



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**REPORT OF THE
FOURTH NORTH ATLANTIC
REGIONAL AIR NAVIGATION MEETING**

Paris, 14 September - 9 October 1961

This Report contains the recommendations of a Regional Air Navigation Meeting. For details of the action taken on the Report by the Council of ICAO, refer to the Supplement.

**Approved by the Meeting
and issued by authority of the Secretary General**



Doc 8192, NAT IV
CORRIGENDUM No. 3
(to English Edition)
11/4/62

INTERNATIONAL CIVIL AVIATION ORGANIZATION

FOURTH NORTH ATLANTIC
REGIONAL AIR NAVIGATION MEETING

Paris, 14 September - 9 October 1961

Corrigendum No. 3

Table MET 1

1. Page 11-6 : Against "Gander/International", insert "MWO" in Col. 2 and "AF" in Col. 8.

Against "Québec", amend "SMO" in Col. 2 to read "SMO*".
2. Page 11-9 : Against "Shannon", insert "MWO" in Col. 2 and a comma after "(South of 54° N)" in Col. 9.

Against "Milano/Linate", insert "AF" in Col. 8.
3. Page 11-10 : Against "Bodø", insert "MWO" in Col. 2.
4. Page 11-11 : Against "Madrid/Barajas", insert "MWO" in Col. 2.
5. Page 11-13 : Against "Prestwick", amend "Shannon FIR (North of 54° N)" in Col. 9 to read "Shanwick FIR (North of 54° N)".

- END -

ORGANISATION DE L'AVIATION
CIVILE INTERNATIONALE



ORGANIZACIÓN DE AVIACIÓN
CIVIL INTERNACIONAL

15

INTERNATIONAL CIVIL AVIATION ORGANIZATION

INTERNATIONAL AVIATION BUILDING
1080 UNIVERSITY STREET
MONTREAL 3, P.Q., CANADA

WHEN REPLYING, PLEASE QUOTE:
RÉFÉRENCE À RAPPELER DANS LA RÉPONSE:
INDÍQUESE EN LA RESPUESTA ESTA REFERENCIA:

SR 76/2 - 7733

11 JAN 1962

To: ICAO Representative, Paris

cc: ICAO Representatives, Mexico
Lima
Bangkok
Cairo

From: ASG/AN

Subject: Follow-up of Recommendations of the NAT IV RAN Meeting

You will now have received the copies of the Montreal Edition of the Report of the Fourth NAT RAN Meeting (Doc 8198, NAT/IV) and Supplement No.1 which were sent from Headquarters via mail bag on 22 Dec 1961. Distribution of copies to all Contracting States of the NAT Region by air cargo has also been completed.

Attached is a List indicating the agreed assignment of responsibility between the Headquarters ANB Sections concerned and the Paris Office for further follow-up action on the recommendations of the NAT IV RAN Meeting.

T. S. Banes
T. S. Banes

Attachment:

List of agreed assignment of responsibility for the Follow-up of Recommendation of the IV NAT RAN Meeting.

ORGANISATION DE L'AVIATION
CIVILE INTERNATIONALE



ORGANIZACIÓN DE AVIACIÓN
CIVIL INTERNACIONAL

15 JAN. 1962

INTERNATIONAL CIVIL AVIATION ORGANIZATION

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L. Ch.
T. S. Banes

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ATTACHMENT

Assignment of Responsibility for the Follow-up of Recommendations of Fourth IAT RAN Meeting (Doc 3193, IAT IV)

- LEGEND -

- Category '1' - Recommendations which the Paris Office will follow up on own initiative.
- Category '2' - Recommendations which the Paris Office and the ANB Section concerned will follow up jointly, the specific responsibilities to be decided by Headquarters; or those recommendations on which the Paris Office will take direct follow-up action only after receipt of guidance from Headquarters.
- Category '3' - Recommendations on which action will be taken by Headquarters.
- Note: Ø - Recommendations on which comments have been made by the Council or the Air Navigation Commission (see Doc 3193, IAT IV, Supplement No. 1).

<u>Recommendations</u>		<u>Suggested Follow-up</u>
i) <u>Subcommittee 1</u>		<u>Category</u>
Ø 2/1	-	3 (OPS)
Ø 2/2	-	3 (OPS, COM, RAC)
4/1	-	1 #
4/2	-	1 #
4/3	-	1
4/4	-	1
4/5	-	1 #
4/6	-	1 #
Ø 4/7	-	2 (COM)
4/8	-	1 #
4/9	-	1
4/10	-	1 #
4/11	-	1 #
Ø 4/12 1)	-	1
Ø 4/12 2)	-	3 (COM, AIS)
4/13	-	1 #
Ø 4/14	-	1 #
4/15	-	1 #

ATTACHMENT

Assignment of Responsibility for the Follow-up of Recommendations of the Fourth NAT RAN Meeting (Doc 8193, NAT IV)

-- LEGEND --

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<u>Recommendations</u>		<u>Suggested Follow-up</u>
i) <u>Subcommittee 1</u>		<u>Category</u>
Ø 2/1	..	3 (OPS)
Ø 2/2	..	3 (OPS, COM, RAC/SAR, MET)
1/1	..	1
1/2	..	1 #
1/3	..	1
1/4	..	1
1/5	..	1 #
1/6	..	1 #
Ø 1/7	..	2 (COM)
1/8	..	1 #
1/9	..	1
1/10	..	1 #
1/11	..	1 #
Ø 1/12 1)	..	1
Ø 1/12 2)	..	3 (COM, AIS)
1/13	..	1 #
Ø 1/14	..	1 #
1/15	..	1 #

Corresponding amendment to the ANP Publication will be dealt with by Montreal.

RecommendationsSuggested Follow-upCategory

∅ 4/16	-	3 (COM)
∅ 4/17	-	2 (COM)
5/1	-	1
5/2	-	1
∅ 5/3	-	3 (RAO, AIS)
∅ 5/4	-	3 (AIS)
✓ 5/5	-	1*
∅ 5/6 a)	-	1*
∅ 5/6 b)	-	3 (AIS)
✓ 5/7	-	1*
✓ 5/8	-	1*

ii) COM

6/1 a)	-	1
∅ 6/1 b)	-	2 (COM)
6/2	-	1
6/3 a), b), c)	-	1
∅ 6/3 d)	-	2 (COM, MET)
∅ 6/3 c)	-	2 (COM, MET)
6/4	-	2 (COM, MET)
6/5 a), b)	-	1
∅ 6/5 c)	-	1
6/5 d), e)	-	1
6/6	-	1 #
∅ 6/7	-	3 (AIS)
∅ 6/8	-	3 (COM)
∅ 6/9	-	1
6/10	-	1 #
∅ 6/11	-	3 (COM)
6/12	-	1
6/13	-	1 #
7/1	-	1
∅ 7/2	-	3 (COM)
7/3	-	1
7/4	-	1 #
7/5	-	1 #
∅ 7/6	-	2 (COM)
7/7	-	1
7/8	-	1
7/9	-	1
∅ 7/10	-	1 #
∅ 7/11	-	1 #
∅ 7/12	-	3 (COM)
7/13	-	1
7/14	-	1
7/15	-	1 #
7/16	-	1 #
7/17	-	1 #
7/18	-	1 #
7/19	-	1 #

Note: * Corresponding amendment of SUPPs initiated by Montreal. Follow-up action to be undertaken by the Paris Office on own initiative upon publication in Dec 2020

RecommendationsSuggested Follow-up
Category

Ø 4/16	3 (COM)
Ø 4/17	2 (COM)
5/1	1
5/2	1
Ø 5/3	3 (RAO, AIS)
Ø 5/4	3 (AIS)
✓ 5/5	1*
Ø 5/6 a)	1*
Ø 5/6 b)	3 (AIS)
✓ 5/7	1*
✓ 5/8	1*

ii) COM

6/1 a)	1
Ø 6/1 b)	2 (COM)
6/2	1
6/3 a), b), c)	1
Ø 6/3 d)	2 (COM, MET)
Ø 6/3 c)	2 (COM, MET)
6/4	2 (COM, MET)
6/5 a), b)	1
Ø 6/5 c)	1
6/5 d), e)	1
6/6	1 #
Ø 6/7	3 (AIS)
Ø 6/8	3 (COM)
Ø 6/9	1
6/10	1 #
Ø 6/11	3 (COM)
6/12	1
6/13	1 #
7/1	1
Ø 7/2	3 (COM)
7/3	1
7/4	1 #
7/5	1 #
Ø 7/6	2 (COM)
7/7	1
7/8	1
7/9	1
Ø 7/10	1 #
Ø 7/11	1 #
Ø 7/12	3 (COM)
7/13	1
7/14	1
7/15	1 #
7/16	1 #
7/17	1 #
7/18	1 #
7/19	1 #

Note: * Corresponding amendment of SUPPs initiated by Montreal. Follow-up action to be undertaken by the Paris Office on own initiative upon publication in Doc 7030.

Corresponding amendment to the ANP Publication will be dealt with by Montreal

	7/20	1 #
ø	7/21	3 (COM, AIS)
	7/22	1 #
	7/23	1
	7/24	1
	7/25	1
ø	7/26	3 (COM, MET)
ø	7/27	1
ø	7/28	1
ø	7/29	1
ø	7/30	1
	7/31	1
ø	7/32	2 (COM)
ø	8/1	3 (COM, MET)
	8/2	1
ø	8/3	1
	8/4	1
ø	8/5	2 (COM)
	8/6	1
	8/7	1
	8/8	1
ø	8/9	1
ø	9/1	1*
ø	9/2	1*
ø	9/3	1*

iii) MET

	10/1	3 (MET)
	10/2	3 (MET)
	10/3	3 (MET)
ø	10/4	3 (MET)
	10/5	1
	11/1	1 #
ø	12/1	2 (MET)
	12/2	3 (MET)
	12/3	2 (MET)
	12/4	3 (MET)
ø	12/5	2 (MET)
ø	13/1	3 (MET)
ø	13/2	3 (MET)
ø	13/3	2* (MET)
	13/4	1

iv) RAC/SAR

ø	14/1	1 #
ø	14/2	1 #
	14/3	2 (RAC) Routine with n
ø	14/4	1
ø	14/5	1 #

Note: * Corresponding amendment of SUPPs initiated by Montreal. Follow-up to be undertaken by the Paris Office on own initiative upon publication in Doc 7030.

Recommendations

Suggested Follow-up
Category

7/20
ø 7/21
7/22
7/23
7/24
7/25
ø 7/26
ø 7/27
ø 7/28
ø 7/29
ø 7/30
7/31
ø 7/32
ø 8/1
8/2
ø 8/3
8/4
ø 8/5
8/6
8/7
8/8
ø 8/9
ø 9/1
ø 9/2
ø 9/3

1 #
3 (COM, AIS)
1 #
1
1
1
3 (COM, MET)
1
1
1
1
2 (COM)
3 (COM, MET, RAC, OPS)
1
1
1
2 (COM)
1
1
1
1
1*
1*
1*

iii) MET

10/1
10/2
10/3
ø 10/4
10/5
11/1
ø 12/1
12/2
12/3
12/4
ø 12/5
ø 13/1
ø 13/2
ø 13/3
13/4

3 (MET)
3 (MET)
3 (MET)
3 (MET)
1
1 #
2 (MET)
3 (MET)
2 (MET)
3 (MET)
2 (MET)
3 (MET)
3 (MET)
2* (MET)
1

iv) RAC/SAR

14/1
14/2
14/3
14/4
14/5

1 #
1 #
2 (RAC) Routine follows -
1 with reply to H12.
1 #

Note: * Corresponding amendment of SUPPs initiated by Montreal. Follow-up action to be undertaken by the Paris Office on own initiative upon publication in Doc 7030.

Corresponding amendment to the AMP Publication will be dealt with by Montreal

Recommendations

Suggested Follow-up
Category

14/6	-	1 #
∅ 14/7	-	1
14/8	-	1 #
14/9	-	1
16/1	-	1
∅ 16/2	-	1
16/3	-	1
18/1	-	1*
∅ 18/2	-	3 (RAC)
19/1	-	1 #
19/2	-	1
19/3	-	1 #
20/1	-	1 #
20/2	-	1
20/3	-	1
20/4	-	1
20/5	-	1
20/6	-	1
20/7	-	1
20/8	-	1
20/9	-	1
d 20/10	-	3 (PEL/TRG)
21/1	-	1
22/1	-	1*
23/1	-	1
23/2	-	1
23/3	-	2 (MET)
23/4	-	1
23/5	-	1
23/6	-	1
23/7	-	1
23/8	-	1
23/9	-	1
23/10	-	1
24/1	-	1
∅ 24/2	-	1
∅ 25/1	-	3 (RAO, AIS)
∅ 25/2	-	3 (RAO, MET)

P-5
w-18 and 22 e)

Recommendations

Suggested Follow-up
Category

14/6	1 #
14/7	1
14/8	1 #
14/9	1
16/1	1
16/2	1
16/3	1
18/1	1 *
18/2	3 (RAC)
19/1	1 #
19/2	1
19/3	1 #
20/1	1 #
20/2	1
20/3	1
20/4	1
20/5	1
20/6	1
20/7	1
20/8	1
20/9	1
20/10	3 (PEL/TRG)
21/1	1
22/1	1 *

v) General

23/1	1
23/2	1
23/3	2 (MET)
23/4	1
23/5	1
23/6	1
23/7	1
23/8	1
23/9	1
23/10	1
24/1	1
24/2	1
25/1	3 (RAO, AIS)
25/2	3 (RAO, MET)

- END -

Note: * Corresponding amendment of SUPPs initiated by Montreal. Follow-up action to be undertaken by the Paris Office on own initiative upon publication in Doc 7030.

Corresponding amendment to the ANP Publication will be dealt with by Montreal

INTERNATIONAL CIVIL AVIATION ORGANIZATION*Amended
5/1/62
29/1/62 by*FOURTH NORTH ATLANTIC
REGIONAL AIR NAVIGATION MEETINGParis, 14 September - 9 October 1961Supplement No. 1 - 13 December 1961

The Council, at the Fifteenth Meeting of its Forty-fourth Session on 11 December 1961, took action as indicated in Part I hereunder, on the Report of the Fourth North Atlantic Regional Air Navigation Meeting, on the understanding that these recommendations, unless otherwise qualified in the text, apply only to States of the North Atlantic Region.

Certain recommendations were acted upon directly by the Air Navigation Commission at the 22nd, 23rd and 24th Meetings of its Thirty-eighth Session under authority delegated by the Council. The action taken by the Air Navigation Commission on those recommendations is set forth hereunder in Part II.

PART I

1. The Council approved without comment the following recommendations:

Recommendations:

- 4/1 to 4/6 inclusive (pages 4-2 to 4-6);
- 4/8 to 4/11 inclusive (pages 4-8 to 4-11);
- 4/13 (pages 4-12 and 4-13);
- 4/15 (page 4-14);
- 5/1 and 5/2 (page 5-2);
- 5/5 (page 5-5);
- 6/1 a) (page 6-5);
- 6/2 (pages 6-6 to 6-8);
- 6/3 a), b), c) (page 6-8);
- 6/5 a), b), d), e) (page 6-10);

6/6 (pages 6-11 to 6-20);
6/10 (pages 6-23 to 6-25);
6/12 and 6/13 (pages 6-26 and 6-27);
7/1 (page 7-2);
7/3 to 7/5 inclusive (pages 7-3 and 7-4);
7/7 to 7/9 inclusive (pages 7-5 and 7-6);
7/13 to 7/20 inclusive (pages 7-8 to 7-11);
7/22 to 7/25 inclusive (pages 7-13 to 7-15);
7/31 (page 7-16);
8/2 (page 8-2);
8/4 (page 8-3);
8/7 and 8/8 (page 8-4);
10/1 to 10/3 inclusive (pages 10- and 10-3);
10/5 (page 10-5);
11/1 (pages 11-4 to 11-83);
12/2 to 12/4 inclusive (pages 12-4 to 12-6);
13/4 (page 13-14);
14/1 to 14/6 inclusive (pages 14-3 to 14-7);
14/8 and 14/9 (pages 14-8 and 14-9);
16/1 (page 16-6);
16/3 (page 16-9);
18/1 (pages 18-1 to 18-5);
19/1 to 19/3 inclusive (pages 19-2 to 19-4);
20/1 to 20/3 inclusive (pages 20-1 to 20-3);
20/5 and 20/6 (page 20-6);
20/8 and 20/9 (page 20-7);

21/1 (page 21-4);

23/1 to 23/7 inclusive (pages 23-1 to 23-5);

23/9 and 23/10 (page 23-5);

24/1 a) to 24/1 s) inclusive (pages 24-1 to 24-3).

2. The Council:

Recommendation 2/2 (page 2-12)

Approved the intent of this recommendation, noting that the Air Navigation Commission had added an item to the Air Navigation Work Programme of the Organization to initiate early action to study the technical goals referred to therein.

Recommendation 4/7 (page 4-7)

Approved this recommendation and noted that the Air Navigation Commission had requested the Secretary General to bring it to the attention of the Seventh Session of the Communications Division under Agenda Item 10.3 and also that the Commission would include it in the Air Navigation Work Programme of the Organization.

Recommendation 4/12 (page 4-11)

Approved part 1) of this recommendation, noting that it affirmed as a continuing requirement Recommendation No. 44 of the Third NAT RAN Meeting, and directed the Secretary General to bring the recommendation to the attention of States operating OSV's in the NAT region. It noted also that the Air Navigation Commission would consider further part 2) of the Recommendation with a view to determining whether the existing arrangements for making available the information in question were adequate and, if not, the most suitable form in which the information should be made available.

Recommendation 4/14 (page 4-14)

Approved this recommendation noting that the requirements specified in part 1) had been recommended for deletion from the NAT Plan on the basis that the facilities were included as requirements in the EUM Regional Plan where they would remain.

