement reached at the last Meeting for the preparation of an information document regarding IGA operations in the NAT Region (Conclusion 19/8 refers). The Member from the United States informed the Group that arrangements were now well in hand to prepare the basic material which would be circulated shortly to interested NAT provider States and user organisations for review prior to its finalisation.

8.3 In his view also, it would seem more appropriate if the material were to be published initially as part of the NAT Guidance and Information Material document issued by the European Office of ICAO. This would allow time to assess the effectiveness of this method of publication and the impact of the material in the IGA community. After some discussion, the Group accepted this suggestion as an interim measure, and agreed to review the situation at the next regular Meeting.

8.4 While on this subject, it was noted that the United States also intended to prepare a series of articles relating to IGA operations in the NAT Region for publication in general aviation journals. It was hoped to consolidate these articles into a pamphlet which would be made available to all IGA pilots intending to operate across the North Atlantic from departure points in the United States. The Group welcomed this initiative, as it should result in a greater awareness among IGA pilots of the operational requirements and the necessary preparation that should be made for a flight across the North Atlantic.

8.5 The Group was presented with a paper by the Member from the United States which advocated raising the lower limit of controlled airspace in the Shanwick, Gander and Santa Maria OCAs from FL 55 to FL 125. Statistics collected had shown that the greater proportion of IGA operations across the NAT Region were confined to levels below FL 125. The paper suggested that raising the lower limit of controlled airspace would result in more flexibility for IGA aircraft. IGA aircraft fitted with the appropriate HF communications equipment could remain in periodic contact with the air traffic services, through using the "operations normal" reporting procedure, if for safety reasons they wished to avail of alerting service. As a result, progress might be made towards resolving the unwarranted alert problem.

8.6 The Group appreciated that the proposal to "deregulate" a portion of the NAT airspace was motivated by consideration for IGA aircraft which failed to comply with the requirements for operation in controlled airspace, particularly with regard to position reporting and maintaining an assigned track. The point was nevertheless made that "de-controlling" the airspace could compound the problem which already existed since a relaxation of the regulations could result in more traffic in the airspace concerned and increased workload for all of the ground services.

8.7 The Group realised that, for operations over the high seas, the services provided to aircraft must be in accordance with ICAO provisions. A re-classification of the airspace raised several complicated questions, especially relating to the responsibility of the air traffic services for providing flight information and alerting services, which would need to be explored in detail.

8.8 It was agreed that the underlying issues associated with these problems were deep-rooted and complex. It was also noted that the problems varied between the different OCAs, and that the impact of such operations in the transition areas adjacent to the NAT Region could not be ignored. In addition, new aspects such as the preparation of the information material regarding IGA operations in the NAT Region, a study of the airspace organization in the Santa Maria FIR and the availability of the SARSAT system would have to be taken into consideration. Moreover, the longstanding requirement for better pilot education and the ability of States concerned to enforce the regulations would need to be addressed.

8.9 In order to progress this item, the Group agreed that those States concerned (Canada, Denmark, France, Iceland, Ireland, Portugal, the United Kingdom and the United States) should collaborate in drawing together the various points of view. The United Kingdom undertook to circulate a preliminary paper in the hope that a consensus view could be achieved by correspondence in a timely manner.

Agenda Item 9 : Review of problems of current operational interest

9.1 Introduction

9.1.1 Under this Item the Group considered the following topics :

a) operation of SSR transponders in the NAT Region;

b) similarity in aircraft callsigns;

c) routing problem in the Shanwick OCA/Shannon UIR interface area;

d) rocket/missile firing in the NAT Region.

9.2 Operation of SSR transponders in the NAT Region

9.2.1 The Group was informed by IATA of problems which had arisen in the application of the provisions contained in the NAT Regional SUPPS regarding the operation of SSR transponders in the NAT Region (Doc 7030/3-NAT, Part I, para 8.1.1 refers). The current text in Doc 7030 appeared ambiguous and open to misinterpretation on the part of pilots. Furthermore, due to the wider use of radar in the oceanic/continental interface areas and more particularly the introduction of Reykjavik SSR, there was a need for clearer instructions as to when the pilot should select the prescribed SSR code for flight in NAT airspace. In this context, with the improved equipment on board aircraft, transponders could now be operated continuously during the ocean crossing. In addition, the continued temporary use of Code 3000 for westbound flights should also be reconsidered to see if this was still necessary or whether Code 2000 could be used exclusively for the purpose.

9.2.2 The Group recalled that the text in Doc 7030 had originally been developed in the late sixties to ensure that uniform procedures were used for the operation of transponders in aircraft prior to entering the coverage of coastal radar stations. The Group agreed that the procedure was now somewhat outdated due to the passage of time and should be amended to reflect current requirements. In this respect, the procedure also needs to cater for the requirement for aircraft to retain the last code assigned by ATC until well outside the area of radar coverage and give clear guidance as to when the particular code for the crossing (i.e. 2000 or 3000) should be selected after entering NAT oceanic airspace.

9.2.3 It was noted that the situation which had resulted in the temporary use of Code 3000 for westbound flights will be reviewed by the appropriate authorities in May 1983 to determine whether this is still a valid requirement. The Group agreed that it would be preferable if the procedure were based on the exclusive use of Code 2000 and thus be in line with the world-wide provisions of ICAO (PANS-RAC, Doc 4444, Part X, para 1.4.1.4 refers).

9.2.4 As the proposed revised procedure will depend on results of the upcoming review of SRR code utilisation in North America, either of two situations could emerge :

a) continuation of the use of Codes 2000 and 3000; or

b) reversion to use of Code 2000 exclusively for the purpose, as provided for in PANS-RAC.

In order to ensure that appropriate action can be taken as soon as possible, the Group therefore developed two alternative texts as a basis for a proposal for amendment of Doc 7030 as shown in the Attachment to the Report on this Item.

9.2.5 The Member from the United States undertook to follow-up on the matter and to make the necessary arrangements within his Administration to ensure that a formal proposal for amendment of Doc 7030, based on the appropriate alternative, would be presented to ICAO as soon as the results of the North American code utilisation review become known.

CONCLUSION 20/5 - AMENDMENT TO THE NAT REGIONAL SUPPS

That :

a) the NAT Regional SUPPS regarding operation of transponders in the NAT Region (Doc 7030/3-NAT, Part I, para 8.1.1) be amended in accordance with one of the alternatives shown in the Attachment to the Report on Agenda Item 9; and

b) the Member from the United States take the necessary action within his Administration to present to ICAO, as soon as possible, a formal proposal for amendment of Doc 7030.

9.3 Similarity in aircraft callsigns

9.3.1 The Group was aware that problems were still being encountered in operations due to similarity in aircraft callsigns. Various examples were quoted of recent instances which had led to confusion in air-ground communications.

9.3.2 The representative of IATA advised that since the last Meeting of the Group the matter had been investigated to see if there was any possibility to modify the airline flight numbering system. It was found that, in view of the complexity of the issues involved, it would be extremely difficult to reach agreement among all airlines on the radical changes necessary to eliminate callsign confusion and ambiguity. However, IATA was urged to continue efforts to ameliorate the situation.

9.3.3 The Group realized that this subject had been under study within ICAO for a number of years and that an evaluation was being conducted of a new-style alpha-numeric system based on proposals made by IFALPA. It was however noted that, despite any operational advantages, the introduction of such a system was likely to meet with resistance from airlines and airport authorities who favoured retaining the current flight numbering system.

9.3.4 It appeared to the Group that, in order to alleviate the problem in the short term, efforts would have to be concentrated on making minor changes within the framework of the present system. It was emphasized that improved discipline in air-ground communications both on the part of pilots and ground services and, in particular, avoidance of abbreviated call-signs would go some way towards overcoming the difficulties encountered. Mention was also made of the option available under ICAO provisions to use the aircraft registration in cases where confusion could arise due to similarity of the callsigns of two flights. It was obvious that this solution could be useful where direct controller/pilot communications were available and the change in callsign could be limited to the particular situation. However, in the NAT environment, where air-ground communications are conducted via a communicator and position reports are transmitted on the AFTN, there seemed to be little scope for the application of this procedure.

9.4 Routing problem in the Shanwick OCA/Shannon UIR interface area

9.4.1 The attention of the Group was drawn to a problem that existed for NAT traffic leaving France UIR and intending to join the OTS at a point along the western boundary (15°W) of the Shannon UIR. If this were permitted, depending on the circumstances, the flight path of the aircraft could pass through London UIR, Shanwick OCA and Shannon UIR before reaching the track entry point. This obviously would give rise to co-ordination problems for the ground services.

9.4.2 The Group was informed that the matter was under active consideration between the States concerned and it was anticipated that a satisfactory solution could be arrived at in the near future.

9.5 Rocket/missile firing in the NAT Region

9.5.1 The Group noted that in follow-up of the measures agreed at its last Meeting, the European Office of ICAO had informed States of the problems encountered with rocket/missile activities in the NAT Region. A complete list of addresses of the agencies responsible for the co-ordination of such activities had been compiled and would be maintained up-to-date by the Regional Office.

9.5.2 Whilst a considerable improvement had resulted from this action, instances of unco-ordinated rocket/missile firing had still occurred. The Group therefore re-affirmed the continuing validity of its Conclusion 19/9 and expected to be kept informed of any difficulties encountered in its application.

Attachment
to Item 9

ALTERNATIVES FOR AMENDMENT TO DOC 7030 - NAT SUPPS
REGARDING OPERATION OF TRANSPONDERS

ALTERNATIVE A - CONTINUATION OF USE OF MODE A 2000 & 3000

Amend the SUPPs applicable in the NAT Region, in the section dealing with "Use of Secondary Surveillance Radar" (Chapter 8) as follows :

Delete para 8.1.1.1 in toto (including the related Note) and substitute the following :

"8.1.1 Operation of transponders

8.1.1.1 Unless otherwise directed by ATC, pilots of aircraft equipped with SSR flying in the NAT Region shall operate transponders continuously on :

a) Mode A Code 2000 when eastbound,

b) Mode A Code 3000 when westbound,

except that the last assigned Code shall be retained for a period of 30 minutes after entry into NAT oceanic airspace.

Note 1 : This procedure does not affect the use of the special purpose codes (7500, 7600, 7700) in cases of unlawful interference, radio failure or emergency.

Note 2 : The use of Mode A Code 3000 for westbound flights is a temporary measure until such time as Code 2000 can be employed for this purpose."

ALTERNATIVE B - USE OF MODE A 2000

Amend the SUPPs applicable in the NAT Region, in the section dealing with "Use of Secondary Surveillance Radar" (Chapter 8) as follows :

Delete para 8.1.1.1 in toto (including the related Note) and substitute the following :

"8.1.1 Operation of transponders

8.1.1.1 Unless otherwise directed by ATC, pilots of aircraft equipped with SSR flying in the NAT Region shall operate transponders continuously on Mode A Code 2000, except that the last assigned Code shall be retained for a period of 30 minutes after entry into NAT oceanic airspace.

Note : This procedure does not affect the use of the special purpose codes (7500, 7600, 7700) in cases of unlawful interference, radio failure or emergency."

Agenda Item 10 : Review and updating of the NAT MNPS Airspace Operations Manual and of the NAT Guidance and Information Material

10.1 As customary, the Group reviewed the situation with respect to the need to update the NAT MNPS Airspace Operations Manual and the NAT Guidance and Information Material issued by the European Office of ICAO, both of which were now in their 3rd Editions. It was noted that, after the last Meeting, a supplement to the MNPS Airspace Operations Manual had been circulated to reflect changes to the procedures relating to the OTS, use of the datum line technique and in-flight contingencies.

10.2 The Group agreed that it did not appear necessary at this point in time to proceed with the preparation of 4th editions of these documents. However, a number of developments were currently taking place, especially with regard to flight planning procedures, which would probably lead to a major revision of both documents.

10.3 Nevertheless, the Group believed that action should be taken in the meantime to update the relevant sections of the NAT Guidance Material by means of a loose-leaf amendment to incorporate changes to procedures already agreed by the NAT SPG. This amendment should include :

a) the revised material regarding the minimum values to be used in the NAT Region for the separation of air traffic from moving temporary airspace reservations (NAT SPG/19-Summary, Attachment B to Item 12);

b) the modification to the description of routes through MNPS airspace between specific points in Portuguese territories (NAT SPG/19-Summary, Attachment to Item 14);

c) revised procedures for the monitoring of navigation performance in the NAT Region (NAT SPG/20-Summary, Attachment B to Item 1 refers).

10.4 It was understood that the European Office of ICAO would take the necessary action to issue an appropriate amendment to the NAT Guidance Material following this Meeting of the NAT SPG.

Agenda Item 11 : NAT air traffic forecasting

11.1 At the outset the Group noted that the next Meeting of the NAT Traffic Forecasting Group (NAT TFG), which would prepare the updated NAT traffic forecast, was scheduled to be held during the second half of April 1983. The Group therefore resumed the discussion held at its previous Meeting regarding the utility of the NAT traffic forecasts and related matters.

11.2 Inquiries since made by the Members of the NAT SPG had revealed that the forecast produced by the NAT TFG was not generally used for planning purposes within Administrations. It appeared the fundamental reason was that the forecast in its present format did not provide data in a manner that could be used by those concerned with operational planning of the air navigation system in the NAT Region. For this purpose, much more detailed information was required in a form that could be directly related to the operational environment.

11.3 The Group noted that, in response to the need for more operationally-oriented data on air traffic, Canada had already embarked on a study to define the related requirements. The availability of improved data would be of benefit for air traffic management purposes and for the forecasting of system requirements. In this context, it was pointed out that, while adequate and reliable forecasting was desirable, the cost-related aspect should be borne in mind.

11.4 On the other hand, it was recalled that the current format and content of the NAT forecast had been specifically endorsed by the NAT SPG. It was also realized that the forecast was primarily developed to give States an overall appreciation of the traffic flows in the NAT Region and an indication of likely developments for the following five years. Moreover, the forecast gave a good analysis of the economic factors that could affect NAT operations.

11.5 It was noted that the content of the forecast currently produced by the NAT TFG did not cover the north/south traffic flow between the New York OCA and the CAR Region. It was realized that such a requirement had never been stated previously and consequently the NAT TFG had not included this traffic flow in the area of consideration. It was agreed that the NAT TFG should examine this portion of the NAT traffic flow with a view to including it in the forecast. It was noted that the Member from the United States would make arrangements to ensure that the necessary actual data on air traffic in the area concerned would be collected and submitted to the forthcoming Meeting of the NAT TFG.

11.6 The Group re-affirmed that the NAT TFG should continue with the present method of preparing the NAT traffic forecast. In any event, the subject of NAT traffic forecasts would probably need to be discussed at the forthcoming LIM/NAT (RAC/COM/MET) RAN Meeting. In the meantime, the Group agreed to continue to monitor developments in this field and bring specific proposals to the attention of the NAT TFG as and when they arise. In this connexion, it was expected that any new requirements emerging from the ongoing study being carried out by Canada would be brought to the attention of the Group for consideration and for relay to the NAT TFG as appropriate.

Agenda Item 12 : Review of the communications situation in the NAT Region

12.1 Introduction

12.1.1 Under this Item, the Group dealt with the following specific subjects regarding aeronautical telecommunications :

a) routine review of the HF communications situation in the NAT Region;

b) position report format

c) SELCAL;

d) ICAO HF DSB/SSB Transition Programme;

e) frequency designators;

f) review of abbreviations in ICAO Doc 8400;

g) interference on new NAT HF channels;

h) provision of HF phone-patch facilities;

i) developments with respect to HF data links; and

j) aeronautical fixed telecommunications.