Recommendation 4/17 (page 4-17)

Referred the recommendation and associated material to the Joint Support Committee for consideration in conjunction with proposals that had been before the Committee on this matter, noting that the ANC maintains its view that for technical reasons a 1000 KW installation would be desirable.

Recommendation 5/4 (page 5-3)

Approved this recommendation noting that it complemented AIS/MAP. Recommendation 9/1 on the same subject and that it was independent of Recommendation 5/3 of the NAT RAN Meeting.

Recommendation 5/6 a) (page 5-5)

Modified the Regional Supplementary procedure as outlined hereunder, noting that Annex 15 calls for a period of not less than 30 days for notification of information necessitating changes in operating practices and recognizing that the important element of the recommended Supplementary Procedure is to achieve a common effective date.

The Council noted further that the general subject of regulation of amendments to aeronautical information on a worldwide basis was on the Air Navigation Work Programme.

"3.2 Regulation of Amendments to Aeronautical Information (A-15 - 5.1.2)

3.2.1 NOTAMS containing advance information on conditions or circumstances that necessitate changes in operating practices shall be published and issued on a periodical scheduled basis to take effect every fourth Thursday.

Note 1: The schedule of effective dates should include 18 January 1962.

Note 2: According to 5.1.2.1.1 of Annex 15, the notification period should be not less than 30 days.

Note 3: Guidance material relating to this procedure is contained in the AIS Manual (Doc 8126-AN/872)."

Recommendation 5/6 b) (page 5-5)

Approved this recommendation noting that it was intended to accept the material in para. 5.1.3.6 with minor modifications as the guidance material for incorporation in the AIS Manual.

Recommendation 5/7 (page 5-8)

Approved this recommendation, noting that the dates of implementation recommended by the Meeting had been selected from the schedule of effective dates called for in Recommendation 5/6.

Recommendation 5/8 (page 5-9)

Modified the wording of the recommended Supplementary Procedure to conform with established practice, as follows:

"3.2.2 At least 7 days notice should be given on the temporary establishment of any danger area, restricted area or prohibited area or on the activation of any such area."

Recommendation 6/1 b) (page 6-5)

Approved the intent of this recommendation and noted that the Air Navigation Commission would at the appropriate time determine, from the information received respecting the performance of the first channel and other operational aspects, when a further review of the operational function would take place.

Recommendation 6/3 d) (page 6-8)

Approved this recommendation and directed the Secretary General to invite the States concerned to make the necessary arrangements to initiate preparation of the draft expanded programme of meteorological exchange.

Recommendation 6/3 e) (page 6-9)

Approved the intent of this recommendation on a provisional basis pending a further study of the proposal by the Air Navigation Commission.

Recommendation 6/5 c) (page 6-10)

Approved the intent of this recommendation noting that should the AFTN message traffic loading condition envisaged at Prins Christians Sund materialize, a proposal for revision of cable service connections would be processed as an amendment to the Regional Plan.

Recommendation 6/8 (page 6-21)

Approved the intent of this recommendation and directed the Secretary General to prepare a draft of collateral amendments to Annex 1, Part III to the Danish and Icelandic Joint Financing Agreements for consideration by the Air Navigation Commission and Joint Support Committee.

Recommendation 6/9 (page 6-21 and 6-22)

Noted this recommendation but considered that the normal ICAO procedures for amendment of Regional Plans were adequate and should be applied irrespective of whether or not the radio services were operated under ICAO Joint Financing Agreements.

Recommendation 7/6 (page 7-5)

Approved this recommendation on the understanding that the Secretary General would present to the Frequency Co-ordinating Body (FCB) a list of VHF facilities in the EUM Region serving NAT requirements for which frequencies are not available within the EUM VHF Plan.

Recommendation 7/10 (page 7-7)

Approved this recommendation on the understanding that the VHF frequencies appropriate for inclusion in the NAT VHF Plan would be those frequencies specified in the list of assignable frequencies in Annex 10, Part II (para. 4.1.8.1.1) which are already assigned to facilities at the additional aerodromes concerned.

Recommendation 7/11 (page 7-7)

Approved this recommendation on the understanding that its intent is to assure that all assignments to VHF Communication facilities indicated by the Meeting as required for the support of the NAT operations would be included in the NAT regional plan and be subject to appropriate amendment procedures.

Recommendations 7/27, 7/28, 7/29 and 7/30 (pages 7-15 and 7-16)

Approved these recommendations and requested the Secretary General to invite Canada, Ireland and United States to give effect to them when implementing the revised A3 VOLMET broadcast plan.

Recommendation 7/32 (page 7-16)

Approved this recommendation noting that the States which had been undertaking these studies were the United Kingdom and Canada and that results of the trials would be reviewed under Agenda Item 7 of the Seventh Session of the Communications Division.

Recommendation 8/1 (page 8-2)

Approved this recommendation noting that the ANC would take it into consideration in planning the agenda of an appropriate future meeting.

Recommendation 8/3 (pages 8-2 and 8-3)

Approved this recommendation on the understanding that part a) was directed to the need for compliance with para. 4.1.1 of Annex 11.

Recommendation 8/5 (page 8-3)

Approved this recommendation and directed the Secretary General to seek the views of States of the region on the desirability of an appropriate NAT Supplementary procedure to cover the matter.

Recommendation 8/6 (page 8-3)

Noted this recommendation.

Recommendation 8/9 (page 8-4)

Approved this recommendation and directed the Secretary General to bring it to the attention of States operating OSVs in the NAT region and to invite them to inform ICAO of any difficulties they foresee in meeting the recommended arrangements.

Recommendations 9/1, 9/2 and 9/3 (pages 9-1 and 9-2)

Approved these recommendations noting that the ANC would process appropriate amendments to the Regional Supplementary Procedures (Doc 7030).

Recommendation 10/4 (page 10-4)

Approved this recommendation subject to the rewording of sub-paragraph b) as follows:

- "b) of the need for these requirements to be taken into account in planning the various aspects of upper air programmes."

Recommendation 12/1 (page 12-3)

Approved this recommendation and directed the Secretary General to refer the recommendation also to WMO for information.

Recommendation 12/5 (page 12-8)

Approved the intent of this recommendation noting that the Air Navigation Commission intends to refer it, for study, to the Advisory Panel on the Implementation of Channel 2, if established in accordance with Recommendation 6/3.

Recommendation 13/1 (page 13-4)

Approved this recommendation noting that the Air Navigation Commission had requested the Secretary General to submit proposals concerning the recommended studies.

Recommendation 13/3 (pages 13-6 to 13-13)

Approved this recommendation and directed the Secretary General to invite WMO to designate at an early date the regional collecting centres for air-reports, in accordance with the understanding indicated in the footnote to paragraph 2.3.4 of the recommended Regional Supplementary Procedures - Meteorology.

Recommendation 14/7 (page 14-8)

Approved this recommendation on the understanding that it did not call for improvements in the domestic ATC systems as such, but for a solution of the difficulties now being experienced where international traffic has to be handled by domestic systems.

Recommendation 16/2 (page 16-6)

Approved the intent of this recommendation and directed the Secretary General to consult with States on the need for and the nature of the special machinery suggested in the recommendation.

Recommendation 20/4 (page 20-4)

Noted this recommendation, the intent of which is already covered by Article 25 of the Convention and provisions of Annexes 9 and 12.

Recommendation 20/7 (page 20-6)

Approved this recommendation on the understanding that the instructions in question should be given in the language of the State of registry of the aircraft; and that when such language is not one of the official languages of ICAO, they should also be given in English and one other of the three official languages of ICAO.

Recommendation 22/1 (page 22-2)

Approved this recommendation subject to editorial revision of the term "rescue equipment" to read "survival equipment" throughout the text of the amendments.

Recommendation 23/8 (page 23-5)

Approved this recommendation, noting its association with Recommendation 8/2 of this Meeting.

Recommendations 24/2 a) to e) (page 24-4)

Approved the intent of these recommendations and established 0001 hours GMT on 12 April 1962 as the date for implementation of amendments to the Regional Supplementary Procedures (SUPPs) set forth in Recommendations 24/2 a) to 24/2 e) inclusive.

WMD

PART II1. The Air Navigation Commission, under authority delegated by the Council:Recommendation 2/1 (page 2-9)

Approved the intent of this recommendation, with the intention of taking it into account in its current study of the problem of Vertical Separation.

Recommendation 4/16 (page 4-15)

Noted this recommendation and requested the Secretary General to bring it to the attention of the Seventh Session of the Communications Division under Agenda Items 10.4 and 11.2 and to include it in the Air Navigation Work Programme of the Organization.

Recommendation 5/3 (page 5-3)

Noted this recommendation and referred it to the Working Group on Regional Planning for study and report, noting that it is considered useful for a regional meeting to review the requirements for NOTAMs, whether or not they are included in the Regional Plan.

Recommendation 6/4 (page 6-9)

Approved this recommendation without comment.

Recommendation 6/7 (page 6-20)

Approved this recommendation noting that similar action had been taken in respect of the AFI Regional Plan on the recommendation of the AFI III RAN Meeting.

Recommendation 6/11 (page 6-25)

Approved the intent of this recommendation and included the subject in the ANWPO.

Recommendation 7/2 (page 7-3)

Approved this recommendation and requested the Secretary General to bring it to the attention of the Seventh Session of the Communications Division for consideration under its Agenda Item 12.1 - Long Distance VHF air-ground communication

Recommendation 7/12 (page 7-7)

Approved this recommendation and requested the Secretary General to bring it to the attention of the Seventh Session of the Communications Division for consideration under its Agenda Item 1.3 - Review of technical principles and guidance on geographical separation standards to be applied in regional and national planning arrangements in relation to VHF facilities providing ATS and General Purpose

Recommendation 7/21 (page 7-13)

Noted that inclusion of this material in the NAT Regional Plan Document would be inconsistent with the current policies in respect of these documents and requested the Secretary General to study the need for the information and if necessary determine the most suitable form in which it should be made available; and to study the desirability of extending publication of the information to cover all regions.

Recommendation 7/26 (page 7-15)

Approved this recommendation, noting that the study of the subject was already covered in the ANWPO MET item 1.2.4/57 and requested the Secretary General to submit proposals as to how the study might be advanced.

Recommendation 13/2 (page 13-5)

Noted this recommendation and requested the Secretary General to submit proposals for the amendments of PANS-RAC when other amendments to that document are being processed.

Recommendation 18/2 (page 18-6)

Agreed to associate the problem with ANWPO 1.1/58 for early action.

Recommendation 20/10 (page 20-7)

Noted this recommendation and requested the Secretary General to take it into account, together with information regarding any films which may already be available on the subject, when reviewing the current audio-visual aids programme of the Organization.

Recommendations 25/1 and 25/2 (pages 25-2 to 25-4)

Noted these recommendations and referred them to its Working Group on Regional Planning for study and report.

LETTER OF TRANSMITTAL

To : President of the Council
From : Chairman of the General Committee,
Fourth North Atlantic Regional
Air Navigation Meeting

I have the honour to submit herewith the Report of
the Fourth North Atlantic Regional Air Navigation Meeting
held in Paris, France, from 14 September to 9 October 1961.

B.R. Mouchez

B.R. Mouchez

Paris, 9 October 1961

Compendium
5/1/62 entered
24/1/62 by
Vol #2 *23/1/62*
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iii - CHAIRMAN'S REPORTSECTION iii-1: HISTORICALiii-1.1 Place and duration of the Meeting

The Fourth North Atlantic Regional Air Navigation Meeting was convened, at the invitation of the French Government, on 14 September 1961 in the Centre de Conferences, 19 Avenue Kleber, Paris, France, and completed its agenda on 9 October 1961. All meetings were open to the public.

iii-1.2 Organization, Officers, Officials and Tasks

Following are the major components of the Meeting and their officers, technical secretariat and tasks:

iii-1.2.1 General Committee

Chairman	- Mr. B.R. Mouchez
1st Vice-Chairman	- Mr. A. Kofoed-Hansen
2nd Vice-Chairman	- Mr. A.F. de Aguiar
Secretary	- Dr. J.H. Heierman
Assistant to Secretary	- Mr. F.M. Booth

The General Committee met on three occasions. During its opening plenary meeting the General Committee was welcomed by the Representative of the French Government, Mr. Robert Buron, Minister of Public Works and Transport. The Committee was addressed by the President of the Council, Mr. Walter Binaghi.

The General Committee noted the Rules of Procedure and Directives for Regional Air Navigation Meetings contained in Document 8144-AN/874, which had recently been approved by the Council, as well as the general Directives of the Council concerning the conduct of ICAO meetings in Document 7986-C/915. The General Committee also noted additional directives from the Air Navigation Commission, applicable to this Meeting. The Meeting conducted its business in accordance with these Rules of Procedure and Directives.

The Committee adopted the Agenda and the organizational plan for the Meeting, as established by the Air Navigation Commission.

A special meeting of the General Committee was called on 19 September 1961 to pay tribute to the services of Mr. Dag Hammarskjöld, Secretary-General of the United Nations who, two days earlier, in the course of duty, had met a sudden tragic death.

During its closing plenary the General Committee approved this report for transmittal to the President of the Council.

The latter, and the Assistant Secretary-General for Air Navigation, Mr. T.S. Banes, attended the early part of the Meeting. The ICAO Representative, European and African Office, Mr. J. Hutchison, attended throughout.

iii-1.2.2 Subcommittee 1 of the General Committee

Chairman	--	Mr. H.T. Mølgaard
Vice-Chairman	--	Mr. D.F. Peel
ICAO Advisers	--	Mr. P. Norman
		Mr. G.B. Young

Subcommittee 1 was charged specifically with Agenda Items 1, 2, 3, 4 and 5 and additionally reviewed the action taken by other Committees on Agenda Items assigned to them. It also coordinated proposed action on Items 23 and 24, prepared by all Committees, and formulated additional recommendations on organizational and procedural aspects of the Meeting.

iii-1.2.3 Communications Committee

Chairman	--	Mr. G.E. Enright
Vice-Chairman	--	Mr. E.B. Powell
ICAO Advisers	--	Mr. C.C.E. Bellringer
		Mr. F.E. Sperring
		Mr. L.J. Rose

The Communications Committee was charged with Agenda Items 6, 7, 8 and 9 and relevant parts of Items 23 and 24.

iii-1.2.4 Meteorology Committee

Chairman	--	Mr. G.D. Cartwright
Vice-Chairman	--	Dr. H. Schweitzer
ICAO Advisers	--	Mr. U. Schwarz
		Dr. F. di Benedetto

The Meteorology Committee was charged with Agenda Items 10, 11, 12 and 13 and relevant parts of Items 23 and 24.

iii-1.2.5 Rules of the Air, Air Traffic Services and Search and Rescue Committee

Chairman	--	Mr. J.G. Karlsson
Vice-Chairman	--	Mr. R.H. Smith
ICAO Advisers	--	Mr. J. Orr
		Mr. P. Berger

The Rules of the Air, Air Traffic Services and Search and Rescue Committee was charged with Agenda Items 14, 15, 16, 17, 18, 19, 20, 21 and 22 and relevant parts of Items 23 and 24.

iii-1.3 Working languages

The working languages of the Meeting were English and French. The documentation of the Meeting was issued in both languages.

iii-1.4 Administrative Services

The Officers in charge of administrative services for the Meeting were:

Administrative Officer - Mr. F. Cordier
Chief, Language Services - Mr. L. Deschamps
Senior Interpreter - Mr. N. Salathé

SECTION iii-2: REPRESENTATION

Sixteen Contracting States, Members of the Region, two Contracting States, not Members of the Region, and six International Organizations were represented at the Meeting as follows:

Contracting States, Members of the Region:

Belgium, Canada, Czechoslovakia, Denmark, France, Federal Republic of Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States of America.

Contracting States, not Members of the Region:

Philippines, Poland.

International Organizations:

Fédération Aéronautique Internationale (FAI), International Air Navigators Council (IANC), International Air Transport Association (IATA), International Federation of Airline Pilots Associations (IFALPA), International Telecommunications Union (ITU), World Meteorological Organization (WMO).