12.2 Routine review of the HF communications situation in the NAT Region

12.2.1 The Group reviewed the results of the 1982 NAT HF data collection exercise, which had been made in accordance with Conclusion 19/6 of the NAT SPG/19 Meeting. The arrangements for the data collection had been the same as for the 1981 collection, i.e. data related to three days when the alignment of the Organized Track System was Northabout, Central and Southabout (relative to the London/New York Great Circle) respectively. The dates selected were July 17 (South), July 18 (Central) and August 19 (North).

12.2.2 A comparison of the communication traffic figures with those of 1981 showed a slight decrease in HF traffic (6717 position reports for the three days in 1982 as compared to 6939 for the same period in 1981). The use of GP/VHF was comparable to that observed in the course of the previous exercise (2429 reports in 1982 as compared to 2381 reports in 1981), with Gander aeradio being the most affected (1460 position reports), followed by Reykjavik (515) and Shanwick (309).

12.2.3 In view of the fact that the 13 MHz frequency is shared between two families ("A" and "C" in the case of 13306 kHz and "B" and "D" in the case of 13291 kHz), it was agreed to amend the originally reported 13 MHz figures to show the even distribution of loading between frequency families. The amended distribution of loading on the four HF families was found to be fairly even : 24.87% on Family A, 24.56% on B, 18.45% on C and 17.54% on D. This appeared to indicate a better application of the provisions set forth in the Regional Supplementary Procedures for off-loading a given frequency Family, and resulted in a significant reduction of the previously experienced overbearing on Family A. However, during the busy period, the use of individual frequencies was significantly influenced by the orientation of the traffic, to the effect that Families A, B/C and D were more loaded when the tracks were South, Central and Northabout respectively.

12.2.4 The distribution of traffic load on the various frequencies showed a net prominence in the use of the 8 MHz order frequencies (56.8%), followed by the 5 MHz (26.7%). As expected, the use of the 13 MHz order frequencies, which had reached a maximum at the time of the previous exercise, reverted to its normal figure of about 13%, following the inversion of the sunspot activity. An exception to the foregoing was Gander, where, due to propagation conditions, the majority of traffic was handled on 13 MHz. In fact, the Gander's two 13 MHz frequencies took traffic which would normally have been handled on the four 8 MHz frequencies. Traffic distribution figures showed that the daytime use of 13 MHz accounted for 12% of Gander's total traffic for the year 1982.

12.2.5 Shanwick Aeradio had the highest peak hour load of 70 position reports, Gander being a close second with 69 reports. The mean delay (*) overall was 3.25 minutes, which showed a marginal deterioration with respect to the 1981 figure of 3.15 minutes. However, the above mean delay figure was recognized to be hardly representative of the real situation, for the following reasons :

a) in the calculation of delay times no distinction could be made between genuine delays and "artificial" delays such as those stemming from the repetition on HF of reports already transmitted on VHF;

(*) Delay is the time period which has elapsed between the moment an aircraft passes over a reporting point and the moment the HF ground station has completed reception of the corresponding position report. Mean delay is obtained by dividing the total delay of a number of messages by that number.

b) communication services on HF in the Northern Hemisphere were disrupted by a solar flare in July 1982. While the impact of the disruption could be reduced by relaying position reports from each aircraft through other aircraft and by application of the intercept principle, communication delays imputable to the solar flare phenomenon did nevertheless occur in the system. Temporary loss of communications with aircraft was experienced on several occasions on the polar routes;

c) the current instructions for the global calculation of the mean delay for each hour, as contained in Attachment A to the Report on Agenda Item 9 of the NAT SPG/19 Meeting, were found to lack some significance in that they did not take into account individual station loading, with the consequence that the regional "mean" is unrealistic. It was agreed that in future data collections the total delays (of all the reports) divided by the number of reports should be considered.

12.2.6 With regard to a), the Group agreed that steps should be taken to avoid the occurrence of artificial delays. In particular, domestic ACCs should be requested, whenever possible, to transfer aircraft to the NAT frequencies prior to their making boundary reports, so as to make it unnecessary for the aircraft to repeat the same reports.

12.2.7 With regard to b), it was agreed that the selection of the dates of the annual exercise should not be influenced by the consideration of propagation conditions and should continue to be based on the orientation of traffic, so as to cover specific tracks on each of the 3 days. In addition, it was agreed that, when sub-normal propagation conditions disrupting HF communications are experienced by a station, a data collection, including compilation of delay times, should be made on the initiative of the station involved. A related report should then be submitted, as an Information Paper, to the next regular NAT SPG Meeting.

12.2.8 With regard to c), the Group reviewed the existing instructions for the calculation of delay times. A new set of revised instructions for the conduct of annual HF data collection exercises, incorporating the amendments agreed by the Group, is given at Attachment A to this Item.

12.2.9 The results of the 1982 HF data collection exercise showed, on the whole, a better distribution of HF message traffic than in the previous exercise, with no evidence of overloading and no immediate requirement to change the existing arrangements for traffic management. It was found, once again, that the family and network principles worked well and that there was sufficient spare capacity in the four-Family network.

12.2.10 The Group nevertheless considered it necessary to continue to monitor frequency loading distributions and delay times, in order to avoid any unbalance of the communications system over the North Atlantic, especially in view of the new Air Reporting Procedures. It accordingly agreed that a new data collection exercise, similar to the one made in 1982, should be carried out in 1983, with the following provisions :

a) a decision as to the dates to be selected should be taken by early September 1983;

b) the returns should be provided to the United Kingdom for analysis by the end of October 1983;

c) the Søndrestrøm data (HF Family "D" and GP VHF) should be included; and

d) the final report of the exercise should be made available for study to NAT SPG Members and COM experts concerned by the end of February 1984.

CONCLUSION 20/6 - NAT HF DATA COLLECTION IN 1983

That a three-day NAT HF data collection be conducted in 1983 using the revised instructions contained in Attachment A to Item 12 and with the same arrangements agreed for 1982, noting that :

a) Ireland will co-ordinate the exercise and, in consultation with other participating States, select suitable dates ;

b) States concerned will retain message data for July and August 1983 until the dates have been selected ;

c) States concerned will send the results of the exercise to the United Kingdom by the end of October 1983 to the following address :

Civil Aviation Authority (CG2)
Room T 901
CAA House
45-59, Kingsway
LONDON WC2B 6TE

d) the United Kingdom will analyze the results and send the final report to the European Office of ICAO for distribution to NAT SPG Members by the end of January 1984 ; and

e) Søndrestrøm data will be included.

12.2.11 The Group was informed that Denmark contemplated the discontinuance, probably in 1984, of the services provided by the Søndre Strømfjord station on NAT Family D HF and on GP/VHF 127.9 MHz. It was intended to establish a domestic network with a set of exclusive frequencies for domestic operations and for international flights operating below FL 195. Underlying this decision was the fact that, although the Søndre Strømfjord HF air-ground station and the VHF station at Kulusuk had been recognized not to be essential for international operations and, therefore, had been excluded from ICAO joint financing, these stations had continued to act as back-up facilities in the NAT Region. The services were offered on a COM-charge basis, notably to cater for those cases when HF radio propagation conditions were poor and also to provide an extended use of VHF communications in the area.Contacts with Søndre Strømfjord were reported to be established at random, a situation which made the maintenance of a regular service impracticable. In addition, it was reported that there was a general reticence to contact the station in view of the costs involved. This, on occasion, gave rise to operational drawbacks since artificial delays were introduced in the transmission of position reports. The Group noted that, as a result of the above decision, the ICAO Secretariat would, in due course, have to take action for the amendment of the NAT VHF coverage Chart, which now included the coverage of the Søndre Strømfjord station at FL 300 and FL 150.