A list of the accredited Representatives who attended the Meeting follows hereafter:

LIST OF REPRESENTATIVES
LISTE DES DELEGUES

<u>Name/Nom</u>	<u>Position in Delegation*/ Qualité dans la délégation*</u>	<u>General Committee/ Comité général</u>	<u>Sub- committee 1/ Sous- comité n° 1</u>	<u>Committees/ Comités</u>		
				<u>COM</u>	<u>MET</u>	<u>RAC/SAR</u>
Contracting States, Members of the Region/ Etats contractants membres de la Région						
<u>BELGIUM/BELGIQUE</u>						
Seydel, V.P.M.	D	X	X			X
Quoilin, M.	Alt.	X	X		X	
<u>CANADA</u>						
Goodwin, R.W.	D	X	X			X
Barrowman, I.G.	Alt.	X	X			X
Smith, R.H.	Alt.	X	X			X
English, E.T.	Adv.	X	X	X		
Graham, R.C.	Adv.	X	X		X	
Holmes, D.L.	Adv.	X	X	X		
Milliken, S.E.M.	Adv.	X	X			X
Powell, E.B.	Adv.	X	X	X		
Rowsell, C.R.	Adv.	X	X			X
Simpson, J.F.	Adv.	X	X			X
Cartwright, J.F.	Adv.	X				
<u>CZECHOSLOVAKIA/TCHÉCOSLOVAQUIE</u>						
Zelenka, J.	D	X	X	X		
<u>DENMARK/DANEMARK</u>						
Mølgaard, H.T.	D	X	X			X
Amundsen, O.	Alt.	X	X		X	
Crone-Levin, G.	Alt.	X	X		X	
Hansen, A.	Alt.	X	X			X
Mosdal, V.G.	Alt.	X	X	X		
Nielsen, A.G.T.	Alt.	X	X			X
Søndergaard, L.	Alt.	X				
Eliassen, E.	Adv.	X				
Frederiksen, A.V.	Adv.	X	X	X		
Laursen, P.	Adv.	X	X	X		
Jørgensen, P.	Adv.	X	X			X

- * D Delegate/délégué
 Alt.: Alternate/Suppléant
 Adv.: Adviser/Conseiller
 O : Observer/Observateur

Name/Nom	Position in Delegation*/ Qualité dans la délégation*	General Committee/ Comité général	Sub- committee 1/ Sous- comité n°1	Committees/ Comités		
				COM	MET	RAC/SAR
<u>FRANCE</u>						
Mouchez, B.R.	D	X	X			
Balat, R.J.L.	Alt.	X	X			X
Barberon, J.P.	Alt.	X	X	X	X	
Boisseau, P.O.F.	Alt.	X	X	X		X
Chef, M.	Alt.	X	X	X		X
Corfa, P.P.M.	Alt.	X	X		X	
Davidson, R.	Alt.	X	X			X
de Foresta, R.	Alt.	X	X	X		X
du Chaxel, R.F.	Alt.	X	X		X	
Duvergé, P.	Alt.	X	X		X	
Giraud, J.M.	Alt.	X	X	X		
Gomart, F.	Alt.	X				X
Grimaud, C.F.G.	Alt.	X	X			X
Hames F.R.	Alt.	X	X			X
Hubert, J.	Alt.	X		X		
Jacques, J.L.H.	Alt.	X	X			
Moitier, F.M.	Alt.	X				X
Nicod, G.	Alt.	X	X	X	X	
Palayret, B.J.L.	Alt.	X	X		X	
Turpin, L.	Alt.	X	X		X	
Vachière, V.L.	Alt.	X	X	X		
<u>GERMANY (FEDERAL REPUBLIC OF)/</u> <u>REPUBLIQUE FEDERALE D'ALLEMAGNE</u>						
Schweitzer, H.	D	X	X	X	X	
Dorenbeck, J.	Alt.	X	X			X
Karwath, K.E.	Adv.	X				X
Zehnder, F.W.	Adv.	X	X			X
<u>ICELAND/ISLANDE</u>						
Kofoed-Hansen, A.	D	X	X	X		
Diego, F.A.H.	Alt.	X	X	X		
Gislason, B.	Adv.	X	X	X		
Hjalmarsson, A.K.D.	Adv.	X	X			X
Sigtryggsson, H.	Adv.	X	X		X	
Thorkeisson, S.	Adv.	X	X	X		
Thorsteinsson, B.	Adv.	X	X			X
<u>IRELAND/IRLANDE</u>						
O'Sullivan, R.W.	D	X	X			X
Enright, G.E.	Alt.	X	X	X		
Flanagan, P.J.	Alt.	X	X			X
Larkin, W.	Alt.	X	X			X
O'Connor, J.	Alt.	X			X	
O'Neill, D.J.	Alt.	X	X	X		
Rohan, P.K.	Alt.	X	X		X	
Sinnott, L.A.	Alt.	X	X			X

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Name/Nom	Position in Delegation*/ Qualité dans la délégation*	General Committee/ Comité général	Sub- Committee 1/ Sous- Comité n°1	Committees/ Comités		
				COM	MET	RAC/SAR
<u>NETHERLANDS/PAYS-BAS</u>						
Selis, O.J.	D	X	X			
Bakker, D.	Alt.	X	X			X
Claessen, N.G.	Alt.	X	X			X
Dene, H.	Alt.	X	X	X		
De Roode, A.A.	Alt.	X	X			X
De Smit, A.A.	Alt.	X	X			X
Postma, K.R.	Alt.	X	X	X	X	
Lakeman, C.	Adv.	X	X			X
Martienssen, A.K.	Adv.	X	X			
<u>NORWAY/NORVEGE</u>						
Grinde, B.	D.	X	X	X		X
Melvaer, S.	Alt.	X	X	X		
Thesen, F.W.	Alt.	X	X			X
Torhaug, B.	Alt.	X	X	X		
Vedø, S.	Alt.	X	X		X	
<u>PORTUGAL</u>						
De Aguiar, A.F.	D	X	X			X
Barbosa, H.	Alt.	X	X	X		
Barreira, A.A.						
da Silva	Alt.	X	X			X
Belem Monteiro, F.	Alt.	X	X	X		
Espirito Santo, T.R.	Alt.	X	X		X	
Silva de Sousa, A.	Alt.	X	X		X	
Soares, A.J. da Silva	Alt.	X	X			
<u>SPAIN/ESPAGNE</u>						
Plaza Barriò, F.	D.	X	X			
Carcaño, F.	Alt.	X	X			X
Gorozarri, C.	Alt.	X	X	X		
Rodriguez Franco, P.	Alt.	X	X		X	
Santa Cruz Senabre, M.	Alt.	X	X			X
<u>SWEDEN/SUEDE</u>						
Karlsson, J.G.	D.	X	X			X
Nordlander, C.O.	Alt.	X	X			X
Persson, K.W.	Alt.	X	X	X	X	
<u>SWITZERLAND/SUISSE</u>						
Candrian, J.C.	D	X	X			X
Jeannet, A.	Alt.	X	X		X	
Auberson, P.	Adv.	X	X	X		

Name/Nom	Position in Delegation*/ Qualité dans la délégation*	General Committee/ Comité général	Sub- Committee 1/ Sous- Comité n°1	Committees/ Comités		
				COM	MET	RAC/SAR
<u>UNITED KINGDOM/ROYAUME-UNI</u>						
Peel, D.F.	D	X	X			
Casley, W.E.	Alt.	X	X			
Evans, A.T.	Alt.	X	X			X
Finch, H.	Alt.	X				
Holt, T.	Alt.	X	X	X		
Kirk, A.R.	Alt.	X	X			X
Nolan-Neylan, D.	Alt.	X	X			X
Norfolk, N.R.	Alt.	X	X			X
Page, G.A.	Alt.	X	X	X		
Peacock, G.P.	Alt.	X	X	X		
Ware, E.M.	Alt.	X	X			
Worthington, A.A.	Alt.	X	X		X	
Banyard, G.F.	Adv.	X	X			
Mitchell, H.D.	Adv.	X	X			X
Moppett, E.J.H.	Adv.	X				
Pike E.W.	Adv.	X	X			
Remington, K.A.	Adv.	X	X			X
Tarrant, K.W.	Adv.	X	X			X
<u>UNITED STATES OF AMERICA/ ETATS-UNIS D'AMERIQUE</u>						
Smith, C.H.	D	X	X			
Cartwright, G.D.	Alt.	X	X		X	
Clark, W.E.	Alt.	X	X			X
Lee, J.T.	Alt.	X	X	X		
Shunk, R.F.	Alt.	X	X			X
Westlake, T.	Alt.	X	X			X
Chiles, J.W.	Adv.	X	X			X
Farmer, C.D.	Adv.	X	X			X
Gatlin, H.G.	Adv.	X	X			X
Jacolic, H.T.	Adv.	X	X		X	
James, R.P.	Adv.	X	X		X	
Ladd, R.B.	Adv.	X	X			
Nolan, J.S.	Adv.	X	X			X
Taylor, T.H.	Adv.	X	X	X		
Ward, D.A.	Adv.	X	X			X
Wychakinas, C.J.	Adv.	X	X	X		
<u>Contracting States not Members of the Region/ Etats contractants non membres de la Région</u>						
<u>PHILIPPINES</u>						
Paguio, E.	O	X	X			
<u>POLAND/POLOGNE</u>						
Rzeczewski, A.	O	X	X			

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<u>Name/Nom</u>	<u>Position in Delegation*/ Qualité dans la délégation*</u>	<u>General Committee Comité général</u>	<u>Sub- Committee 1/ Sous- comité n°1</u>	<u>Committees/ Comités</u>		
				<u>COM</u>	<u>MET</u>	<u>RAC/SAR</u>
<u>International Organizations/ Organisations internationales</u>						
<u>FAI</u>						
Renier, J.G.F.	O	X	X			
<u>IANC</u>						
Dubost, J.	O	X	X			
Gatineau, A.	O	X				
<u>IATA</u>						
Bertin, P.E.L.	O	X	X		X	
Chambers, E.	O	X	X		X	
Duvedal, B.T.I.	O	X	X	X	X	
Enderlein, L.	O	X	X			
Frediani, R.R.	O	X	X		X	
Heilman, J.J.	O	X	X	X		
de la Héraudière, R.H.	O	X	X	X		
Kearvell, P.E.M.	O	X	X			X
Lensing, J.A.I.	O	X	X			X
Loke, A.W.	O	X	X	X		X
Meline, J.	O	X	X			X
Newham, D.F.	O	X	X			X
Pattison, R.E.	O	X	X			X
Poole, T.R.	O	X	X			X
Powell, P.G.	O	X	X			X
Stewart, R.	O	X	X	X		
Suttorp, K.	O	X				
Tanck, H.J.	O	X	X		X	
Ulrich, L.R.	O	X	X		X	
Van der Aa, A.G.	O	X	X		X	
Williams, B.N.	O	X	X			X
Whiting, D.	O	X	X			X
<u>IFALPA</u>						
Cadier, R.	O	X				
Daudon, R.	O	X				
Lami, R.	O	X	X			
Lane, S.M.B.	O	X	X	X		X
Miles, E.C.	O	X	X			X
Penn, R.J.	O	X	X			
Spencer, C.	O	X	X			
Taylor, L.	O	X	X			
Toussaint, J.	O	X		X		
Wells, R.W.	O	X				
<u>ITU/UIT</u>						
Gracie, J A.	O	X		X		
<u>WMO/OMM</u>						
Weiss, G.K.	O	X	X		X	

Agenda Item 1: Preparation of a table of aircraft operations for the Region as a reasonable basis for formulating amendments to the regional plan.

SECTION 1: ACTION BY SUB-COMMITTEE 1 ON AGENDA ITEM 1

1.1.1 Sub-Committee 1 reviewed the draft tabulation of aircraft operations which had been prepared by the Secretariat prior to the meeting and considered and agreed upon several additions and deletions to the air route segments shown. The tabulation of air route segments was then accepted as a reasonable basis for developing amendments to the existing NAT Regional Plan and was referred to the technical committees for this purpose. The "weekly frequency" figures contained in the tabulation were amended by the Secretariat in the light of information provided by States and IATA during the meeting. The complete tabulation of aircraft operations is contained in the following pages.

NOTES ON THE TABULATIONS

Route segments are listed for both directions with the exception of those with a terminal outside the Region.

LEGEND

- P- Piston engined aircraft
- TP- Turbo-propeller aircraft
- TJ- Turbo-jet aircraft
- N- Some flights departing during hours of darkness
- X- Technical stops are included

NOTES EXPLICATIVES SUR LES TABLEAUX

Les tronçons de route sont indiqués pour les deux sens, à l'exception de ceux qui ont une extrémité en dehors de la Région.

LEGENDE

- P- Avions à moteurs à pistons
- TP- Avions à turbopropulseurs
- TJ- Avions à turboréacteurs
- N- Certains départs effectués de nuit
- X- Comprend des escales techniques

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1 - Rapport sur la question 1 de l'ordre du jour

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
BAHAMAS/ I. BAHAMA										
NASSAU	KINDLEY FIELD	797	1962		4		4	-	BR300 V700	-
			64		2	2	4	-		B707
			66		2	2	4	-		
	MIAMI	164	1962		1		1	-	BR300	-
			64							
			66							
	MONTREAL	1238	1962		2		2	-	BR300	-
			64			1	1	-	-	B707
			66			2	2	-	-	
	NEW YORK/Inter.	952	1962			17	17	-	-	B707
			64			20	20	-	-	B707
			66			21	21	-	-	VC10
	TORONTO	1123	1962	2			2	L1049	-	-
			64		3		3	-	V950	-
			66		4		4	-		-
BELGIUM/ BELGIQUE										
BRUXELLES	MONTREAL	2997	1962			4	4	-	-	B707
			64			10	10	-	-	
			66			10	10	-	-	
	NEW YORK/ Inter.	3176	1962	3		12	15	DC7C	-	B707
			64	3		14	17	-	-	
			66	3		18	21	-	-	
BERMUDA/ BERMUDES										
KINDLEY FIELD	ANTIGUA/ Coolidge	928	1962	1	4		5	L1049	BR300	-
			64		2	6	8	-	V950	B707
			66		2	6	8	-		
N	BOSTON	671	1962			3	3	-	-	B707
			64			4	4	-	-	DC8C
			66			4	4	-	-	
	BRIDGETOWN/ Seawell (Barbados)	1192	1962	1	2		3	L1049	BR300	-
			64		1	2	3	-	V950	B707
			66		1	3	4	-		

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
BERMUDA/ BERMUDES (Cont'd/suite)										
KINDLEY FIELD N (Cont'd/suite)	HABANA	1093	1962 64 66		2		2	-	BR300	-
N	LONDON/Heathrow	2979	1962 64 66		4 1 1	2 3	4 3 4	- - -	BR300	- B707
N	MADRID	2933	1962 64 66		1	2	3	-	BR300	DC8
	MIAMI	906	1962 64 66			3	3	-	-	COMET 4C
N	MONTREAL	891	1962 64 66	1	2 1 1	2 2	3 3 3	L1049 - -	BR300 V950	- B707
	NASSAU	797	1962 64 66		4 2 2	2 2	4 4 4	- - -	BR300 V700	- B707
N	NEW YORK/Inter.	661	1962 64 66	11 11 11	13 6 6	16 26 26	40 43 43	DC7B DC6	BR300 V700	B707 DC8C B707 DC8C VC10
	PORT OF SPAIN	1320	1962 64 66		1		1	-	BR300	-
N	SANTA MARIA (Açores)	1955	1962 64 66		1	3	4	-	BR300	COMET 4C
	TORONTO	977	1962 64 66	3	4 5		3 4 5	L1C49 - -	- V950	- - -
	WASHINGTON	716	1962 64 66	3			3	L1049	-	-

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
CANADA										
GANDER	N BOSTON	793	1962 64 66	2			2	DC7F	-	-
	KINDLEY FIELD	1094	1962 64 66		3		3	-	BR300	-
	N LONDON/ Heathrow	2036	1962 64 66	9 7 7			9 7 7	DC7F L1049 L1049	- - -	- - -
	N MONTREAL	807	1962 64 66		1	1 1	1 1 1	- - -	BR300 - -	- B707 -
	NEW YORK/Inter.	954	1962 64 66	15			15	L1049	-	-
	X PARIS/Orly	2195	1962 64 66	5			5	L1049	-	-
	N PRESTWICK	1836	1962 64 66	1	1 2 2		2 2 2	- - -	BR300 - -	DC8 B707 DC8
	N SHANNON	1715	1962 64 66	3			3	L1049		
HALIFAX	N LONDON		1962 64 66			1 1 2	1 1 2	- - -	- - -	DC8
	N PRESTWICK	2286	1962 64 66			1 2 2	1 2 2	- - -	- - -	DC8
MONTREAL	N AMSTERDAM	2971	1962 64 66	2		7 17 22	9 17 22	DC7C - -	- - -	DC8 B707
	N BRUXELLES	2997	1962 64 66			4 10 10	4 10 10	- - -	- - -	B707

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
CANADA (Cont'd/suite)										
MONTREAL (Cont'd/suite)	N FRANKFURT	8160	1962 64 66			5	5	- -	- -	B707
	GANDER	807	1962 64 66		1	1 1 1	1 1 1	- - -	BR300 - -	- B707 -
	KINDLEY FIELD	891	1962 64 66	1	2 1 1	- 2 2	3 3 3	L1049 - -	BR300 V950	- B707
	N LONDON/ Heathrow	2815	1960 64 66			7 9 10	7 9 10	- - -	- - -	B707 DC8 VC10 DC8
	N MANCHESTER	2710	1962 64 66	1	2 3		1 2 3	DC7F - -	- BR300F	- - -
	N MILANO/ Malpensa	-	1962 64 66			3 11 11	3 11 11	- - -	- - -	DC8
	NASSAU	1238	1962 64 66		2	1 2	2 1 2	- - -	BR300 - -	- B707
	N NEW YORK/ Inter.	289	1962 64 66	5 4 4		5 2 3	10 16 17	DC7C DC7F L1049 DC7C L1049	- BR300F	B707 DC8
	N PARIS/ Orly	2983	1962 64 66			15 15 15	15 15 15	- - -	- - -	B707 DC8

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
CUBA										
HABANA	N	KINDLEY FIELD	1093	1962 64 66	2	2	4	-	BR300	DC8
		NEW YORK/Inter.	1144	1962 64 66	4		4	L1049 L1049H	-	-
DENMARK/ DANEMARK										
KØBENHAVN		ANCHORAGE	3745	1962 64 66		2 2	2 2	-	-	DC8C
		NEW YORK/Inter.	3339	1962 64 66		13 16	13 16	- -	- -	DC8C
		REYJAVIK	1141	1962 64 66	3	9	12	DC6B	V700	-
	N	SONDRE/ STRØMFJORD	1850	1962 64 66		6 8	6 8	- -	- -	DC8C
FINLAND/ FINLANDE										
HELSINKI		NEW YORK/Inter.	3569	1962 64 66						
		REYKJAVIK	1324	1962 64 66	1		1	DC6B	-	-
FRANCE										
PARIS/Only		BOSTON	2287	1962 64 66		1 3 3	1 3 3	- - -	- - -	B707 DC8C
		CHICAGO		1962		4	4			B707
	XN	GANDER	2195	1962 64 66	3		3	L1049	-	-

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1 - Rapport sur la question 1 de l'ordre du jour