12.2.12 In the framework of its review of the NAT communications situation, the Group was presented with a proposal by IFALPA that action be taken for the allocation of a VHF communication channel for air-to-air use in the NAT Region. The Group recognized that circumstances may arise where the requirement for direct contacts between pilots was adequately justified, e.g. to pass weather information, to obviate certain communication difficulties or other technical problems, to assess the feasibility of "step-climb", etc.. It also recognized that the availability of the proposed channel would help eliminate the misuse of the emergency channel 121.5 MHz. It was recalled that general provisions had already been adopted for inclusion in Annex 10 (Amendment 63) for the designation of an air-to-air VHF channel, for use by aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations. A strict discipline in the use of such a channel was recognized to be required, notably to ensure that a continuous watch is maintained on the appropriate ATS channels.

12.2.13 On these premises, the Group endorsed the IFALPA suggestion and agreed that a related proposal for amendment to the NAT Air Navigation Plan should be submitted to ICAO after co-ordination with the Secretariat of the selection of an appropriate frequency. The Member from Canada undertook to make the necessary arrangements within his Administration for presentation of the proposal.

CONCLUSION 20/7 - NAT AIR-TO-AIR VHF COMMUNICATIONS CHANNEL

That :

a) the NAT Air Navigation Plan be amended to include the requirement for an air-to-air VHF communications channel for use by pilots within NAT oceanic airspace outside the range of VHF coverage;

b) the Member from Canada take the necessary action within his Administration to present to ICAO a formal proposal for amendment of the NAT Air Navigation Plan, after co-ordination with the ICAO Secretariat of a suitable frequency for that purpose.

12.3 Position report format

12.3.1 The Group was apprised of the action taken by Canada in follow-up of Conclusion 17/12 of the NAT SPG/17 Meeting. This concerned the amendments to the PANS RAC (Doc 4444) and the Regional Supplementary Procedures (Doc 7030) with regard to the fixed message format in position reports. The Regional Supplementary Procedures had already been amended (Amendment No 157). As to the proposed amendments to position and air reporting procedures contained in the PANS RAC, these were being circulated to States and selected International Organizations for comment before submission to the Air Navigation Commission for final action.

12.3.2 It was recalled that the proposed amendments covered the requirements to :

a) delete from the position report the prefix "AIREP";

b) have the position report preceded by the word "POSITION";

c) include in the report the "Next Position" element; and

d) have all times in position reports expressed in four digits giving both the hour and the minutes.

12.3.3 In reviewing the proposed amendments, the Group spotted a significant misprint (the prefixe "PSN" instead of "POS"). It was understood that Canada would immediately bring this error to the attention of ICAO.

12.3.4 As agreed by the NAT SPG/19 Meeting (cf. paragraph 9.4.2 of the NAT SPG/19 Report), a further study of the compliance by pilots with the provisions of paragraph 4.2.1.1 of the NAT Supplementary Procedures (Doc 7030/3) was reported to have been made by Shanwick Aeradio on 17-21 January 1983. The results of the study showed the following percentages of compliance :

a) 76.4% with regard to the identification of the reports by the word "POSITION";

b) 95.3% with regard to the use of 4 digits time; and

c) 83.5% with regard to the announcement of the "Next Position".

12.3.5 While appreciating that this survey included some military and delivery flights, the Group felt that there still was room for some improvement, notably with regard to a) and agreed that action to encourage compliance with the procedures should continue. In particular, as an educational exercise, COM stations should be invited to read back reports using the correct procedures.

12.4 SELCAL

12.4.1 It was reported to the Group that during the period 1 May - 31 December 1982 Shanwick Aeradio had 30 incorrect SELCAL codes. The majority of these were due to errors in flight plans and most of them resulted in delays to oceanic clearances. There were six instances of two aircraft using the same code.

12.4.2 A SELCAL survey was carried out at Shanwick Aeradio from 8 to 10 March 1983 inclusive, covering Westbound flights only. Of the 186 flights surveyed, 132 (i.e. 72%) complied with Conclusion 18/10 a) of the NAT SPG/18 Meeting, providing for flight crews to request a SELCAL check on HF prior to or on entry of the aircraft into Oceanic airspace.

12.4.3 The Group once more recognized that some of the difficulties reported in paragraph 12.4.1 above arose from the present shortage of SELCAL codes. It was confirmed that the mandatory date of implementation of the new equipment suitable to operate on the expanded stock of SELCAL codes (16 tones instead of 12), as now provided for in Annex 10, was 1 January 1985.

12.5 ICAO HF DSB/SSB Transition Programme

12.5.1 In connexion with the ICAO programme of transition from double side band (DSB) to single side band (SSB) classes of transmission in the aeromobile radiotelephony service on HF, the Group noted that, as far as the NAT Region was concerned, that programme had been completed by the established target date of 1 February 1983. As a consequence, the discontinuance of DSB operation resulted in the procedures for the distribution of the NAT HF aeromobile message traffic of the users of the NAT routes between the various HF families needing some amendments. While such amendments had already been incorporated in the Third Edition of the NAT Supplementary Procedures (Doc 7030/3 - page NAT/COM-1), the same was not the case with the NAT/NAM/PAC Air Navigation Plan (Doc 8755/11, page 3-2-21). It was understood that the ICAO Secretariat would take appropriate action in this regard.

12.5.2 Following implementation, as of 1 February 1983, of the third and final phase of the ICA HF DSB/SSB Transition Programme, the Group deemed it desirable to put on record the frequency changes effected. These are shown in the following Table :

	Present Frequencies	Previous Frequencies
Family A	3016 kHz	2931 kHz
	5598 kHz	5610 kHz
	8825 kHz	8945 kHz
	13306 kHz	13306 kHz
	17946 kHz	17946 kHz
Family B	2899 kHz	2987 kHz
	5616 kHz	5673 kHz
	8864 kHz	8889 kHz
	13291 kHz	13291 kHz
	17946 kHz	17946 kHz
Family C	2962 kHz	2962 kHz
	5649 kHz	5638 kHz
	8879 kHz	8879 kHz
	13306 kHz	13306 kHz
	17946 kHz	17946 kHz
Family D	2971 kHz	2868 kHz
	4675 kHz	5624 kHz
	8891 kHz	8910 kHz
	11279 kHz	11303 kHz
	13291 kHz	13291 kHz
	17946 kHz	17946 kHz
HF VOLMET		
- GANDER/NEW YORK	3485 kHz	3001 kHz
	6604 kHz	5652 kHz
		8868 kHz
	10051 kHz	13270 kHz
	13270 kHz	
- SHANNON	3413 kHz	2889 kHz
	5640 kHz	5533 kHz
	8957 kHz	8833 kHz
	13264 kHz	13312 kHz

12.6 Frequency designators

12.6.1 It was recalled that the NAT SPG/18 Meeting had agreed with a proposal by Ireland setting out a methodology for determining HF designators for NAT families. It was intended that NAT communication stations would implement the procedure at the introduction of the first phase of the frequency transition programme, i.e. at 0001 on 18 February 1982 (paragraph 9.4.1 NAT SPG/18 refers). This procedure dit not take account of Family D frequency 4675 kHz. It was therefore agreed that the procedure outlined in paragraph 9.4.2 of NAT SPG/18 should be as follows :

Frequency	1st Letter	2nd Letter/NAT Family used
2 MHz/3 MHz	Q	A, B, C or D
4 MHz/5 MHz	T	A, B, C or D
8 MHz	V	A, B, C or D
11 MHz	X	A, B, C or D
13 MHz	Y	A, B, C or D
17 MHz	Z	A, B, C or D

12.6.2 The Group was aware that the HF designators which were used in the NAT Region by mutual agreement of the States concerned, were different from those recently circulated by ICAO. In this regard, it was observed that the latter designators were intended for use on an optional basis.