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
FRANCE (Cont'd/suite)										
PARIS/Orly (Cont'd/suite)	LOS ANGELES	4918	1962			3	3	-	-	B707 DC8C
			64			6	6	-	-	
			66			6	6	-	-	
N	MONTREAL	2983	1962			15	15	-		B707 DC8
			64							
			66							
N	NEW YORK/Inter.	3148	1962		3	57	60	-	BR300	B707 DC8C
			64		1	78	79	-		
			66		1	86	87	-		
	PHILADELPHIA	3229	1962			3	3	-	-	B707 DC8C
			64			3	3	-	-	
			66			3	3	-	-	
	POINTE-À-PITRE Guadeloupe	3644	1962			1	1	-	-	B707
			64							
			66							
FRENCH ANTILLES/ ANTILLES FRANCAISES										
POINTE-À- PITRE										
Guadeloupe N	LISBOA	3048	1962			2	2	-	-	B707
			64							
			66							
N	PARIS/Orly	3644	1962			1	1	-	-	B707
			64							
			66							
	NEW YORK/Inter.		1962			2	2			B707
GERMANY/ ALLEMAGNE (Federal Republic of/ République Fédérale)										
FRANKFURT	CARACAS	4357	1962			2	2	-	-	B707
			64							
			66							

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
GERMANY/ ALLEMAGNE (Federal Republic of/ République Fédérale) (Cont'd/suite)										
FRANKFURT (Cont'd/suite)	CHICAGO	3762	1962 64 66			3 5	3 5	- -	- -	B707
	MONTREAL	3110	1962 64 66			5	5	-	-	B707
N.	NEW YORK/ Inter.	3340	1962 64 66	4		18 24	22 24	L1649A -	- -	B707 DC8C
HAMBURG	ANCHORAGE	3728	1962 64 66			2	2	-	-	B707
	NEW YORK/ Inter.	3301	1962 64 66			2	2	-	-	DC8C
	REYKJAVIK	1155	1962 64 66	3	2		5	DC6B	V700	-
KÖLN/Köln- Bonn	NEW YORK/ Inter.	3269	1962 64 66			7 7	7 7	- -	- -	B707
GREENLAND/ GROENLAND										
SØNDRE STRØMFJORD	X AMSTERDAM	1816	1962 64 66		2		2	-	BR300	-
	X EDMONTON	1930	1962 64 66		2		2	-	BR300	-
	N KØBENHAVN	1850	1962 64 66			6 8	6 8	- -	- -	DC8C

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOIS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
GREENLAND/ GROENLAND (Cont'd/suite)	LOS ANGELES	3026	1962 64 66			6 8	6 8	-	-	DC8C
SØNDRE N STRØMFJORD (Cont'd/suite)								-	-	
ICELAND/ ISLANDE	GLASGOW/Renfrew GOTEBORG HAMBURG HELSINKI KØBENHAVN LONDON/ Heathrow LUXEMBOURG NEW YORK/ Inter. OSLO/Fornebu STAVANGER	719	1962 64 66	2	7		9	DC6B	V700	-
REYKJAVIK		1041	1962 64 66	2			2	DC6B	-	-
		1155	1962 64 66	3	2		5	DC6B	V700	-
		1324	1962 64 66	1			1	DC6B	-	-
		1141	1962 64 66	3	9		12	DC6B	V700	-
		1015	1962 64 66	1	1		2	DC6B	V700	-
		1250	1962 64 66	1			1	DC6B	-	-
		2265	1962 64 66	9			9	DC6B DC7C	-	-
		940	1962 64 66	3	2		5	DC6B	V700	-
		841	1962 64 66	1			1	DC6B	-	-

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
ICELAND/ ISLANDE (Cont'd/suite)										
KEFLAVIK	NEW YORK/Inter.	2246	1962 64 66	1			1	DC7C	-	-
N	PRESTWICK	740	1962 64 66	1			1	DC7C	-	-
IRELAND/ IRLANDE										
SHANNON	N BOSTON	2508	1962 64 66	1 1 1		5 5 6	6 6 7	DC7C	- - -	B720
	DETROIT	2951	1962 64 66			5 5 7	5 5 7	- - -	- - -	B707 DC8C B707 DC8C VC10
N	GANDER	1715	1962 64 66	6			6	LL049	-	-
N	MONTREAL	2496	1962 64 66		1	3 4 4	4 4 4	- - -	BR300 - -	DC8 VC10 DC8
N	NEW YORK/Inter.	2669	1962 64 66	3	1	22 24 28	26 24 28	DC7C - -	BR300 - -	B707 B720 DC8 DC8C B707 B720 DC8 DC8C VC10
ITALY/ITALIE										
MILANO/ Malpensa	BOSTON	3300	1962 64 66			2	2	-	-	DC8
	MONTREAL	-	1962 64 66			3 11	3 11	- -	- -	DC8

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
ITALY/ITALIE (Cont'd/suite)	NEW YORK/Inter.	3461	1962 64 66			7 12	7 12	-	-	DC8
MILANO/ Malpensa (Cont'd/suite)										
ROMA/ Leonardo da Vinci	BOSTON	3559	1962 64 66			1	1	-	-	DC8
	NEW YORK/Inter.	3718	1962 64 66			5 10 10	5 10 10	- - -	- - -	B707 DC8
	N SANTA MARIA (Açores)	1761	1962 64 66			1	1	-	-	DC8
LUXEMBOURG	REYKJAVIK	1250	1962 64 66	1			1	DC6B	-	-
LUXEMBOURG N										
NETHERLANDS/ PAYS-BAS	ANCHORAGE	3885	1962 64 66			2 2 2	2 2 2	- - -	- - -	DC8
AMSTERDAM X										
	N MONTREAL	2971	1962 64 66	4		7 17 22	11 17 22	DC7C L1049 -	- - -	DC8 B707
	N NEW YORK/Inter.	3156	1962 64 66	2		18 21 26	20 21 26	DC7C - -	- - -	DC8
	XN SONDRE STRØMFJORD	1816	1962 64 66		2		2	-	BR300	-
NORWAY/ NORVEGE	REYKJAVIK	940	1962 64 66	4	1		5	DC6B	V700	-
OSLO/Fornebu N										

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
NORWAY/ NORVEGE (Cont'd/suite)										
OSLO/ Fornebu	N NEW YORK/Inter.	3192	1962			5	5	-	-	B707 DC8C
			64			9	9	-	-	
			66			9	9	-	-	
PORTUGAL										
LISBOA	BOSTON	3185	1962			2	2	-	-	B707 DC8C
			64			2	2	-	-	
			66			2	2	-	-	
	CARACAS	3507	1962			2	0	-	-	DC8
			64			2	2	-	-	
			66							
	CURAÇAO	3539	1962			1	1	-	-	DC8
			64			1	1	-	-	
			66							
	N NEW YORK/Inter.	2916	1962			7	7	-	-	B707 DC8
			64			17	17	-	-	B707 DC8 DC8C
			66			19	19	-	-	
	PARAMARIBO	3197	1962			1	0	-	-	
			64				1	-	-	
			66							
	PORTO SANTO (Madeira)	-	1962	2			2	L1049 DC6B	-	-
			64							
			66							
	N RECIFE	3160	1962	2			2	DC7C	-	-
			64			2	2	-	-	DC8
			66			2	2	-	-	
	XN SAL I.	1508	1962	4			4	DC6B DC7C	-	-
			64							
			66							
	N SANTA MARIA (Açores)	766	1962	2		16	18	L1049 L1649A	-	B707 COMET 40 DC8 DC8C

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
PORTUGAL (Cont'd/suite)										
LISBOA N (Cont'd/suite)	SANTA MARIA (Açores) (Cont'd/suite)		1964 66	1 1		14 14	15 15	L1049	- -	
PORTO SANTO, MADEIRA	LISBOA	-	1962 64 66	2			2	L1049	-	-
SANTA MARIA, AÇORES	BOSTON	2116	1962 64 66	1		1 1 1	2 1 1	L1649A - -	- - -	B707 DC8C
N	CARACAS	2754	1962 64 66			4 4 4	4 4 4	- - -	- - -	DC8
N	KINDLEY FIELD	1955	1962 64 66		2	3	5	-	BR300	COMET 4C
N	LISBOA	766	1962 64 66	3 2 2		6 8 8	9 10 10	DC6B L1049 L1649A DC6B L1049	- - - - -	B707 COMET 4C DC8 DC8C
N	MILANO/ Malpensa	-	1962 64 66			1	1	-	-	DC8
N	MONTREAL	2215	1962 64 66	1		2 2	1 2 2	DC6B - -	- - -	- DC8
N	NEW YORK/Inter.	2254	1962 64 66			6 2 2	6 2 2	- - -	- - -	B707 DC8 DC8C
	PARAMARIBO	2507	1962 64 66			1	1	-	-	DC8
N	POINTE-À- PITRE	2291	1962 64 66			2	2	-	-	B707

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
PORTUGAL (Cont'd/suite)										
SANTA MARIA N AÇORES (Cont'd/suite)	PRAHA	-	1962 64 66		1		1	-	BR300	-
	N SAN JUAN	2413	1962 64 66	1			1	LL049	-	-
SPAIN/ESPAGNE										
MADRID	HABANA	4025	1962 64 66			1	1	-	-	DC8
	NEW YORK/Inter.	3109	1962 64 66			4 6 7	4 6 7	- - -	- - -	B707 DC8
	RIO DE JANEIRO	4396	1962 64 66			1	1	-	-	DC8
	SAL I.	1743	1962 64 66	1			1	LL049G	-	-
	SAN JUAN	3441	1962 64 66			2	2	-	-	DC8
	SANTA MARIA (Açores)	1031	1962 64 66		1		1	-	BR300	-
	TENERIFE/ Los Rodeos	956	1962 64 66	1			1	DC6B	-	-
SWEDEN/SUEDE										
GOTEBORG	REYKJAVIK	1041	1962 64 66	2			2	DC6B	-	-
STOCKHOLM/ Orlanda	NEW YORK		1964			2	2			DC8

ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
SWITZERLAND/ SUISSE	NEW YORK/Inter.	3346	1962 64 66			1	1	-	-	DC8
GENÈVE						1	1	-	-	
						1	1	-	-	
						1	1	-	-	
ZURICH	MONTREAL	3236	1962 64 66			3	3	-	-	DC8
						3	3	-	-	
						3	3	-	-	
						3	3	-	-	
	NEW YORK/Inter.	3405	1962 64 66			3	3	-	-	DC8
						3	3	-	-	
						3	3	-	-	
UNITED KINGDOM/ ROYAUME-UNI	REYKJAVIK	719	1962 64 66	2	7		9	DC6B	V700	-
GLASGOW/ Renfrew										
LONDON/ Heathrow	BOSTON	2828	1962 64 66			14	14	-	-	B707 DC8C B707 DC8C VC10
						22	22	-	-	
						25	25	-	-	
	CHICAGO	3425	1962 64 66			1	1	-	-	B707 DC8C
						2	2	-	-	
						2	2	-	-	
	DETROIT	3261	1962 64 66			2	2	-	-	B707
						2	2	-	-	
						3	3	-	-	
	GANDER	2036	1962 64 66			3	3	-	BR300	-
						1	1	-	-	B707
						1	1	-	-	
	HALIFAX	2482	1962 64 66			1	1	-	-	DC8
						1	1	-	-	
	KINDLEY FIELD	2979	1962 64 66			1	1	-	BR300	-
						1	3	-	BR300	B707
						1	4	-	-	

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED KINGDOM/ ROYAUME-UNI (Cont'd/suite)										
LONDON/ Heathrow	LOS ANGELES	4727	1962			7	7	-	-	B707 DC8C
			64 66			11 13	11 13	- -	- -	B707 DC8C VC10
	MONTREAL	2815	1962			7	7	-	-	B707 DC8
			64 66			9 10	9 10	- -	- -	DC8 VC10
XN	NEW YORK/Inter.	2989	1962		3	62	65	-	BR300	B707 DC8 DC8C
			64		3	84	87	-		B707 DC8 DC8C VC10
			66		3	85	88	-		
	PHILADELPHIA	3070	1962			4	4	-	-	B707 DC8C
			64 66			4 4	4 4	- -	- -	
N	REYKJAVIK	1015	1962	1	1		2	DC6B	V700	-
			64 66							
	SAN FRANCISCO	4650	1962			1	1	-	-	B707 DC8C
			64 66			2 2	2 2	- -	- -	
	SEATTLE	4157	1962			2	2	-	-	B707 DC8C
			64 66			2 2	2 2	- -	- -	
	TORONTO	3080	1962			3	3	-	-	DC8
			64 66			7 7	7 7	- -	- -	
	VANCOUVER	4090	1962		3	2	5	-	BR300	DC8
			64 66							

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED KINGDOM/ ROYAUME-UNI (Cont'd/suite)	WINNIPEG	3394	1962 64 66			1	1	-	-	DC8
LONDON/ Heathrow (Cont'd/suite)										
MANCHESTER N	MONTREAL	2710	1962 64 66	1	2 3		1 2 2	DC7F - -	- BR300F	- - -
N	NEW YORK/Inter.	2893	1962 64 66	1 1 1		4 4 4	5 5 5	LL649A	- - -	B707
PRESTWICK N	BOSTON	2623	1962 64 66		3		3 3 3	- - -	BR300 - -	- VC10
	DETROIT	3037	1962 64 66			3 3 4	3 3 4	- - -	- - -	B707 B707 VC10
N	GANDER	1836	1962 64 66	6 8 8	1	1 2 2	8 10 10	LL049	BR300 - -	DC8 B707 DC8
	HALIFAX	-	1962 64 66			1 2 2	1 2 2	- - -	- - -	DC8
	KEFLAVIK	740	1962 64 66	1 1 1			1 1 1	DC7C	- - -	- - -
N	MONTREAL	2593	1962 64 66	3 3 3	6	5 11 15	14 14 18	DC7C	BR300 - -	B707 DC8
N	NEW YORK/Inter.	2785	1962 64 66	4 11 11	2 3 4	20 33 35	26 47 50	DC7F DC7C DC7C	BR300 BR300F	B707 DC8 DC8C B707 DC8 DC8C VC10

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ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOL PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED KINGDOM/ ROYAUME-UNI (Cont'd/suite)	TORONTO VANCOUVER WINNIPEG	3000	1962			2	2			DC8
PRESTWICK (Cont'd/suite)			1962			5	5			DC8
		4000	1962			1	1			DC8
UNITED STATES OF AMERICA/ ETATS UNIS	KINDLEY FIELD N LISBOA N LONDON/ Heathrow N MILANO/ Malpensa N NEW YORK/Inter PARIS/Orly N PRESTWICK	671	1962			3	3	-	-	B707 DC8C
BOSTON			64			4	4	-	-	
			66			4	4	-	-	
		2766	1962			1	1	-	-	B707
			64			2	2	-	-	
			66			3	3	-	-	
		2828	1962	1	-	14	15	DC7C	-	B707 DC8C
			64	1	-	22	23		-	B707 DC8C VC10
			66	1	-	25	26		-	
		3300	1962			2	2	-	-	DC8
			64							
			66							
		161	1962	2	3	9	14	DC7F	BR300	B707 B720 DC8
			64	2		19	21		-	B707 B720 DC8 VC10
			66	2		22	24		-	B720 DC8 VC10
		2987	1962			1	1	-	-	B707 DC8C
			64			3	3	-	-	B707
			66			3	3	-	-	
		2623	1962		3		3	-	BR300	-
			64			3	3	-	-	VC10
			66			3	3	-	-	

ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED STATES OF AMERICA/ ETATS UNIS (Cont'd/suite) BOSTON (Cont'd/suite)	N ROMA	3559	1962 64 66			1	1	-	-	DC8
	N SANTA MARIA	2116	1962 64 66	1		1	2	L1649A	-	B707 DC8
				1		2	3		-	
				1		2	3		-	
	N SHANNON	2508	1962 64 66	3		5	8	DC7C DC7F	-	B720
				3		5	8		-	
				3		6	9		-	
	WASHINGTON	346	1962 64 66			3	3	-	-	B707 VC10
						3	3	-	-	
						3	3	-	-	
CHICAGO/ O'Hare	N FRANKFURT	3762	1962 64 66			3	3	-	-	B707
						5	5	-	-	
						5	5	-	-	
	LONDON/Heathrow	3425	1962 64 66			1	1	-	-	B707 DC8C
						2	2	-	-	
						2	2	-	-	
	PARIS	-	1962			4	4	-	-	B707
DETROIT	LONDON/Heathrow	3261	1962 64 66			2	2	-	-	B707
						2	2	-	-	
						3	3	-	-	
	PRESTWICK	3037	1962 64 66			3	3	-	-	B707
						3	3	-	-	
						4	4	-	-	B707 VC10
	SHANNON	2951	1962 64 66			5	5	-	-	B707 DC8C
						5	5	-	-	
						7	7	-	-	

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED STATES OF AMERICA/ (Cont'd/suite)										
MIAMI N	KINDLEY FIELD	906	1962 64 66			3	3	-	-	COMET 4C
	NASSAU	164	1962 64 66		1		1	-	BR300	-
NEW YORK/ Inter.	AMSTERDAM	3156	1962 64 66	2 10 10		18 21 21	20 31 31	DC7C	- - -	DC8
	ARUBA	1700	1962 64 66	3		3 3 3	3 3 3	DC7C - -	- - -	- DC8
N	BOSTON	161	1962 64 66	2	3	9	14	DC7F	BR300	B707 B720 DC8
	BRASILIA	3690	1962 64 66			1	1	-	-	B707
	BRIDGETOWN/ Seawell (Barbados)	1824	1962 64 66		1	1	1 1	- -	BR300 -	- -
N	BRUXELLES	3176	1962 64 66	3 3 3		12 14 18	15 17 21	DC7C	- - -	B707
	CIUDAD TRUJILLO	1345	1962 64 66	2			2	IL1049	-	-
	CURACAO	1726	1962 64 66	4		11 11	4 11 11	DC7C - -	- - -	- DC8
	DAKAR	3302	1962 64 66			1 1 1	1 1 1	- - -	- - -	B707 DC8C
N	FRANKFURT	3340	1962 64 66	4		18 24 24	22 24 24	IL649A - -	- - -	B707

ROUTE SEGMENT		DIST. NM	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO			P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST. NM	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A			P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED STATES OF AMERICA/ ETATS UNIS (Cont'd/suite)										
NEW YORK/ Inter. (Cont'd/suite)										
XN	GANDER	954	1962 64 66	15			15	L1049	-	-
N	GENEVE	3346	1962 64 66			5 2 2	5 2 2	- - -	- - -	DC8
	HABANA	1144	1962 64 66	4			4	L1049 L1049H	-	-
	HAMBURG	3301	1962 64 66			2	2	-	-	DC8
	HELSINKI	3559	1962 64 66							
	KEFLAVIK	2246	1962 64 66	1			1	DC7C	-	-
	KINDLEY FIELD	661	1962 64 66	10 10 10	13 6 6	16 26 26	39 42 42	DC6 DC7B	BR300 V700 V700	B707 DC8C B707 DC8 VC10
N	KØBENHAVN	3339	1962 64 66			13 16	13 16	- -	- -	DC8C
N	KÖLN-BONN	3269	1962 64 66			7 7	7 7	- -	- -	B707
N	LISBOA	2916	1962 64 66			14 18 21	14 18 21	- - -	- - -	B707 DC8 DC8C

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ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNÉE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED STATES OF AMERICA/ (Cont'd/suite)										
NEW YORK/ Inter. (Cont'd/suite)										
N	LONDON/ Heathrow	2989	1962		2	60	62	-	BR300	B707 DC8 DC8C B707 DC8 DC8C VC10
			64		1	90	91	-		
			66		1	90	91	-		
N	MADRID	3109	1962			4	4	-	-	B707 DC8
			64			6	6	-	-	
			66			8	8	-	-	
N	MANCHESTER	2893	1962			4	4	-	-	B707
			64			4	4	-	-	
			66			4	4	-	-	
	MEXICO/ Central	1817	1962			4	4	-	-	B707
			64			7	7	-	-	
			66							
N	MILANO/ Malpensa	3461	1962			4	4	-	-	DC8
			64			9	9	-	-	
			66							
	MONTEGO BAY	1346	1962			9	9	-	-	B707
			64			9	9	-	-	
			66			9	9	-	-	
N	MONTREAL	289	1962	1		5	6	DC7F	-	B707 DC8
			64		2	10	12	-	BR300F	
			66		3	10	13	-		
	NASSAU	952	1962			17	17	-	-	B707 B707 VC10
			64			20	20	-	-	
			66			21	21	-	-	
	OSLO/Fornebu	3185	1962			2	2	-	-	DC8C
			64			4	4	-	-	
			66							

ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11
UNITED STATES OF AMERICA/ (Cont'd/suite) NEW YORK/ Inter. (Cont'd/suite)	N OSLO/ Gardermoen	3192	1962			3	3	-	-	B707 DC8C
			64 66			5 5	5 5	- -	- -	
N	PARIS/Orly	3148	1962		3	57	60	-	BR300	B707 DC8C
			64 66		3 3	78 86	79 87	- -		
N	POINTE-À-PITRE PORT OF SPAIN	1920	1962			2	2			B707
			64 66			3	3	-	-	COMET 4
N	PRESTWICK	2785	1962	8	2	19	29	DC7C LL049	BR300	B707 DC8 DC8C
			64 66	11	3	33	47	DC7C	BR300	B707 DC8 DC8C VC10
N	REYKJAVIK	2265	1962		4	35	50			
			64 66	8			8	DC6B		
N	RIO DE JANEIRO	4172	1962			2	2	-	-	B707
			64 66			3	3	-	-	
N	ROMA	3718	1962			7	7	-	-	B707 DC8 DC8C
			64 66			14 14	14 14	- -	- -	
N	SAN FRANCISCO	2241	1962			6	6	-	-	B707
			64 66			7 9	7 9	- -	- -	B707 VC10

ROUTE SEGMENT		DIST.	YEAR	WEEKLY FREQUENCY				AIRCRAFT		
FROM	TO	NM		P	TP	TJ	TOTAL	P	TP	TJ
TRONÇON DE ROUTE		DIST.	ANNEE	NO. DE VOLS PAR SEMAINE				AERONEF		
De	A	NM		P	TP	TJ	TOTAL	P	TP	TJ
1	2	3	4	5	6	7	8	9	10	11 .
UNITED STATES OF AMERICA/ (Cont'd/suite)										
NEW YORK/ Inter. N (Cont'd/suite)	SAN JUAN (Puerto Rico)	1391	1962	39		45	84	DC4 DC6B L1049	-	B707 DC8B DC8C
			64 66	39 39		55 55	94 94		- -	
N	SHANNON	2669	1962	3	2	14	19	DC7C	BR300	B707 B720 DC8 DC8C B707 B720 DC8 DC8C VC10
			64	3		18	21		-	
			66	3		21	24		-	
	STOCKHOLM/ Arlanda	1964				2	2			DC8
N	TEL AVIV	4920	1962 64 66			1	1	-	-	B707
N	ZURICH	3405	1962 64 66			5 7 7	5 7 7	- - -	- - -	DC8
PHILADELPHIA N	LONDON/ Heathrow	3070	1962 64 66			4 4 4	4 4 4	- - -	- - -	B707 DC8C
N	PARIS/Orly	3229	1962 64 66			3 4 4	3 4 4	- - -	- - -	B707 DC8C
WASHINGTON	KINDLEY FIELD	716	1962 64 66	3			3	L1049	-	-
	BOSTON	346	1962 64 66			3 3 3	3 3 3	- - -	- - -	B707 VC10

SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 1

1.2.1 The General Committee reviewed the material presented to it under Agenda Item 1 and made no comment.



Agenda Item 2: Restatement of regionally agreed operational requirements resulting from the accepted table of aircraft operations, including determination of the principles of altimetry upon which vertical separation in the Region should be based

SECTION 1: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 2

2.1.1 Subcommittee 1 examined the statement of operational requirements developed by the Air Navigation Commission, noting its recommendation that the Meeting accept and employ the statement making changes only insofar as necessary to incorporate amendments of substance and requirements of purely regional application, and agreed to proceed using the statement as its basic document. The large measure of success which accompanied this method of procedure is reflected in the statement of basic operational requirements which follows. Included therein is the list of regular and alternate aerodromes for the Region and a statement respecting the desirability of fitting automatic pilots with height locks to aircraft crossing the North Atlantic at heights above 6,000 metres (20,000 feet).

STATEMENT OF BASIC OPERATIONAL REQUIREMENTS FOR
REGIONAL PLANNING

2.1.1.1 General

2.1.1.1.1 Air navigation facilities and services should be developed to meet the requirements of all types of civil aircraft engaged, or planned to be engaged, in international operations in the Region, during the next five years.

2.1.1.1.1.1 The types of aircraft referred to will include the following:

B 707	DC 4
B 720B	DC 6
BR 102	DC 6B
BR 300	DC 7B
BR 312	DC 7C
Comet 4	DC 8
Comet 4C	DC 8C
CV 880	L 1049
CV 990	L 1649A
Caravelle 6R	V 700
CL 44D	V 950
	VC 10

2.1.1.1.1.2 The notable operating characteristics of the aircraft listed above, to be taken into account in the development of facilities, services and procedures, are:

- i) Cruising speeds will range,
 - a) reciprocating engines - up to 350 knots;
 - b) turbine engines - up to 550 knots.
- ii) Climb and descent performance will vary considerably for the various aircraft types listed ranging from 500 to 4,000 feet per minute.
- iii) Cruising altitudes will range,
 - a) reciprocating engines - up to 25,000 feet*;
 - b) turbine engine - up to 45,000 feet.*

2.1.1.1.2 Operators should be enabled to exercise operational control in the Region in accordance with the findings of the ICAO Third Air Navigation Conference (Doc 7730 AN-CONF/3, Part VII, Section 4).

2.1.1.1.3 The need to minimize the workload in the cockpit should be taken into account when prescribing facilities, services and procedures for the Region.

2.1.1.1.4 In developing supplementary procedures and recommending facilities, care should be taken to ensure that they are, insofar as practicable, compatible with those for operations in the adjacent regions.

Note: When establishing the general requirements stated above, Subcommittee 1 agreed that determination of the required operational availability throughout a 24-hour period for existing and planned facilities and services should be left to the respective technical committees.

2.1.1.1.5 Fitting of automatic pilots equipped with height locks for aircraft crossing the North Atlantic at heights above 6,000 metres (20,000 feet) is considered to be a very desirable feature to assist in solving the problem of vertical separation.

* ICAO standard atmosphere

2.1.1.1.6 List of Regular and Alternate Aerodromes

Aerodrome	REG ALT	Aerodrome	REG ALT
BAHAMAS		GERMANY (cont'd)	
Nassau/Inter	REG	Frankfurt Main/	
BELGIUM		Frankfurt Main	REG
Bruxelles/National	REG	Hamburg/Hamburg	REG
BERMUDA		Hannover/Hannover	ALT
Kindley Field	REG	Koln/Koln-Bonn	REG
CANADA		München/München	ALT
Edmonton	REG	ICELAND	
Frobisher	ALT	Keflavik/Keflavik	REG
Gander/Inter	REG	Reykjavik/Reykjavik	REG
Goose/Goose	ALT*	Saudarkrokur/	
Halifax/Inter	REG	Saudarkrokur	ALT
Montreal/Inter	REG	IRELAND	
Ottawa/Uplands	ALT	Dublin/Dublin	ALT
Quebec	ALT	Shannon/Shannon	REG
Stephenville/Harmon		ITALY	
Field	ALT	Milano/Malpensa	REG
Sydney/Sydney	ALT	Roma/Leonardo da Vinci	REG
Toronto/Inter	REG	LUXEMBOURG	
Vancouver/Inter	REG	Luxembourg	REG
Winnipeg/Inter	REG	NETHERLANDS	
CUBA		Amsterdam/Schipol	REG
Habana/José Martí	REG	Groningen/Eelde	ALT
DENMARK		NORWAY	
Aalborg/Aalborg	ALT	Sergen/Flesland	ALT
København/Kastrup	REG	Bodø/Bodø	ALT
Søndre Strømfjord/		Oslo/Gardermoen	REG
Søndre Strømfjord	REG	Stavanger/Sola	ALT
FINLAND		PORTUGAL	
Helsinki/Helsinki	REG	Lajes/Lajes - Acores	ALT
FRANCE		Lisboa/Lisboa	REG
Bordeaux/Mérignac	ALT	Madeira/Porto Santo	REG
Marseille/Marignane	ALT	/Funchal	REG
Nice/Côte d'Azur	ALT	Santa Maria/Santa Maria	REG
Paris/Le Bourget	ALT	(Acores)	
Paris/Orly	REG	PUERTO RICO	
Reims/Champagne	ALT	San Juan/Inter	ALT
Tours/St. Symphorien	ALT	SPAIN	
FRENCH ANTILLES		Barcelona/Barcelona	ALT
Fort-de-France/		Madrid/Barajas	REG
Lamentin	ALT	Sevilla/San Pablo	ALT
(Martinique)		SWEDEN	
Pointe-a-Pitre/		Göteborg/Torslanda	REG
Le Raizet	REG	Malmö/Bulltofta	ALT
(Guadeloupe)		Stockholm/Arlanda	REG
GERMANY		SWITZERLAND	
Bremen/Bremen	ALT	Geneve/Cointrin	REG
Dusseldorf/		Zürich/Zürich	REG
Dusseldorf	ALT	TRINIDAD	
		Port of Spain	ALT

* See statement by the Delegation of Canada
at Part 2, Section 3.

2.1.1.1.6 List of Regular and Alternate Aerodromes (Cont'd)

Aerodrome	REG ALT
UNITED KINGDOM	
Bournemouth/Hurn	ALT
London/Heathrow	REG
Manchester/Manchester	REG *
Prestwick/Prestwick	REG
UNITED STATES OF AMERICA	
Anchorage/Inter	REG
Baltimore/Friendship	REG
Boston/Logan	REG
Buffalo/Greater	ALT
Burlington/Burlington	ALT
Chicago/O'Hare	REG
Cleveland/Hopkins	ALT
Detroit/Metropolitan	REG
Fairbanks/Inter	ALT
Indianapolis	ALT
Miami/Inter	REG
Milwaukee/General	ALT
Newark/Newark	ALT
New York/Inter	REG
New York/La Guardia	ALT
Philadelphia/Inter	REG
Pittsburg/Greater	ALT
St. Louis	ALT
Washington/National	REG
VENEZUELA	
Caracas/Maiquetia	ALT

2.1.1.2 Air Traffic Services

2.1.1.2.1 The Air Traffic Control system and procedures should be so devised as to:

- a) Permit aircraft to fly the optimum route in both the horizontal and vertical planes from point of departure to point of intended landing;
- b) Cater for the requirements of all ** aircraft;

* See statement by the Delegation of the United Kingdom at Part 2, Section 3.

** Including local, regional and military traffic insofar as they may affect international traffic.

- c) Enable the most efficient use to be made of the air-space by all users and also provide adequate integration of the various types of traffic with a view to securing the most expeditious handling and flow of air traffic.

Note: 1) Areas in which Air Traffic Services are provided should be sufficiently large as to ensure an efficient and economic regional system, thereby minimizing the coordination necessary between ATC Centres, and eliminating the discontinuities in procedures and practices which now occur in the vicinity of regional and control area boundaries.

- 2) Air traffic advisory service should only be planned for where the air traffic services are inadequate for the provision of air traffic control and the limited advice on collision hazards otherwise provided by flight information service will not meet the requirement. The provision of air traffic advisory service should be considered normally as a temporary measure only until such time as it can be replaced by air traffic control service.

2.1.1.2.2 All position reporting should be reduced to a minimum compatible with ATC requirements and all compulsory reporting points should, where practicable, be defined by radio navigational aids.

Note: In adopting this requirement Subcommittee 1 recognized that this did in no way affect the established procedures for making air reports.

2.1.1.2.3 Direct pilot-to-controller static free voice communications should be provided where practicable, particularly in terminal areas and on high density routes.

2.1.1.2.4 Where aircraft are required to utilize different systems for navigation and position determination within the same controlled air space, the ground facilities involved should, insofar as practicable, be so located and/or oriented as to enable a fully integrated air traffic control structure to be established.

2.1.1.2.5 A requirement exists for the provision of surveillance radar for monitoring and control of air traffic where either traffic density is high or multiplicity of converging routes create a difficult problem.

2.1.1.3 Search and Rescue

2.1.1.3.1 Provision should be made for Search and Rescue Service in the region concerned, covering both land and water areas, to ensure the safety of international air traffic.

2.1.1.4 Meteorology

2.1.1.4.1 Appropriate climatological records should be maintained on surface and upper air information up to 30,000 metres (100,000 feet).

Note - The intent of this requirement is to provide for the availability of climatological data considered necessary for the planning of future higher level operations.

2.1.1.4.2 Basic meteorological reports, surface and upper air, and air-reports should be made and distributed on a routine basis with sufficient geographical distribution and frequency of observation to protect operations at levels up to 14,000 metres (45,000 feet).

2.1.1.4.3 The ground exchange of operational meteorological information should satisfy the requirements of the pilot-in-command and the operator's local representative before and during flight, as stated in the tables, etc., contained in Table OPS-1.

Note - This requirement should not affect exchanges of meteorological information designated to meet EUM operational requirements.

2.1.1.4.4 Maximum transit time for operational meteorological messages passed over the ground channels should be as follows:

<u>Category of information</u>	<u>Transit Time</u>
Selected special reports	} 5 minutes
Amended aerodrome forecasts	
SIGMET information	
Special air-reports	
New or amended upper wind and temperature forecasts	
Reports of routine observations	As rapidly as possible and at least within the following time:
Landing forecasts	
Aerodrome forecasts	
Pressure values	
	Data originating up to 500 NM distant - 10 minutes
	From places 500 NM to 1000 NM distant - 15 minutes
	From places more than 1000 NM distant - 20 minutes

2.1.1.4.5 Appropriate meteorological information should be available to air traffic ~~services~~ units and operators to enable them to apply the altimeter setting procedures adopted for the Region. (See Table OPS-1)

2.1.1.4.6 Atmospheric pressure information at the elevation of the aerodrome should be provided as required for pre-flight planning purposes, particularly for turbine-engined aircraft.

2.1.1.4.7 Temperature and dew-point values should be included in reports of routine observations used locally for pre-flight planning purposes and, if required, in respect of certain stations, also for availability to aircraft in flight.

2.1.1.5 Telecommunications

2.1.1.5.1 Aeronautical Fixed Services

2.1.1.5.1.1 The aeronautical fixed services should be capable of meeting the requirements of ATS, SAR, MET, AIS (NOTAM) and airline agencies of the Region. Where necessary, inter-regional circuits should also be provided consistent with the requirements that may be foreseen.

2.1.1.5.1.2 Transit times should be reduced as much as possible to meet operational requirements of high speed aircraft. Transit times should be expressed in the following form:

In the average peak hour, in the peak season of the year, at least 95% of messages of higher priority classifications (SS, DD and FF priority indicators) flowing from ... (the specified AFTN station at which the messages are filed) to ... (the specified AFTN Addressee station) should achieve a transit time of less than ... (a specified number of minutes).

2.1.1.5.2 Aeronautical Mobile Services

2.1.1.5.2.1 The primary method of operation in the aeronautical mobile services should be radiotelephony and wherever practicable Very High Frequency channels should be employed. Where this is not technically feasible, HF radiotelephony should be provided.