12.7 Review of abbreviations in ICAO Doc 8400

12.7.1 It was recalled that at its previous Meeting the Group had developed a list of abbreviations, additional to those contained in ICAO Doc 8400, to cover satisfactorily all requirements in day-to-day message exchanges between communication stations and OACs. The Group had also agreed to keep this list under review in the light of practical experience, before possibly developing a comprehensive proposal for amendment of Doc 8400.

12.7.2 The Group was informed that comments on the list had been received by the ICAO Secretariat advocating the adoption of a uniform set of abbreviations throughout all sectors of aviation operations. It was also reported to the Group that the abbreviation "HIER" for "Higher" included in the list, was found to be unsuitable, since it had an unrelated meaning in the French language (hier = yesterday). It had been proposed to change 'HIER" to "HYR".

12.7.3 In the opinion of the Group, the only means to arrive at a uniform worldwide use of the NAT SPG-developed new abbreviations was their inclusion in ICAO Doc 8400. The Member from Canada undertook to take the necessary action within his Administration to ensure that an appropriate proposal developed in co-ordination with the Secretariat would be presented to ICAO in the near future.

CONCLUSION 20/8 - PROPOSAL FOR AMENDMENT TO ICAO DOC 8400

That :

a) ICAO Document 8400 be amended to include the abbreviations used in message exchanges between communication stations and OACs as listed in Attachment B to the Report on Agenda Item 12 of the NAT SPG/20 Meeting;

b) the Member from Canada take the necessary action within his Administration to ensure that an appropriate proposal for amendment, co-ordinated as necessary with the ICAO Secretariat, be presented to ICAO.

12.7.4 It was also agreed that a revised list of new abbreviations, incorporating the change indicated in paragraph 12.7.2 above, should be attached to the present Report (cf. Attachment B to Item 12). It was noted that of all the abreviations contained in the attached list only three were at present in conflict with Doc 8400. These were "HVY" for "Heavy", "IMM" for "Immediately" and "PX" for "Position".

12.8 Interference on new NAT HF channels

12.8.1 It was reported to the Group that on frequent occasions NAT HF RTT channels 5616 kHz, 8864 kHz, 8891 kHz and 13306 kHz had been interfered with by stations operating on adjacent channels. These frequencies had been put in operation at NAT stations following the implementation of the ICAO Transition Programme from HF DSB to SSB operation.

12.8.2 While appreciating that shortcomings of this kind could well be expected in view of the complex frequency management implications of the Transition Programme, the Group nevertheless agreed that urgent measures were required for the elimination of the reported interferences. It was noted that the States concerned intended to take appropriate action through the ICAO Secretariat.

12.9 Provision of HF phone-patch facilities

12.9.1 It was recalled that the NAT SPG/19 Meeting had not reached firm conclusions regarding the implementation of phone-patch facilities for the establishment of direct controller/pilot communications on the ICAO NAT HF channels. It had been agreed that States using phone-patch facilities should report on related experience and any problems encountered.

12.9.2 The Group was apprised of the results of monitoring conducted at the Gander station in the period 20 May - 29 December 1982 and covering 28 phone-patches. It was reported that one of these phone-patches had been established between an aircraft and an OAC to pass "route deviation due weather" information. The remaining 27 phone-patches were established for direct contacts between aircraft and the aircraft company dispatcher or agent.

12.9.3 The discussions revealed that the reported use of phone-patch for company operational control purposes was considered unwarranted and would be eliminated through appropriate instructions to pilots and ground stations. Phone-patch on NAT HF ATC channels should be utilized only for communications between pilots and ATC in situations of particular urgency. Equipment providing for phone-patch facilities was already available in some States and was planned to be implemented in the very near future in other States, with the possibility of patching communications on all frequencies. It was also observed that the availability of the phone-patching technique would be in conformity with the intent of a proposed Recommendation 6.1.3.3 in Annex 11 providing for direct and rapid communication between aircraft and Area Control Centres.

12.9.4 On this basis, the Group confirmed its view that direct access to the HF equipment by the air traffic controller was desirable in those cases where pilot/controller communications would otherwise involve critical delays. At the same time, the Group wished to encourage the proper use of phone-patch, in particular with regard to its misuse for communications of a company operational control measure.

CONCLUSION 20/9 - USE OF PHONE-PATCH FACILITIES

That, where phone-patch facilities are available in a NAT OAC COM centre for the establishment of direct pilot/controller communications, provisions be made to limit the use of such facilities to situations of particular urgency.

12.10 Developments with respect to HF data links

12.10.1 Further to the information provided to the NAT SPG/19 Meeting (cf. NAT SPG/19-Report, paragraph 9.8), the Member from the USA apprised the Group on new developments in the field of HF data link. The ARINC work had progressed through a series of point-to-point tests between the US West coast and Annapolis, leading to preparations for a flight test mode during the second quarter of 1983. HF data link equipment had been installed at the New York and San Juan ARINC aeronautical stations and an airborne test package for the flight tests had been prepared. The flight tests of the ARINC HF data-link were to be conducted by using the Long Distance Operational Control Facility HF channels, with the data mode operating only during the idle periods of voice operation. The special ARINC HF data link control equipment would be capable of sensing on which HF channel an aircraft is transmitting data link signals and would automatically select the proper transmitter channel to reply to the aircraft.

12.10.2 Mention was also made of an experiment being carried out by Canada related to the use of a HF data link. Point-to-point tests between Norway and Ottawa had been conducted successfully. These tests demonstrated that HF data link operation, even under severe test conditions, was possible using a specially designed spread spectrum modem which transmits data at 300 bits per second in the 3-30 MHz band. This modem can successfully transmit data in spite of multipath fading, narrowband interference and frequency offset.

12.10.3 The Group noted this information and expected to be kept posted on further developments in this field.

12.11 Aeronautical fixed telecommunications

12.11.1 The Group was informed of a number of improvements in aeronautical fixed telecommunications, particularly with the provision of direct ATS speech circuits between OACs. A satellite channel was now available for direct controller-to-controller communications between Santa Maria and Shanwick OACs. In addition, the present arrangements for direct communications via a dedicated satellite channel between Santa Maria and New York, Gander and San Juan which required manual switching at New York OAC were expected to be improved by the provision of dialling and signalling facilities in Santa Maria to permit automatic switching in New York in the near future.

12.11.2 The Group was presented with a summary of the conclusions reached at the Fourth Informal NAT AFTN/AFS Meeting (November 1982) concerning the routing of AFS circuits in the Northern part of the NAT Region after 1985, when all or part of the cables currently in use (ICECAN/SCOTICE) are expected to be no longer available. The envisaged post-1985 circuit configuration was based on available up-to-date information regarding the future use of satellites and of cables other than ICECAN and SCOTICE.

12.11.3 The Fourth NAT AFTN/AFS Meeting had also agreed with the requirement to re-engineer the omnibus speech circuit Prestwick-Reykjavik-Gander. This involved the introduction of a new signalling system and the provision of a switch in Reykjavik to facilitate the splitting of the omnibus circuit.

12.11.4 The Group noted this information and expected to be advised, in due course, concerning further developments in this field.

NAT ANNUAL HF DATA COLLECTION

INSTRUCTIONS FOR COMPILATION OF ANNUAL RETURN

1. Count POSITION REPORTS only - and those position reports where you are the station of read-back.

2. Prepare a table for your particular station, divided in hours for each frequency as shown in the Specimen at page 12-A-4. The time in the left hand "hour" column refers to the time of receipt of the REPORT, not the time of the position. Hour 0000-0059 covers the period midnight to 0059, hour 0100-0159 the period 0100-0159, etc.. You may use either the frequency letters or state the frequency in figures at the top of each column. Complete the table with hourly totals for all frequencies used during the Data Collection days.

3. When this table is complete, the two busiest frequencies should be determined as follows :

a) San Juan, New York, Santa Maria, Reykjavik and Søndrestrøm

Choose the two frequencies which have the highest total of position reports for the whole 24 hours.

b) Gander, Shannon

Choose the two frequencies which show the heaviest total over a period of two to three hours.