2.1.1.5.2.2 The locations at which States intend to operate automatic (electronic/mechanical) selective calling devices, such as SELCAL, should be specified.

2.1.1.5.2.3 The transmission of MET information to aircraft should be by radiotelephony:

- i) on a request/reply basis
- ii) on the initiative of the ground authority or agency
- iii) by broadcast at suitable intervals and with appropriate frequencies and range of transmission.

Note: The methods selected should depend on evaluation of the type and/or expected volume of such information.

2.1.1.6 Radio Navigational Aids

2.1.1.6.1 Short Distance Aids

- 2.1.1.6.1.1 a) VOR shall be installed as the primary aid for "track guidance along all air routes and to provide coverage in all terminal areas for the establishment of such patterns of tracks as may be required for ATC purposes." These facilities should be deployed so as to provide coverage down to the lowest cruising altitude normally used by fixed wing aircraft.
- b) The above principles apply to the entire Region except in those areas where VOR coverage is not feasible and for which alternative means must be provided.
- c) VOR's should be supplemented by DME where justified for ATS and/or navigation purposes.

2.1.1.6.1.2 The need to retain an existing NDB, when a VOR is installed nearby, should be reviewed by the State providing the facility in consultation with the operators concerned, taking into account the additional functions of the NDB.

2.1.1.6.1.3 VOR's should, where practicable, be sited so as to provide both en route navigational assistance and navigational assistance in the terminal area.

2.1.1.6.2 Aids to Approach and Landing

2.1.1.6.2.1 There is a requirement for the continued operation and further implementation of ILS.

2.1.1.6.3 Long Distance Aids

2.1.1.6.3.1 Self-contained navigational aids show great promise of becoming a means for long distance navigation. Until it has been established that self-contained aids alone can reliably provide the required degree of navigational accuracy, it will be necessary to supplement this system with selected NDB's, CONSOL and LORAN which are in operation.

2.1.1.6.4 Secondary Surveillance Radar

2.1.1.6.4.1 Secondary Surveillance Radar for terminal areas as well as for longer distances should be provided wherever it is needed to improve the safe and expeditious handling of air traffic.

VERTICAL SEPARATION CRITERIA

2.1.2 The Subcommittee considered at some length the principles of altimetry upon which vertical separation in the Region should be based. To assist it the RAC/SAR Committee was asked to state whether or not it considered it extremely difficult or impossible to provide for expeditious movement of all NAT traffic without a decrease of vertical separation criteria. The RAC/SAR Committee replied that it was of the opinion that:

- a) any reduction in vertical separation criteria must be viewed primarily from the standpoint of safety rather than from that of the expeditious movement of traffic;
- b) the problem inherent in reducing vertical separation of aircraft is not peculiar to the NAT Region and, in this regard, it is to be noted that the subject of "Vertical Separation" is actively being studied by ICAO;
- c) vertical separation must not be considered in isolation; account must also be taken of horizontal separation criteria which are of importance to the expedition of the flow of traffic;
- d) being unable to predict the number of movements in the Region during the next five years with any degree of precision or certainty, it is not possible to give a categoric reply to the question posed by Subcommittee 1;
- e) conclusions of the RAC/SAR Committee on Agenda Item 16 may materially affect this question.

2.1.2.1 In the light of its discussion, and the opinion expressed by the RAC/SAR Committee, the Subcommittee concluded that the matter was one of world-wide rather than regional import and made the following recommendation:

RECOMMENDATION No. 2/1 - VERTICAL SEPARATION CRITERIA

That, in view of the importance of vertical separation criteria in the planning of Air Traffic Services for the NAT Region, as well as for other regions of high traffic density, the work of the Organization in the field of vertical separation be pursued vigorously to an early conclusion and be presented in a form suitable for early application in regional ATS planning.

2.1.2.2 The RAC/SAR Committee was advised that Subcommittee 1 considered that the status quo should be maintained.

EMERGENCY AND SURVIVAL EQUIPMENT

2.1.3 The Subcommittee considered that the draft operational requirements presented to it concerning the provision of emergency and survival equipment related to paragraphs 6.3.3.1 and 6.3.3.2 of Annex 6 were more appropriate to the work of the RAC/SAR Committee and referred them to that Committee for consideration and report.

DEVELOPMENT OF A SYSTEMS PLANNING APPROACH TO MEET LONG-TERM TECHNICAL AND OPERATIONAL REQUIREMENTS FOR THE PROVISION OF AIR TRAFFIC CONTROL AND RELATED SERVICES IN THE NORTH ATLANTIC REGION

2.1.4 The Subcommittee considered a proposal of the United States of America to endorse development of a systems planning approach to meet long-term technical and operational requirements for the provision of air traffic control and related services in the North Atlantic Region.

2.1.5 The Subcommittee considered that because of the complexity of the problems involved and the need for a system approach in this area, every feasible step should be taken to plan on the soundest technical basis. The use of the term "systems planning approach" is not a new term. As used in this context it is compatible with established ICAO Regional planning principles. However, it places needed emphasis on the following factors which collectively contribute to the solution of the new problems associated with international jet age planning:

- 2.1.5.1 More precise understanding of the present system of air navigation facilities and service and its deficiencies as it now operates.
- 2.1.5.2 Determination of long-term goals, considering all technical factors and elements, without undue influence by established national concepts, philosophies, boundaries, and economic situations.
- 2.1.5.3 Expanded time-frame to include all practicable long-term goals, followed by solution of individual elements each of which forms its proper part of the integrated system.
- 2.1.5.4 Determination of each implementation phase most responsive to the projected traffic flow and sound economic practices.
- 2.1.6 Long-Term Technical Goals
 - 2.1.6.1 The following five long-term technical goals should govern planning for the North Atlantic.

2.1.6.1.1 Consolidation of the various parts of the North Atlantic Air Traffic Control System

2.1.6.1.1.1 Control Areas and Control Centres

A part of the ultimate goal should be the reduction of the number of control areas and control centres to the practicable minimum. Details for an ultimate goal have yet to be worked out and are beyond the capabilities of this Meeting; however, the plan of the Air Traffic Control system in the North Atlantic, which would be in effect for the next 4 or 5 years and which can be accomplished at this Meeting, should be patterned in such a way as to work towards this ultimate goal.

2.1.6.1.1.2 Alignment of the North Atlantic communications system with the necessary steps toward consolidation of the Air Traffic Control system

An example of an immediate step which may be taken in this respect is the planning for maximum use of extended range VHF communication technique (static free air ground communications). Every avenue should be explored toward obtaining total coverage of the North Atlantic with this air/ground communications capability. Additional necessary actions include a phasing out of present-day conventional high frequency air/ground communications which for many purposes are now outdated; the re-programming of present point-to-point circuitry is required. These actions are all vital to the achievement of a communication system compatible with the Air Traffic Control system as it is developed toward the ultimate goal.

2.1.6.1.1.3 A useful and economic system of navigation for the North Atlantic

The several possible systems in this connection are generally known. Most needed is a careful analysis of which particular system or combination of systems will serve best the long-term needs. Equally important is a determination of the direction which will lead to the lowest practicable cost consistent with safe and efficient operation, and considering both airborne and ground elements of the system. This is a goal which will require much future work by States and in the appropriate ICAO Division Meeting.

2.1.6.1.1.4 A consolidated system of meteorological service for the North Atlantic

The long-term goal should be achievement of the possibility of obtaining the meteorological service related to flight planning from a reduced number of meteorological centres and in the same area to use the same information. In working to this goal it would appear possible, for example, to establish a system of wind components and temperatures at cruising altitudes for common use on a North Atlantic wide basis.

- 2.1.6.1.2 Application of automation in reaching the above indicated goals

Programmes for the development and design of automated devices for both airborne and ground elements of the above-mentioned systems are very active. It is essential that the North Atlantic States providing ground services coordinate, at the earliest possible date, their national efforts in this regard with a view to reaching compatible and efficient operational usage, taking into account coordination with adjacent areas. The potential roles of these devices must be carefully analyzed in making short-term planning decisions regarding the above mentioned systems, in order to assure necessary compatibility.

2.1.7 Action by Subcommittee 1

2.1.7.1 The Subcommittee recognized the need for a systems planning approach to the problems involved in this Region to meet long-term technical and operational requirements for the provision of Air Traffic Control and related services in the North Atlantic Region, and agreed the following operational requirement.

2.1.7.1.1 A properly conceived systems planning approach is essential to meet long-term technical and operational requirements for the provision of Air Traffic Control and related services in the North Atlantic Region. (Related services may include Communications, Navigational Aids and Meteorological services).

RECOMMENDATION No. 2/2 - SYSTEMS PLANNING APPROACH FOR AIR TRAFFIC CONTROL AND RELATED SERVICES IN THE NORTH ATLANTIC REGION

That the Council, with a view to promoting safer, more efficient, or more economical service, initiate suitable action for further study on the following long-term technical goals and on the international cooperation required to achieve them.

2.1.7.1.2 General long-term technical goals to govern NAT planning should include, inter alia:

2.1.7.1.2.1 Consolidation, wherever feasible, of FIR's and control areas;

2.1.7.1.2.2 Coordinated alignment of the NAT communications system (the AFS, the AFTN and the aeromobile service) with any steps which may be taken toward consolidating air traffic services;

2.1.7.1.2.3 A single integrated system for navigation (which may include both ground-based and self-contained aids) aligned with the requirements of the ATS system;

- 2.1.7.1.2.4 The possibility of obtaining the meteorological service related to flight planning from a reduced number of meteorological centres.
- 2.1.7.1.2.5 A compatible and efficient application wherever necessary of automation to the NAT ATS and related services, to be achieved by coordination between the NAT States actively engaged in the development and application of automated devices on both sides of the North Atlantic.
- 2.1.7.1.3 The aim in consolidating certain of the North Atlantic services should be to provide a safer, more efficient or more economical service. For initial application at this Meeting the technical committees should propose such changes in the NAT ATS, COM, MET or SAR plans as are technically and operationally justified, in accordance with the principles normally followed in ICAO RAN Meetings, with particular emphasis upon those changes which will progressively serve to attain the long-term goals, including for example, 1) consolidation of areas, 2) re-alignments of FIR boundaries, and 3) modifications of procedures.
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TABLE OPS-1METEOROLOGICAL INFORMATION FOR OPERATIONAL CONTROL PURPOSES

Note 1 - Sections 1, 2 and 3 below represent the overall meteorological requirements of pilots-in-command and operators' local representatives for exercise of operational control, as far as the availability of the material is concerned. In only two cases - in-flight requirements for amended aerodrome forecasts and SIGMET information - is the transmission aspect mentioned.

Note 2 - To simplify the presentation of material in Sections 1 and 2 the following terms have been included to convey the meaning indicated:

- a) EN-ROUTE ALTERNATE. An en-route alternate is an international aerodrome along or adjacent to a route, information concerning which is required to enable a determination to be made of the feasibility of commencing and/or continuing safely the flight along the route to the destination aerodrome.
- b) FINAL AERODROME. The final aerodrome is to be construed as the next aerodrome on the route at which documentation will be provided in accordance with PANS-MET, para. 2.5.2.1 or, when there is no such aerodrome, the aerodrome at which the flight is planned to terminate.
- c) SIGNIFICANT OBSERVATION STATION. A significant observation station is a station along or adjacent to the route and not at an international aerodrome from which, for the safe conduct and planning of a flight, information is required as an indicator of en-route weather conditions.

Note 3 - In calculating distances equivalent to hours of flight time a speed of 550 knots has been determined by the Meeting.

1. FLIGHT PREPARATION - AVAILABILITY OF
METEOROLOGICAL INFORMATION FOR THE PILOT-IN-COMMAND

Category	Relating to	For	Remarks
Reports of routine observations	Aerodrome of departure and its alternates	All flights	
	Significant observation stations along and adjacent to route up to a distance from aerodrome of departure equivalent to 2 hours' flying time.	All flights	With possible exceptions to 2 hours for certain routes
	Final aerodrome and its alternates	Flights not exceeding 2 hours flying time	With possible exceptions to 2 hours for certain routes
Special reports	Aerodrome of departure	All flights	
Selected special reports	Aerodromes for which reports of routine observations are required up to a distance from the aerodrome of departure equivalent to 2 hours flying time	All flights	With possible exceptions to 2 hours for certain routes
Take-off reports	Aerodrome of departure	All flights	
Pressure values	Sufficient reporting stations or points to permit compliance with regionally agreed altimeter setting procedures and for terrain clearance	All flights	

Category	Relating to	For	Remarks
<u>Air-reports</u>	All reports, applicable to route, received at aerodrome of departure whether received direct or by relay	All flights	
<u>SIGMET information</u>	Route ahead up to a distance from aerodrome of departure equivalent to 2 hours' flying time	All flights	
<u>Aerodrome forecasts</u>	Aerodrome of departure and its alternates	All flights	
	Final aerodrome and its alternates	All flights	The validity period shall commence at least one hour before the estimated time of arrival at the final aerodrome and shall also cover flight to furthest alternate plus two hours

Category	Relating to	For	Remarks
<u>Aerodrome forecasts</u> (cont'd)	Intermediate stops and their alternates	All flights	The validity period shall commence at least one hour before the estimated time of arrival at the intermediate stop and shall also cover flight to furthest alternate plus two hours
	En-route alternates	Flights specified by the operator	The validity period shall commence at least one hour before the estimated time of arrival at the en-route alternate and shall also cover two hours flight beyond that aerodrome
<u>Amendments to aerodrome forecasts</u>	Aerodromes in respect to which forecasts are required	All flights	
<u>Flight, route and/or area forecasts and amendments</u>		All flights	

2. IN-FLIGHT SERVICE - AVAILABILITY OF METEOROLOGICAL
INFORMATION FOR THE PILOT-IN-COMMAND

Category	Relating to	Flight Stage	Distance from a/c	Remarks
<u>Reports of routine observations</u>	Aerodrome of departure and its alternates	First 2 hours		With possible exceptions to 2 hours for certain routes
	Significant observation stations along and adjacent to routes	Entire flight	Up to 2 hours' flying time	With possible exceptions to 2 hours for certain routes
	Final aerodrome and its alternates	Last 2 hours		With possible exceptions to 2 hours for certain routes
<u>Special reports</u>	Aerodrome of intended landing	In the terminal area		
<u>Selected special reports</u>	Aerodromes from which reports of routine observations are required		Up to 2 hours' flying time	With possible exceptions to 2 hours for certain routes
<u>Reports of runway visual range observations</u>	Aerodrome of intended landing when the visibility is 1000 m (1100 yards) (or a higher value agreed locally) or less	Last hour		
<u>Reports for an approach-to-land</u>	Aerodrome of intended landing	In the terminal area		
<u>QNH values</u>	Sufficient reporting stations en route for application of altimeter setting procedures and for terrain clearance	Entire flight	Appropriate segments of route	

Category	Relating to	Flight Stage	Distance from a/c	Remarks
Special air-reports	Aircraft en route ahead	Entire flight		Those reports which: a) have not been used in the preparation of a SIGMET message; and b) do not repeat the significant information contained in a special air-report already transmitted to aircraft likely to be affected
SIGMET information	Route ahead	Entire flight	Up to 2 hours' flying time	SIGMET information covering a portion of the route up to a minimum of one hour's flying time ahead of the aircraft should be passed to the aircraft, on ground initiative, during the entire flight
Aerodrome forecasts	Aerodrome of departure and its alternates	For as long as required		This requirement is dependent largely upon such variables as: a) location of departure alternates with respect to aerodrome of departure, b) location of usable en-route alternates
	Final aerodrome and its alternates	Entire flight		The validity period shall commence at least one hour before the estimated time of arrival at the final aerodrome and shall also cover flight to furthest alternate plus two hours
	Intermediate stops and their alternates	Until landing made there or no longer expected		The validity period shall commence at least one hour before the estimated time of arrival at the intermediate stop and shall also cover flight to furthest alternate plus two hours

Category	Relating to	Flight Stage	Distance from a/c	Remarks
<u>Aerodrome forecasts</u> (cont'd)	Significant en-route alternates	While appropriate		The validity period shall commence at least one hour before the estimated time of arrival at the en-route alternate and shall also cover two hours' flight beyond that aerodrome
Amended aerodrome forecasts	Aerodromes from which forecasts are required	While aerodrome forecasts are required		The passing of amended aerodrome forecasts for the final aerodrome and its alternates to aircraft on the initiative of air traffic services units should be limited to that portion of the flight where the aircraft is within 2 hours of the final aerodrome
Landing forecasts	Aerodrome of intended landing	Last hour		The validity period shall be one hour
New or amended upper wind and temperature forecasts		Entire flight as appropriate		

3. AVAILABILITY OF METEOROLOGICAL INFORMATION FOR THE OPERATOR'S LOCAL REPRESENTATIVE

In respect of the flight operations for which he has been designated duties by the operator, the operator's local representative requires:

- a) some or all of the categories of information listed in Sections 1 and 2;
- b) access to relevant charts and consultation with meteorologists.

SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 2

- 2.2.1 The General Committee reviewed the material presented to it under Agenda Item 2 and made no comment.

SECTION 3: STATEMENTS BY DELEGATES ON AGENDA ITEM 2

2.3.1 STATEMENT BY THE DELEGATION OF CANADA

Notwithstanding the designation of Goose as an alternate, aircraft may flight-plan to Goose, both east and west-bound when the regular airport at Gander and the refuelling stop at Frobisher are unusable. Permission to use Goose under these circumstances is granted as a concession only, and its unauthorised use may result in the privilege being cancelled.

2.3.2 STATEMENT BY THE DELEGATION OF THE UNITED KINGDOM

The United Kingdom has noted the inclusion in the NAT Regional Plan of Manchester as a Regular International Aerodrome, and accepts its designation on the understanding that it does not involve an extension of existing facilities and services.