Since this is a "sampling" exercise, if the totals are very nearly equal, making choice difficult, it is not likely to make much difference which two are chosen.

4. All Stations

4.1 As shown in the Specimen at page 12-A-5, a table can be prepared for each of the two selected frequencies. Go through the hard copy for the two selected frequencies for the whole 24 hours, but remember - for position report messages only, and only where you are the station of read-back. Look at the time of receipt of the report and compare it with the time of the position, the difference being the time of delay. Insert a tick in the relevant place in the table, remembering that the time in the left hand "hour" column refers to the time of receipt of the report, not the time of the position.

e.g. : Position Report received at 1405
Time of position 1355

Time difference 10 minutes

Therefore, tick the "10 minute" delay box for the period 1400-1459.

5. If the delay is more than 12 minutes, tick the > 12 box and note the actual delay in the "Notes" column. If you receive a report at say 1401 and it refers to a position at 1402, tick the "-1" column. If the delay time difference relates to a domestic fix or to a light low level aircraft, include the tick in the appropriate column, but place an asterisk against the tick. This factor can then be taken into account if necessary in the analysis. If an occasional "delay" of -2 minutes arises, you can annotate the tick in the "-1" column with, say a + and note the actual "delay" in the "Remarks" column.

6. To obtain the mean delay for each hour, obtain the total delay of all reports for that hour, and divide by the number of reports. An example of this for the period 1300-1359 is shown in the Specimen at page 12-A-6.

2	reports	of	1	minute	delay	= 2
4	"	of	2	"	"	= 8
2	"	of	3	"	"	= 6
2	"	of	4	"	"	= 8
2	"	of	5	"	"	= 10
1	"	of	8	"	"	= 8
1	"	of	10	"	"	= 10

Total reports 14 Total delay 52 mins

Mean delay = 54 ÷ 14 = 3.7 mins

7. To obtain the mean delay for each day, obtain the total delay of all reports for each frequency and divide by the number of reports.

8. To obtain the mean delay time for the station, obtain the total delay of all reports and divide by the total number of reports.

9. The Authority responsible for the data collection will determine the system delay time by dividing the total delay time by the total number of reports received from the stations. A graphic presentation of the percentage of messages within each delay time should also be included in the Report prepared by the above Authority.

10. When the nine forms are completed, send them to :

Civil Aviation Authority (CG2)
Room T901
CAA House
45-59 Kingsway
London WC2B 6TE

11. Retain the "hard copy" for the collection day for a period of three months from date of dispatch of the forms in case we wish to ask you for any additional information after the returns for the other stations have been examined.

12. If you have any information you wish to pass on (e.g. the hours) this can be written on the back of the form. If you have any queries while you are preparing the information, ask Shanwick (Ballygirreen) for advice, using the AFTN address EIAAYF. If they cannot supply the answer immediately, they will be able to contact the United Kingdom CAA Section (CG2) and obtain further advice.

13. The date days will normally be in either July or August each year, and the decision on the date will be made early in September.

14. It is desirable to resume the past practice of including in the final report on data collection a map showing the track configuration for the days selected for the exercise.

DISTRIBUTION OF POSITION REPORT BY TIME AND FREQUENCY

STATION : .....

DATE : .....

HOUR	QA	TA	VA	QB	TB	VB	QC	TC	VC	QD	TD	VD	YA	YC	HF TTL	127.9	127.1	126.9	VHF TTL
0000-0059	-	1	1	2	1	-	-	3	-	-	6	-	-	-	14	1	6	8	15
0100-0159	4	3	-	2	6	-	1	2	-	-	6	-	-	-	24	-	19	14	33
0200-0259	9	10	-	4	5	-	5	4	-	-	7	-	-	-	44	-	21	30	51
0300-0359	6	10	-	17	6	-	4	5	2	-	5	1	-	-	56	-	15	24	39
0400-0459	6	7	-	11	7	1	5	11	-	-	3	-	-	-	51	2	4	54	60
0500-0559	3	13	1	9	9	-	4	7	-	-	5	-	-	-	51	3	17	5	25
0600-0659																			
0700-0759																			
0800-0859																			
0900-0959																			
1000-1059																			
1100-1159																			
1200-1259																			
1300-1359																			
1400-1459																			
1500-1559																			
1600-1659																			
1700-1759																			
1800-1859																			
1900-1959																			
2000-2059																			
2100-2159																			
2200-2259																			
2300-2359																			
TOTALS																			

POSITION REPORT DELAYS

STATION : ..... FREQUENCY : ..... DATE : .....

HOUR	Delay times in minutes															Totals		Mean delay per hour	Notes
	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	>12	POS.	min.		
0000-0059																			
0100-0159																			
0200-0259																			
0300-0359																			
0400-0459																			
0500-0559																			
0600-0659																			
0700-0759																			
0800-0859																			
0900-0959																			
1000-1059																			
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1200-1259																			
1300-1359																			
1400-1459																			
1500-1559																			
1600-1659																			
1700-1759																			
1800-1859																			
1900-1959																			
2000-2059																			
2100-2159																			
2200-2259																			
2300-2359																			
Total POS.																			Mean delay time:

POSITION REPORT DELAYS

DATE : JULY 19, 1981 STATION : GANDER FREQUENCY : 8854

Delay times in minutes

HOUR	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	>12	TOTAL POS.	TOTAL min.	Mean delay per hour	Notes
0000-0059																			
0100-0159																			
0200-0259																			
0300-0359																			
0400-0459																			
0500-0559																			
0600-0659																			
0700-0759																			
0800-0859																			
0900-0959																			
1000-1059																			
1100-1159																			
1200-1259																			
1300-1359			✓✓	✓✓✓	✓✓	✓✓	✓✓			✓		✓				14	52	3.7	
1400-1459																			
1500-1559																			
1600-1659																			
1700-1759																			
1800-1859																			
1900-1959																			
2000-2059																			
2100-2159																			
2200-2259																			
2300-2359																			
TOTALS	0	0	$2^{\times}1$ =2	$4^{\times}2$ =8	$2^{\times}3$ =6	$2^{\times}4$ =8	$2^{\times}5$ =10	0	0	$1^{\times}8$ =8	0	$1^{\times}10$ =10	0	0					

ABBREVIATIONS FOR USE BY COMMUNICATIONS STATIONS

ACK	Acknowledge
AFM	Affirmative
ANS	Answer
APSG	After passing
APV	Approve, Approved, Approval
ARNG	Arrange
BFR	Before
CF	Change to ..... (Frequency)
CK	Check
CLG	Calling
CLRSU	Clears You
CMB	Climb
CRZ	Cruise
CTC	Contact
DEV	Deviation, Deviating
DIV	Divert, Diverting
E/B	Eastbound
FPR	Flight Plan Route
FR	Fuel remaining
HYR	Higher
HVY	Heavy
IMM	Immediately
LVE	Leave
LVL	Level
NBFR	Not before
NEG	Negative
NRH	No reply heard
PCD	Proceed, Proceeding
PCPN	Precipitation
PLVL	Present Level
PPX	Present Position
PSG	Passing
PX	Position
RCH	Reach, Reaching
RECLR	Recleared
RECLRSU	Reclears You
RERTE	Reroute
RL	Report Leaving
RLA	Relay to
RR	Report Reaching
RTE	Route
RTN	Returned, Returning
STD	Standard
UHDT	Unable Higher Due Traffic
UNA	Unable
UNAP	Unable to Approve
UR	You are
VCTY	Vicinity
W/B	Westbound
WT	Weight
X	Cross
XNG	Crossing

Agenda Item 13 : Assessment of the impact of technological developments on the overall NAT System

13.1 Introduction

13.1.1 Although this matter was specifically related to the longer-range developments discussed under Item 14, the Group nevertheless had an exchange of views on developments with regard to the use of space technology in the field of air navigation.

13.1.2 The Group recalled that satellite technology has for some years been recognised as a means of improving air/ground communications in oceanic and other areas where the provision of VHF coverage is either impracticable or uneconomic. To date, however, no cost effective plan for implementation of a satellite for such purposes has emerged, even for the NAT Region with its relatively dense traffic environment. This has largely been due to the high launch costs of dedicated satellites, costs of sophisticated airborne avionics and ground infrastructure and the long period necessary before any return could be obtained on investment.

13.1.3 Recent initiatives to ICAO from satellite system providers, in particular an offer from INMARSAT for the provision of an aeronautical facility on its next generation satellites (due to be launched 1988 onwards) at no initial cost to the civil aviation community, presented a new concept of a shared satellite facility which would merit in-depth exploration.

13.2 Factors favouring a shared satellite facility

13.2.1 The possibility of co-operation between maritime and aeronautical communities in the provision of mobile satellite communication facilities would overcome, to a large extent, the practical and economic disadvantages related to the use of dedicated satellite systems. Among the factors favouring such co-operation would be :

a) the prospect of mutually beneficial economies through optimised satellite loadings;

b) the opportunity of using an existing functioning system unconstrained by normal lead times for satellite design, development and manufacture;

c) the availability of an existing institutional and managerial framework that oversees service establishment and operation (eg. INMARSAT);

d) the possibility of reducing unit costs of avionics resulting from the possible future development of aeronautical terminals with components in common with those used in maritime terminals (eg. PROSAT).

13.2.2 The operational benefits of a satellite facility would include :

a) the opportunity to exploit greater data rates than past technology has permitted;

b) a guarantee of continuity of service achieved through the use of a high level of redundancy within individual satellites and the availability of "hot" standby satellites in orbit;

c) the capability of reliable high-quality and virtually instantaneous communications, if required.

13.3 NAT functional requirements

13.3.1 Most of the capacity for communications would be required for transmitting aircraft position reports (currently 85% of communication traffic). In a satellite communications environment, the frequency of position reports could be increased and acquired automatically (without pilot intervention). The automatic position report message would be routed through ground communication facilities to ATC units and directly to controller displays. This would permit the NAT Air Navigation System to evolve from a strategically-based to a flexible system based on tactical control.

13.3.2 The provision of a satellite voice communication facility could involve a six-fold increase in satellite power requirements with corresponding increase in cost of provision. If a satellite data-only link is chosen, a HF SSB voice facility will need to be retained in the system for non-routine messages and for all communications from non-participants. This HF facility would be used at a very much reduced level.

13.4 Potential NAT Satellite System concept

13.4.1 For the NAT Region, a network configuration for the satellite coverage area of two earth stations could be envisaged. Only one station would communicate through the satellite to an aircraft at any time, the other station monitoring aircraft transmissions received from the satellite thus serving as an on-line back-up. Data could be transferred between stations either by satellite or by leased lines. Communications between the earth stations and ATC units would be by land lines or fixed satellite links. Transmissions from the earth station via the satellite to aircraft would consist of interrogations as well as routine messages. The interrogation facility would allow polling of individual aircraft periodically to automatically transmit position, and other flight data. Operation of the aircraft terminal would be automatic; additional information could be transmitted from the aircraft either by manual or automatic entry.

13.5 Possible implementation time scale

13.5.1 One of the factors favouring the use of a shared satellite facility would be the possibility of a gradual and evolutionary approach to the introduction of a satellite-based system in the aviation community. Based on information regarding existing and planned systems, a trial programme could be initiated towards the end of the 1980's within a possible system implementation in the late 1990's.

13.6 Concluding discussion

13.6.1 The Group believed that the proposed programmes of INMARSAT and PROSAT offered a low-risk, low-cost possibility for the NAT aviation community to assess mobile satellite communications and welcomed the opportunity this afforded. The Group declared its interest in the matter and agreed to keep it under close review. In this connexion, the Group noted the increased ICAO activity in this area and expressed the wish to be kept informed of developments.

13.6.2 The representative of IATA also stated that his Organization was closely monitoring these developments and that exploratory discussions had been held with INMARSAT. In his view, cost factors would be the primary consideration. While it was appreciated that space-segment costs would be minimal, the cost of the required avionics and the development of the ground system would need to be closely examined.

13.6.3 The Member from the USA informed the Group that the United States Global Positioning System (GPS) was expected to become operational by 1988 and that this system would be available for use by the civil aviation community.

13.6.4 The Member from Canada informed the Group that his Administration had initiated experimental programmes relating to the use of a HF data link and of satellite air-ground communications (para 12.10 refers). He undertook to keep the Group informed of the results of these programmes.

CONCLUSION 20/10 - DEVELOPMENTS IN NEW TECHNOLOGY

That ICAO and States concerned keep the NAT SPG informed of developments and experiments in the field of new technologies which might be used in the NAT Air Navigation System at some time in the future (e.g. HF data link, space technology, INMARSAT activities, PROSAT programme).

Agenda Item 14 : Development of a statement of future functional requirements concerning the Air Navigation System in the NAT Region

14.1 At its last Meeting, the NAT SPG had included the development of a statement of future functional requirements on its work programme as a special review item (NAT SPG/19-Summary, para 11.3.1 o) refers). The Group was now presented with a number of working papers on this subject and, in particular, with a comprehensive document prepared by the Member from Canada covering all major elements of the system as well as possible requirements in the medium and long term.

14.2 When discussing the matter in detail it became obvious that the subject was highly complex and that its elements were inter-related and needed careful consideration in order to arrive at balanced and coherent proposals for an evolutionary development of the Air Navigation System of the NAT Region. From this, the Group concluded that it was now necessary for it to devote a significant effort to develop longer term plans for provision of air traffic services in the North Atlantic.

14.3 While in the immediate past the Group had essentially concentrated its efforts on current to short term activities, it was recognized that the potential for further improvements in this regard was now very limited. It was also perceived that there could be significant advantages if a long term plan covering the entire NAT Air Navigation System could be developed in time for consideration by the forthcoming LIM NAT (RAC/COM/MET) RAN Meeting, now scheduled for the latter part of 1985 (see also Item 15). This would then permit the NAT SPG to concentrate significant efforts on co-ordinating and implementing approved concepts.

14.4 With this in mind, the Group agreed to hold a Special Meeting of the NAT SPG in Montreal in October 1983 for the purpose of preparing comprehensive proposals for an evolutionary development of the NAT Air Navigation System up to the year 2000. These proposals should take into consideration the inter-related aspects of safety, traffic demands, user needs, cost effectiveness and technological developments.

14.5 To this end all Members of the NAT SPG, including the participating User Organizations, agreed to submit supporting documentation dealing with the medium and long term issues prior to the Special NAT SPG Meeting in order to facilitate the work of the Group. It was also the opinion of the Group that it would be important to ensure the continuity of the customary Secretariat services provided by ICAO to the NAT SPG, since this subject area would be a major topic at subsequent meetings.

CONCLUSION 20/11 - SPECIAL MEETING OF THE NAT SPG

That a Special Meeting of the NAT SPG be convened in October 1983 for the purpose of preparing comprehensive proposals for an evolutionary development of the NAT Air Navigation System up to the year 2000, taking into account the inter-related aspects of safety, expected air traffic demands, user requirements, cost effectiveness and technological developments.

14.6 The Group also discussed the implications of a possible reduction of vertical separation above FL 290. While noting that no significant further progress had been made by the Review of the General Concept of Separation (RGCS) Panel of ICAO, a number of States (Canada, Japan, the USA, the USSR and some Eurocontrol Member States) were currently engaged in data collection on height keeping accuracy in support of the work of that Panel.

14.7 Considering that the type and quality of altimeters carried on board aircraft operating in the NAT MNPS airspace were such that height keeping accuracy within that airspace could be expected to be generally superior than in other areas, it was felt that, under certain circumstances, introduction of a 1000ft vertical separation minimum above FL 290 might become acceptable. The representative of IATA stated that his Organization would be supportive of any studies in this direction.