2.3.3 STATEMENT BY IATA

"IATA considers it a fundamental principle that airspace should be conserved and that the vertical separation of aircraft should not be greater than absolutely necessary to ensure safety.

IATA regrets, therefore, that notwithstanding:

- (i) the extensive and successful measures taken by relevant sections of the aviation industry to improve the altimeter systems of civil jet aircraft;
- (ii) the action taken by Member Airlines of IATA in installing precision altimeters in jet aircraft operating transatlantic routes, and
- (iii) the total evidence now available, including the findings of the ICAO Vertical Separation Panel;

the ICAO Fourth NAT RAN Meeting declined to recommend any reduction whatsoever in the present increased vertical separation standard above Flight Level 290."

Agenda Item 3: Altimeter Setting Procedures.SECTION 1: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 3.

3.1.1 Having reviewed the background of the transferring of altimeter setting procedures from Regional Supplementary Procedures to the PANS-OPS, PANS-RAC, and PANS-MET the Subcommittee considered that these documents now satisfactorily met the requirement in the Region for altimeter setting procedures and there remained no action to be taken by this meeting on this subject.

SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION
TAKEN ON AGENDA ITEM 3

3.2.1 The General Committee reviewed the material presented to it under Agenda Item 3 and made no comment.

Agenda Item 4: Radio Navigation Aids, including
4.1: Modernization of the LORAN Station
at Frederiksdal, Greenland.

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO
AGENDA ITEM 4:

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Subcommittee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraphs 2.1.1.1 and 2.1.1.6 of the Report on Agenda Item 2 governed the consideration of Agenda Item 4.

SECTION 1: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 4

4.1.1. General

4.1.1.1. Subcommittee 1, in formulating its recommendations concerning navigational aids, reviewed the current plan for the Region (Doc 7674/2 as amended to 15 June, 1961) taking into consideration the recommendations of regional meetings relating to the areas of overlap of the NAT Region and adjacent regions, the existence of additional aids and the plans of States for new installations.

4.1.1.2. Long distance navigational requirements in the Region have been satisfied primarily by the use of CONSOL, Loran and High power LF/MF non-directional beacons already provided in the Region.

4.1.1.3 The stated operational requirements for short distance aids were satisfied to the maximum extent practicable by recommendations for the installation of additional VOR facilities, and whenever justified for ATS and/or navigation purposes by recommendations for the provision of DME. Particular attention was given to those areas in the Region where siting or operating conditions were particularly difficult and alternative means such as the provision of NDB's were recommended.

4.1.1.4. In reviewing the requirements for non-visual aids to approach and landing, the amended list of regular and alternate aerodromes developed by the Meeting as a result of its consideration of the plan of aircraft operations was used as a basic reference document.

4.1.1.5. Requirements for radar installations including Secondary Surveillance Radar were considered and resulted in a number of recommendations by the Subcommittee.

4.1.1.6. Particular note was also taken of the stated operational requirement regarding compatibility of navigation systems, and in view of the importance of this matter to Air Traffic Control, it was decided to make this the subject of a recommendation.

RECOMMENDATION No. 4/1: COMPATIBILITY OF NAVIGATION SYSTEMS

That where aircraft are required to utilise different systems for navigation and position determination within the same controlled airspace, the ground facilities involved should, insofar as practicable, be so located and/or oriented as to enable a fully integrated air traffic control structure to be established.

4.1.2. Long Distance Radio Navigation Aids.

It was agreed that self-contained navigational aids show promise of becoming a means for long distance navigation, and that until it had been established that these aids alone could reliably provide the required degree of navigational accuracy, it would be necessary to supplement this system with selected NDB's CONSOL and LORAN which are already in operation.

CONSOL

4.1.2.1 Subcommittee 1 examined the current NAT Regional Plan respecting CONSOL stations and, on the understanding that the stations presently available would be continued in service, agreed that the following stations which had not yet been provided, could be deleted from the Regional Plan.

RECOMMENDATION No. 4/2: REQUIREMENTS FOR CONSOL

- 1) That existing Consol Stations be continued in operation, and
- 2) That the requirement for the following Consol stations be deleted from the Regional Plan.

Canada	-	Cape Harrison
	-	St. John's Newfoundland
Denmark	-	Nanortalik (Greenland)
Iceland	-	Eyrbakki
Portugal	-	Santa Maria

4.1.2.2. It was noted that the Consol station at Atlantic City which had encountered considerable frequency difficulties whilst on test was to be relocated at Cape Hatteras and it was agreed that this met the intent of an earlier NAT RAN recommendation on this subject. Information was also provided regarding improvements effected at the stations at Sevilla and Lugo and whilst it was noted that these did not entirely satisfy the previous recommendations on this matter, it was agreed that no further improvement was now required.

LORAN

4.1.2.3. It was agreed that the Loran stations at present in the Plan satisfied the operational requirements for the Region and that there was no need to recommend any further coverage by this aid.

RECOMMENDATION No. 4/3: REQUIREMENTS FOR LORAN FACILITIES

That the Loran facilities indicated in Chart COM-6 which form part of the NAT Plan should be maintained in operation.

Comment: Additional Loran facilities which are available for civil use but which do not form part of the Plan are the subject of Recommendation No. 4/4.

4.1.2.4. The Subcommittee, however, took note of a number of additional Loran stations which had been brought into operation in the Region, and which were known to be available for civil use, and decided to list these as available facilities that do not form part of the basic plan. These facilities are as follows:

CHAIN - NORWEGIAN SEA

Name:	Jan Mayen	Tarva	Bø i Vesteraalen
Position:	70°55'20,265"N 08°42'23,774"W	63°49'31,40"N 09°24'55,00"E	68°37'56,08"N 14°27'27,26"E
Function:	Master	Master	Double slave
Rate:	ILO	ILI	ILO/ILI
Frequency:	1950 Kc/s	1950 Kc/s	1950 Kc/s
Peak Power:	1000 kW	1000 kW	800 kW

CHAIN - DENMARK STRAIT

Name:	Sandur	Orssuiaqssuag	Kudlek
Position	64°54'14,768N 23°55'55,286W	65°29'04,11N 38°53'10,65W	61°32'31,0N 42°14'03,0W
Function	Master	Double slave	Master
Rate:	IL4	IL4/IL5	IL5
Frequency:	1950KC/S	1950KC/S	1950KC/S
Peak Power	1000kW	800kW	1000kW
Availability:	Undergoing system accuracy check. When declared operational - H24		

CHAIN - BAFFIN BAY

Name:	Cape Antholl	Cape Christian	Nipisat
Position:	76°19'12,92N 69°22'03,32W	70°31'42,98N 68°13'06,88W	69°26'58,32N 54°14'48,02W
Function:	Master	Double slave	Master
Rate:	256	256/257	257
Frequency:	1850 Kc/s	1850 Kc/s	1850 Kc/s
Peak Power:	1000 kW	800 kW	1000 kW

CHAIN - WEST INDIES

Name:	San Salvador	So. Caicos	Cape San Juan
Position:	24°07'14,72N 74°27'04,84W	21°34'13,60N 71°29'44,01W	18°23'14,68N 65°37'12,85W
Function:	Master	Double slave	Master
Rate:	2L3	2L3/2L2	2L2
Frequency:	1850 Kc/s	1850 Kc/s	1850 Kc/s
Peak Power:	160 kW	128 kW	160 kW

CHAIN - GULF OF MEXICO

Name:	Venice	Cape San Blas	Biloxi
Position:	27°04'36,97N 82°27'02,18W	29°40'05,07N 85°21'28,23W	30°23'26,712N 88°51'32,507W
Function:	Slave	Double Master	Slave
Rate:	2H0	2H0/2H1	2H1
Frequency:	1850 Kc/s	1850 Kc/s	1850 Kc/s
Peak Power:	160 kW	128 kW	160 kW

4.1.2.5. In listing these additional facilities the Subcommittee recognised the importance of information being available to the airline operators regarding details of operation of all additional Loran stations and therefore framed the following recommendation:

RECOMMENDATION No. 4/4: INFORMATION REGARDING ADDITIONAL LORAN STATIONS

That States responsible for the operation of the additional Loran stations listed in this Report should provide full details of operation to all concerned by means of AIP and NOTAM action. Loran charts should also be made available.

Non-directional Beacons (NDB's)

4.1.2.6. The Subcommittee noted during its discussion of the coverage provided by existing NDB's that the Government of Portugal intended to provide a suitable beacon at Marateca which would replace the NDB at Barcarena which had recently been withdrawn from service. With this change, it was agreed that the long distance NDB's at present in the Plan would satisfy the operational requirements for the Region.

RECOMMENDATION No. 4/5 - REQUIREMENTS FOR LONG DISTANCE NDB's

That the following change be made in the present long distance NDB Plan for the NAT Region:

- delete the requirement for Barcarena and insert in lieu thereof Marateca.

4.1.3. Short Distance Aids

4.1.3.1. In developing the requirements for short distance aids the Subcommittee was in agreement that the EUM Plan for short range Nav aids fully met the NAT requirements in Europe. It, therefore, limited itself to indicating as NAT requirements those facilities in the proximity of the Atlantic which are essential for NAT operations on entry into the EUM Region.

Very High Frequency Omni-Directional Radio Range (VOR)

4.1.3.2 The Subcommittee therefore agreed to the deletion as NAT requirements of a number of VOR's already provided for in the EUM Region; also one in North America for which there was now no NAT operational requirement. It also recommended inclusion of 32 additional facilities of which a number were already included in the plans of adjacent regions. The priorities listed against certain facilities were removed, and a number of suitable frequencies noted for inclusion in the plan.

RECOMMENDATION No. 4/6 - REQUIREMENTS FOR VOR

That the VOR plan be amended by:

1) deletion of VOR requirement:

- | | |
|-------------|---|
| Canada | - Grey River |
| Belgium | - Bruxelles/National |
| Denmark | - Billum, København/Kastrup, Ramme. |
| France | - Bordeaux/Merignac, Orgeval, Paris/Orly. |
| Germany | - Dusseldorf, Frankfurt Main, Hamburg. |
| Ireland | - Dublin. |
| Netherlands | - Groningen/Eelde, Spijkerboor. |

Norway - Kristiansand/Kjevik, Skien.
 Spain - Barcelona, Madrid/Barajas.
 Sweden - Stockholm/Arlanda
 Switzerland - Froideville, Trasadingen
 United Kingdom - Epsom, London/Chertsey.

- 2) addition of the following VOR's with their recommended frequencies or those included in the regional plans of adjacent regions;

Bahamas	- Nassau	(CAR)	112.7
Canada	- St. Andrews		
	- St. John N.B.		113.5
	- Toronto		116.2
Denmark	- Akraberg		
	(Faroe Is.)	(EUM)	116.8
	- Angmagssalik		
	(Greenland)		
France	- Brest	(EUM)	117.8
	- Cognac	(EUM)	116.2
	- Dax	(EUM)	114.6
	- Nantes	(EUM)	112.9
French Antilles	- Fort-de-France	(CAR)	117.5
	- Pointe-a-Pitre	(CAR)	115.1
Ireland	- Cork	(EUM)	114.6
	- Eagle Island	(EUM)	117.4
Norway	- Bergen	(EUM)	114.5
	- Bodø	(EUM)	114.6
	- Stavanger/Sola	(EUM)	114.1
	- Traena	(EUM)	112.0
	- Vigra	(EUM)	115.8
Portugal	- Lajes		112.3
	- Marateca	(EUM)	113.9
Puerto Rico	- San Juan	(CAR)	114.0
Spain	- Santiago	(EUM)	116.4
U.K.	- Belfast	(EUM)	114.3
	- Sennen	(EUM)	114.2
	- Stornaway	(EUM)	115.1
U.S.A.	- Anchorage		114.3
	- Barter Island		
	- Burlington		112.4
	- Concord		116.6
	- Hartford		114.9
	- Putnam		113.8

4.1.3.3. There was general agreement that there was also an operational requirement for the provision of VOR at Prins Christians Sund and Søndre Strømfjord in Greenland. However, the Subcommittee took note of information provided by the Danish Government that thorough investigation had proved that it would not be technically feasible at present to provide these facilities at the locations suggested. In view of this, and taking into account the availability of suitable NDB's at these locations, it was agreed, pending further technical development of VOR and/or further study of siting problems, that only Distance Measuring facilities should be recommended. This decision is reflected in the action taken on Recommendation 4/8.

Distance Measuring Equipment (DME)

4.1.3.4. In considering the requirements for DME the Subcommittee noted that there were no ICAO Standards governing the co-location of VOR and DME.

4.1.3.5. After some discussion, it was agreed that the principles accepted by the Second Limited European-Mediterranean Regional Meeting (1961) were equally appropriate for the NAT Region and that a similar recommendation should be made.

RECOMMENDATION No. 4/7 - ASSOCIATION OF DME WITH VOR

That:

1. DME facilities should be associated with VOR installations and used with paired channels, with the antennae of the two facilities:
 - a) not more than 30 metres (100 feet) apart for those facilities used in TMA's for approach purposes or other TMA procedures where the highest possible fixing accuracy of which the system is capable is required;
 - b) not more than 600 metres (2000 feet) apart for facilities used for purposes other than those stated in a) above;
2. In all cases appropriate details of the associated installation should be published in AIP's.

Note: The Subcommittee recognised that DME can be used to advantage even under circumstances where the distance of 600 metres (2000 feet) between it and the associated VOR must be exceeded. Although there are serious limitations in the use of the system when this distance is exceeded, each individual case should be examined in the light of the specific use to be made of the facility.

4.1.3.6. It was further considered that this matter should be dealt with as soon as possible on a world-wide basis, and the hope expressed that the Agenda for the forthcoming COM Division would admit the consideration of the specific proposals on this subject under its Agenda Item 10.3.

4.1.3.7. Concern was also expressed regarding DME information being derived from DME stations within the coverage of, but not co-located with VOR's which are operating on standard frequency pairing. It was hoped that this matter would also be resolved as a result of actions that might be taken by the Seventh COM Division.

4.1.3.8. It was recognised that the provision of air traffic control in certain parts of the NAT Region where traffic density was high and intermingling of traffic had to be catered for, was adversely affected by the lack of Distance Measuring facilities. It was considered, therefore, that the availability of DME at a number of locations would materially improve the capabilities of air traffic control and the following recommendation was, therefore, framed:

*RECOMMENDATION No. 4/8 - REQUIREMENTS FOR DME

That the NAT/Plan be amended by the addition of requirements for DME in association with existing or recommended VOR's at the following locations except in the case of Denmark as indicated

Bahamas	- Nassau		
Bermuda	- Kindley Field		
Canada	- Gander		
	- Goose	- Sydney	
	- Moncton	- Toronto	
	- Montreal	- Yarmouth	
Denmark	- Akraberg (Faroe Is.)		
	- Prins Christian Sund (Greenland) to be associated with NDB.		
	- Søndre Strømfjord (Greenland) to be associated with NDB.		
France	- Brest	(EUM)	- Nantes (EUM)
	- Cognac	(EUM)	
Iceland	- Keflavik		
Ireland	- Cork	(EUM)	- Shannon (EUM)
	- Eagle Island	(EUM)	
Norway	- Bergen	(EUM)	
	- Bodø	(EUM)	
	- Vigra	(EUM)	

* See statement by the Delegation of Canada at Part 4, Section 3.

Portugal	- Lisboa	(EUM)	
Puerto Rico	- San Juan		
Spain	- Santiago	(EUM)	
U.K.	- Prestwick	(EUM)	- Sennen (EUM)
	- Stornaway	(EUM)	- Strumble (EUM)
U.S.A.	- Albany		- Kennebunk
	- Anchorage		- Nantucket
	- Bangor		- New York/
	- Barter Is. Alaska		Internat.
	- Boston/Logan		- Plattsburg
	- Burlington		- Poughkeepsie
	- Concord		- Presque Isle
	- Detroit		- Putnam
	- Hartford		- Riverhead

4.1.3.9. The Subcommittee also agreed that there was a requirement for the provision of DME at Ciudad Trujillo in the Dominican Republic and Caracas in Venezuela to satisfy North Atlantic operations. This equipment was required at these locations in order to:

- i) facilitate entry and departure of the terminal area, to enable air traffic control to apply more accurate terminal area separation.
- ii) achieve more accurate crossing altitudes during climb and descent over points specified by ATC and;
- iii) assist aircraft in making an accurate landfall.

4.1.3.10. It was finally agreed that these requirements should be recommended under the appropriate Regional Plan.

RECOMMENDATION No. 4/9 - ADDITIONAL REQUIREMENTS FOR DME

That the requirements for DME at Ciudad Trujillo and Caracas be processed by ICAO in accordance with the standard procedure for amendment of the appropriate Regional Plans.

Non-Directional Radio Beacons (NDB's) and LF/MF Radio Ranges (RNG's)

4.1.3.11. In examining the need to retain any existing short range NDB's or Radio Ranges, the Subcommittee decided that with minor exceptions all NDB's and Ranges provided for the same purpose as an existing VOR should be deleted from the Regional Plan. Where a VOR was recommended, but had not yet been provided, the existing NDB or range should be retained until such time as the VOR was installed and functioning satisfactorily, after which it could be withdrawn after consultation with the operators concerned.

4.1.3.12. It was also decided to add certain additional facilities of which the majority were already included in the plans of adjacent regions.