14.8 With this in mind, it was agreed that the NAT SPG should closely monitor the activities of the RGCS Panel and should undertake, at the same time, preliminary work which would allow a rapid introduction of reduced vertical separation above FL 290, should this become a feasible proposition in the NAT Region.

14.9 It was realised that specific simulation exercises might eventually be required to prove operational acceptability of such a reduced vertical separation and to allow the development of the necessary ATC procedures. While this was a matter which would only arise at some time in the future, the Group felt that, in the meantime, States concerned should assess the scope of likely operational problems and to determine the impact which a reduction of vertical separation could have on the overall NAT Air Navigation System.

14.10 In an exchange of views on this subject, the Group believed that, if reduced vertical separation was to be limited to the NAT Region, it might be accomplished fairly easily within the Organized Track Structure, but may prove somewhat more difficult to be applied in other portions of the MNPS airspace of the NAT Region. However, problems could be expected in the oceanic/domestic transition areas where the levels of aircraft would have to be adjusted to a 2000ft vertical separation environment prevailing in continental airspace.

When compared with the operational implications of introducing 30NM/1000ft composite separation, it was felt that a reduced vertical separation in 60NM lateral track spacing could prove less difficult to achieve. This was the case primarily because, with composite separation, the vertical element of reduction was combined with a reduction of lateral spacing of aircraft which required additional way-points and link-routes, and impacted severely on the airspace and ATC organisation.

14.11 In view of this, the Group agreed that it would be useful if States concerned were to study these matters and to report their findings to the next regular Meeting of the NAT SPG.

CONCLUSION 20/12 - STUDIES RELATED TO THE REDUCTION OF VERTICAL SEPARATION IN THE NAT REGION

That provider States in the NAT Region study the implications of a possible introduction of reduced vertical separation above FL 290 within NAT MNPS airspace in order to determine its practical feasibility from an operational point of view.

Agenda Item 15 : Exchange of views regarding the LIM NAT (RAC/COM/MET) RAN Meeting

15.1 The Group was informed that, for planning and budgetary purposes within ICAO, a Limited NAT (RAC/COM/MET) RAN Meeting had now been tentatively scheduled for 1985. It was recalled that the need to convene such a meeting to deal with a number of ATS and COM problems in the NAT Region had been foreseen for some years. It was noted that the Meeting would also consider matters in the field of MET, in relation to the new area forecast system agreed by the COM/MET Divisional Meeting (1982).

15.2 The Group was also of the opinion that the Limited NAT RAN Meeting would provide an opportunity for a consideration of the long-term development of the Air Navigation System in the NAT Region. Recalling its discussion of this topic under Item 14, the Group believed that the results of the forthcoming Special Meeting of the NAT SPG will provide a basis for the development of proposals in this respect.

15.3 Having regard to the anticipated progress in its work programme, it appeared to the Group that the most opportune time to convene the LIM NAT (RAC/COM/MET) RAN Meeting would be during the second half of 1985.

15.4 The Group agreed to discuss these matters in detail at its next regular Meeting, with a view to preparing proposals on the subjects that would need consideration by the LIM NAT (RAC/COM/MET) RAN Meeting.

Agenda Item 16 : Updating of the work programme of the NAT SPG

16.1 Introduction

16.1.1 When reviewing and updating the future work programme of the NAT SPG on the basis of the discussions at this Meeting, it was found useful to group the various tasks to be performed under broader subject headings. It was agreed that the agenda of future meetings of the NAT SPG should be developed in accordance with progress achieved during the period between meetings and that supporting documentation should be arranged in a way suitable to assist the Meeting in advancing its work.

16.2 Future work programme

16.2.1 SYSTEM SAFETY PERFORMANCE REVIEW

a) Target level of safety factors :

i) lateral performance
ii) longitudinal performance
iii) vertical performance
iv) occupancy
v) others

b) ATC System Loop Errors

16.2.2 AIR NAVIGATION SYSTEM OPERATIONS REVIEW

a) Air Traffic Services Operations :

i) Application and refinement of separation standards

ii) Review of progress in ATS operational contingency planning in the NAT Region

iii) Review of domestic/oceanic interface problems, and transition problems adjacent to MNPS airspace

iv) Review of short term ATS improvements and efforts towards further improvements

v) Further improvements regarding crossing and joining traffic in the NAT Region

vi) Flight planning processes

b) Communications Operations :

i) Fixed services
ii) Mobile services

16.2.3 TECHNOLOGICAL DEVELOPMENT

a) Automatic Data Processing in OACs - review of plans/problems

b) Developments in navigation systems (Omega/INS mix, Global Positioning System (GPS), etc.)

c) Data Link development (satellite, HF)

16.2.4 PLANNING

a) Development of medium and long term NAT Air Navigation Plans

b) Further efforts towards the introduction of 30 NM/1000 ft composite separation in the NAT MNPS airspace

c) Consideration of the possible introduction of reduced vertical separation above FL 290 in the NAT Region

16.2.5 GENERAL MATTERS

a) Updating of the NAT Guidance and Information Material and the NAT MNPS Operations Manual

b) Consideration of problems regarding IGA operations in the NAT Region

i) IGA Information Document
ii) Lower limit of controlled airspace

c) Preparation for LIM NAT (RAC/COM/MET) RAN Meeting

d) Improvements regarding the collection and use of statistical data in the NAT Region both for air traffic forecasting and traffic management purposes

16.3 Arrangements for the Special Meeting of the NAT SPG

16.3.1 As reflected in the Summary of Item 14, the NAT SPG will convene a Special Meeting from 19 to 25 October 1983 in Montreal, exclusively devoted to the preparation of comprehensive proposals for an evolutionary development of the NAT Air Navigation System up to the year 2000. In preparation for this Meeting, all Members, participants and user organizations will circulate their views on this matter in good time prior to that Meeting.

16.4 Specific activities until next regular Meeting of the NAT SPG

16.4.1 In particular, the following specific results are expected for the next regular Meeting of the NAT SPG :

a) progress report from the flight planning task force of the Group (Item 4 refers);

b) consolidated proposals for the application of separation standards in the NAT Region (Item 1, para 1.6 refers);

c) consolidated proposals on specific improvements that could be made to the NAT Air Navigation System in the short term (Item 3 refers).

16.5 Arrangements for the next regular Meeting of the NAT SPG

16.5.1 It was agreed that the next Meeting of the NAT SPG should be held in the European Office of ICAO for a duration of two weeks. With regard to the likely dates for the Meeting, it was agreed that it should tentatively be planned for 2-13 April 1984, on the understanding that this would be specifically confirmed after consultation among the Members.

Agenda Item 17 : Election of Chairman

17.1 The Group unanimously re-elected Mr. F. Rico (France) as its Chairman and Mr. G. Matthiasson (Iceland) as its Vice-Chairman for another term.

17.2 The Members of the Group took the opportunity to compliment Mr. Rico for the excellent manner in which he had conducted the Meeting of the NAT SPG.

Agenda Item 18 : Any other business

18.1 Under this Item the Group noted information provided by its Member from Iceland regarding a study which was currently undertaken on the possibility to remote SSR data from a radar station located at Höfn on the South-East coast of Iceland to the Reykjavik ACC to complement SSR data already available from the radar station at Keflavik. It was believed that this could solve some of the crossing problems encountered in the South-Eastern part of the Reykjavik CTA and would be of benefit for flights to the mid-West of the USA, sub-polar flights, as well as flights originating in Northern Europe operating north of the OTS and flights using the special routes for aircraft not certified to operate in MNPS airspace. It was noted that this matter was still the subject of a feasibility study and that Iceland would obtain the views of the airspace users before a decision to implement the project would be taken.

18.2 The representative of IATA pointed out that this matter had not yet been discussed among its Member airlines, but that a co-ordinated position of the operators would be developed in due course.

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