RECOMMENDATION No. 4/10 - REQUIREMENTS FOR SHORT DISTANCE NDB's AND LF/MF RANGES

That the requirements for NDB's and radio ranges be amended as follows:

- 1) deletion of all NDB's and ranges with the exception of the following:

Canada	- Cape Harrison	NDB on 344 Kc.
	- Megantic	RNG*
	- Mont Joli	RNG*
	- St. Andrews	RNG*
	- St. John's NFLD	RNG*
	- Sept Iles	RNG*
Denmark	- Akraberg	NDB*
	- Angmagssalik	NDB*
French Antilles	- Fort-de-France	NDB*
Norway	- Bodø	NDB*
Portugal	- Flores	NDB
Spain	- Santiago	NDB*
U.K.	- Belfast	NDB*
	- Stornaway	NDB*

- 2) addition of the following NDB's

Canada	- Lake Eon*
Denmark	- Holsteineborg
	- Nord
	- Simiutag
	- Søndre Strømfjord
France	- Cognac*
Norway	- Traena*
Portugal	- Funchal
	- Porto Santo

* Requirement to be retained only until VOR provided

Very High Frequency Direction-Finding Stations (VDF's)

4.1.3.13. It was considered that there was no longer an international requirement for the retention of VDF facilities in the Region, although it was recognised that some States might wish to maintain such facilities for some time to come, for national purposes.

RECOMMENDATION No. 4/11 - DELETION OF VDF'S

That VDF facilities be deleted from the Plan

Ocean Station Vessels

4.1.3.14. The Subcommittee considered whether information regarding the NDB service provided by the Ocean Station Vessels should be considered as part of the short distance radio-navigation aids plan, but concluded that there was no operational requirement for this service as a primary navigational aid. It was considered, however, that this service was of assistance for search and rescue purposes and that information regarding station and NDB frequencies in use should be included in an appendix to the radio-navigation aids section of the Regional plan document.

RECOMMENDATION No. 4/12 - INFORMATION REGARDING NDB SERVICE
ON OCEAN STATION VESSELS

- 1) That the Ocean Station Vessels should provide a cyclic NDB service consisting of 5 minutes on and 10 minutes off starting 5 minutes after the hour except that at stations K and M the NDB service may be provided only on a request basis. Where a cyclic NDB is provided this service should be supplemented by "on request" operation. The duration of the "on request" period should be specified by the pilot, and this period should be the shortest time that is consistent with the requirements of air navigation.
- 2) That information regarding this service should be provided in an appendix to the radio-navigation aids section of the NAT Regional Plan document.

Note: Part 1) of this Recommendation indicates a continuing requirement in accordance with Recommendation No. 44 of the Third NAT RAN Meeting.

4.1.4. Aids to Approach and Landing

4.1.4.1. In reviewing the requirements for non-visual aids to approach and landing, the list of regular and alternate aerodromes developed by the Meeting in its examination of the air route network was used as a basic reference document.

4.1.4.2. A similar principle as that used in dealing with short distance aids was agreed upon and the Subcommittee limited itself to indicating as NAT requirements only those facilities in the proximity of the Atlantic which are essential for NAT operations on entry into the EUM Region.

4.1.4.3. Proposals for additions and deletions of ILS facilities were considered on their merits, and it was decided to recommend the addition of sixteen new installations, of which two were recommendations for additional installations at aerodromes where this facility was already available.

4.1.4.4. It was also agreed that existing and recommended locators which were not used as a supplement to ILS should be classified as low power NDB's and shown as an aid to approach and landing. This decision is reflected in the recommendation which follows

RECOMMENDATION No. 4/13 - REQUIREMENTS FOR ILS AND LOCATORS

That the requirements for ILS and Locators be amended as follows:

- i) deletion of all ILS and Locators with the exception of the following:

Bahamas	- Nassau/ International	L*	
Canada	- Gander	L 217,266	ILS 109.9..109.5
	- Goose	L 212	ILS 109.5
	- Moncton		
	- Montreal	L 201	ILS 109.5,109.9,110.5
	- Ottawa/Uplands		
Iceland	- Keflavik		
	- Reykjavik	L*	
Ireland	- Shannon		
Portugal	- Lajes	L 273	ILS 109.9
	- Lisboa		
	- Santa Maria		

- U.K. - Prestwick
- U.S.A. - Buffalo
- Cleveland L 201,244 ILS 109.9,110.7
- Detroit L 212,257 ILS 109.5
- Milwaukee
- Newark L 317,359 ILS 109.1,110.3
- New York/
- International add ILS for rwy 13R
- New York/
- La Guardia
- Philadelphia/
- International
- Pittsburgh/
- Greater Pittsburgh
- Washington/
- National

* Locators not used as a supplement to ILS are classified as low power NDB's (aid to approach and landing)

ii) addition of the following ILS with associated locaters

- Canada - Edmonton
- Frobisher
- Halifax
- Québec (ILS only)
- Toronto
- Vancouver
- Winnipeg
- Denmark - Søndre Strømfjord
- French
- Antilles - Pointe-a-Pitre (ILS only)
- U.S.A. - Anchorage
- Baltimore
- Boston/Logan
- Chicago/O'Hare
- Miami/ International

iii) Addition of the following low power NDB's (aid to approach and landing).

- French
- Antilles - Fort-de-France
- Portugal - Funchal (Madeira Is.)

Note: Where frequencies are shown these denote some change in frequency and/or a change in the installations required.

4.1.5. Radar

4.1.5.1. The present NAT requirements for Ground Control Approach Radar (GCA) Precision Approach Radar (PAR) Surveillance Radar Element (SRE) and Terminal Area Surveillance Radar (TAR) were examined and it was decided to delete all requirements for these aids at European aerodromes not lying in the proximity of the Atlantic, as these would be catered for by the EUM Plan. The remaining requirements were re-affirmed and it was decided to add requirements at two further locations which were already included in the EUM Regional Plan.

RECOMMENDATION No. 4/14 - REQUIREMENTS FOR RADAR

- 1) that the following requirements for radar presently appearing in the Regional Plan be deleted:

Belgium	- Bruxelles/National
France	- Paris/Orly
	- Paris/Le Bourget
Germany	- Frankfurt Main
Netherlands	- Amsterdam
Sweden	- Stockholm/Arlanda
Switzerland	- Geneva/Cointrin
U.K.	- London/Heathrow

- 2) that requirements for terminal area surveillance radar be added at the following locations:

Ireland	- Shannon
U.K.	- Prestwick

Aerodrome Surface Movement Radar (GMR)

4.1.5.2. The Subcommittee took into consideration Recommendation 47 of the previous NAT RAN Meeting, and decided that a requirement should now be shown for the provision of aerodrome surface movement radar at New York/International. It was considered that present movements at Gander did not as yet require provision of this aid.

RECOMMENDATION 4/15 - REQUIREMENT FOR AERODROME SURFACE MOVEMENT RADAR

That the existing aerodrome surface movement radar at New York/International be included as a requirement in the Regional Plan.

↓ Secondary Surveillance Radar

4.1.5.3. The Subcommittee took into consideration the basic operational requirement that Secondary Surveillance Radar (SSR) should be provided for terminal areas as well as for longer distances wherever it is needed to improve the safe and expeditious handling of air traffic. It was noted, however, that no world-wide requirement for installation of this aid had as yet been stated, although one State had indicated that there would be a requirement in approximately twelve months' time for all aircraft to carry this equipment when flying over its territory at heights above flight level 250.

4.1.5.4. A number of States were presently carrying out tests on both the ground and airborne equipment, but no procedures governing the operational application have as yet been developed by any of these States.

4.1.5.5. In view of this, and pending the development of suitable procedures and application standards on a world-wide and regional basis, the Subcommittee did not consider it possible to recommend specific installations. Consequently, the following recommendation was made.

RECOMMENDATION 4/16 - APPLICATION OF SECONDARY SURVEILLANCE RADAR

That world-wide SARPS and Regional Procedures to govern the application and operational usage of the Secondary Surveillance Radar System should be developed.

↑ Comment: It was considered that an opportunity to develop at least part of the required SARPS might arise at the Seventh Session of the COM Division under its Agenda Items 10.4 and 11.2.

4.1.5.6. In view of the extensive changes required to the Navaids Plan as a result of the foregoing Recommendations, a tabulation indicating the new requirements is attached at Appendix "A".

4.1.6. Modernization of the Loran Station at Frederiksdal.

4.1.6.1. Subcommittee 1 carefully examined the material referred to it by the Air Navigation Commission and took into consideration the views of the Commission on the technical and operational aspects of a proposal by Denmark to introduce new transmitting and associated equipment at the Frederiksdal Loran Station in Greenland.

4.1.6.2. It was noted that the Commission had no reason to disagree with the opinion of Denmark that it would be necessary to replace the existing equipment at Frederiksdal within 2 or 3 years for reasons associated with its age, and with this the Subcommittee concurred. There was, however, a considerable difference of opinion as to whether the replacement transmitter should be one of 160 kW or one of 1000 kW peak power, and the relative operational and technical merits were discussed at some length.

4.1.6.3. It was the opinion of several Delegates that the uncertainty regarding the operational life of the replacement equipment did not justify the additional expenditure incurred in providing the more powerful transmitter. It was also claimed that, notwithstanding the record of outages, there was no evidence to show that either air traffic control or the aircraft using this aid had suffered any substantial operational penalty. In this view a 160 kW transmitter would not only fully meet the operational requirement but would also provide a slight increase in coverage and a reduction in the "outages" between Battle Harbour and Frederiksdal without incurring the disproportionate cost of the larger unit.

4.1.6.4. On the other hand there was support for the opposing view that only a 1000 kW transmitter at Frederiksdal was capable of delivering the required field intensity necessary for reliable service. It was further pointed out that while the increased ground wave coverage to be expected from the 1000 kW installation would be considerable, no material improvement to the existing coverage could be expected from the smaller transmitter. Finally, as regards the financial implications, it was contended that the additional cost was relatively small when compared to the higher degree of synchronisation and increased coverage which could be expected from the 1000 kW equipment.

4.1.6.5. On being asked, IATA stated that while they would like to see a decrease in the outages and an improvement in the reliability of the equipment, they were unable to express an opinion as to whether this would require the installation of a 1000 kW transmitter or not.

4.1.6.6. A proposal was then made that the Subcommittee recommend that replacement of the Frederiksdal Loran Station transmitting and associated equipment be of 1000 kW peak power. This proposal received support. It was, however, argued on the contrary that a 160 kW replacement would satisfy the requirements of the station by increasing coverage and improving reliability. Upon the request of the proposer, a record vote was taken with the following results:

- | | | |
|-------------------------|-------------------------------|----------------|
| Supporting the proposal | - Denmark | Iceland |
| | United States | of America |
| Opposing the proposal | - Belgium | Norway |
| | France | Sweden |
| | Netherlands | United Kingdom |
| Abstentions | - Canada | |
| | Czechoslovakia | |
| | Germany (Federal Republic of) | |
| | Ireland | |
| | Spain | |
| | Switzerland | |

4.1.6.7 A proposal was then made that a recommendation be inserted to the effect that replacement of the transmitting and associated equipment of the Loran Station at Frederiksdal be made with equipment of 160 kW power. This was supported and carried by a vote of eight in favour, one against and four abstentions.

*RECOMMENDATION 4/17 - MODERNIZATION OF THE LORAN STATION AT
FREDERIKSDAL

That replacement transmitter of 160 kW and appropriate associated equipment be provided for the Loran Station at Frederiksdal.

4.1.6.8 The Subcommittee were unable to provide any further views on other aspects which might be of assistance to the Commission and Council in resolving this problem.

* See statement by the Delegation of the United States of America at Part 4, Section 3.

DETAILS OF NAT RADIO NAVIGATION PLANEXPLANATION OF ABBREVIATIONS

SD : Short Range Aid (250 NM or less)
LD : Long Range Aid (more than 250 NM)
AL : Aid to Approach and Landing
NDB : Non-directional Radiobeacon
RNG : Radio Range (LF/MF)
VOR : VHF Omnidirectional Radio Range
CON : Consol
L : Locator
ILS : Instrument Landing System
GCA : Ground Control Approach Radar
SRE : Surveillance Radar Element
TAR : Terminal Area Radar
PAR : Precision Approach Radar
GMR : Ground Movement Radar

SSS No frequency specified

* To be retained only until VOR provided

STATION	NDB		RNG	VOR	CON	L	ILS	RADAR	REMARKS REMARQUES
	KC	COVER COUVER- TURE	KC	MC	KC	KC	MC		
1	2	3	4	5	6	7	8	9	10
<u>BAHAMAS/ I.BAHAMA</u> Nassau/ International	SSS	AL		112.7 DME					
<u>BERMUDA/ BERMUDES</u> Kindley Field				114.3 DME					
<u>CANADA</u> Belle Isle				SSS					
Cape Harrison	344	SD							
Charlottetown				114.1					
Edmonton						308	110.3		
Fredericton				113.0					
Frobisher						215 341	109.9		
Gander	168	LD		112.7 DME		266 217	109.9 109.5	CCA TAR	
Goose				117.3 DME		212	109.5		
Halifax				115.1		385	109.9		
Knob Lake	250	LD							
Lake Eon	* 227	SD		SSS					
Megantic			* 362	113.2					
Moncton				115.5 DME		332	109.5		
Mont-Joli			* 338	SSS					
Montreal				116.3 DME		201	109.5 109.9 110.5		
Ottawa/ Uplands				115.3		344	109.5		
Québec/ Ancienne-Lorette							109.5		
St. Andrews			* 242	SSS					
St. John N.B.				113.5					
St. John's NFLD			* 260	SSS					

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STATION	NDB		RNG	VOR	CON	L	ILS	RADAR	REMARKS REMARQUES
	KC	COVER COVER- TURE	KC	MC	KC	KC	MC		
1	2	3	4	5	6	7	8	9	10
Sept Iles (Seven Islands)			*251	SSS					
Sydney				114.9 DME					
Toronto				116.2 DME		226 341	109.5 109.9		
Yarmouth				113.3 DME					
Vancouver						368	109.5		
Winnipeg						201 215	109.5 109.9		
<u>DENMARK/ DANEMARK</u>									
Akraberg (Faroe Is.)	*381	SD		116.8 DME					
Angmagssalik (Greenland)	*283	SD		SSS					
Holsteinborg (Greenland)	328	SD							
Nord (Greenland)	404	SD							
Prins † Christians Sund (Greenland)	398	LD							† or southern part Greenland
Simiutag (Greenland)	279	SD							
Søndre Stromfjærd (Greenland)	382	SD		DME		SSS	SSS		
<u>FRANCE</u>									
Brest				117.8 DME					
Cognac	*267.5	SD		116.2 DME					
Dax				114.6					
Nantes				112.9 DME					

4 - Report on Agenda Item 4
4 - Rapport sur la question 4 de l'ordre du jour

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STATION	NDB		RNG	VOR	CON	L	ILS	RADAR	REMARKS REMARQUES
	KC	COVER COUVER- TURE	KC	MC	KC	KC	MC		
1	2	3	4	5	6	7	8	9	10
Ploneis					257				
<u>FRENCH ANTILLES/ ANTILLES FRANÇAISES</u>									
Fort-de-France	*281	SD		117.5					
Lamentin	314	SD							
Martinique	402	AL							
Pointe-à-Pitre				115.1			110.3		
Le Raizet									
Guadeloupe									
<u>ICELAND/ ISLANDE</u>									
Keflavik	392	LD		114.0 DME		325 339	109.5		
Reykjavik	303.4	AL							
<u>IRELAND/ IRLANDE</u>									
Cork				114.6 DME					
Eagle Is.				117.4 DME					
Shannon				113.3 DME		316 339	110.3 109.5	GCA TAR	
<u>NORWAY/ NORVEGE</u>									
Bergen				114.5 DME					
Bodø	*352	SD		114.6 DME					
Stavanger/ Sola				114.1	319				
Traena	*360	SD		112.0					
Vigra				115.8 DME					
<u>PORTUGAL</u>									
Flores	260	SD							
Flores I.									
Açores									
Funchal Madeira Is.	364	SD/AL							

[illegible]

STATION	NDB		RNG	VOR	CON	L	ILS	RADAR	REMARKS REMARQUES
	KC	COVER COUVER- TURE	KC	MC	KC	KC	MC		
1	2	3	4	5	6	7	8	9	10
UNITED STATES OF AMERICA/ ETATS-UNIS									
Albany				116.9 DME					
Anchorage/ International				114.3 DME		215 227	109.9		
Augusta				111.4					
Baltimore						512	109.7		
Bangor				114.7 DME					
Barter Is. Alaska				SSS DME					
Boston/Logan				117.7 DME		203 221	110.3		
Buffalo/Greater Buffalo International				116.5		201 219	110.3		
Burlington				112.4 DME					
Cape Hatteras					SSS				
Chicago/ O'Hare						230 394 379 368	109.7 110.1		
Cleveland/ Cleveland- Hopkins						201 244	109.9 110.7	GCA	
Columbus/ Port Columbus (Bexley)				116.7				SRE	
Concord				116.6 DME					
Detroit/ Detroit Metropolitan Wayne				113.8 DME		212 257	109.5		
Hartford				114.9 DME					

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STATION	NDB		RNG	VOR	CON	L	ILS	RADAR	REMARKS REMARQUES
	KC	COVER COUVER- TURE	KC	MC	KC	KC	MC		
1	2	3	4	5	6	7	8	9	10
Houlton				108.2					
Kennebunk				113.7 DME					
Miami/ International						227 248	109.5		
Millinocket				112.2					
Milwaukee/ General Mitchell				116.4		201 385	110.3		
Montauk Point				114.5					
Nantucket				112.7 DME	194				
Newark						317 359	109.1 110.3	GCA	
New York/ International (Glen Cove)				115.9 DME		373 353 392 SSS	109.5 110.9 SSS†	PAR GMR	† Prefera- bly Rwy 13R
New York/ La Guardia (New Rochelle)						233 332 385	109.9	GCA	
Norwich				109.8					
Philadelphia/ International						201 219	109.3		
Pittsburgh/ Greater Pittsburgh (Clinton) (Parkaway) (River)				117.4		293 302 323	110.3	SRE	
Plattsburg				116.7 DME					
Poughkeepsie				112.2 DME					
Presque Isle				116.4 DME					

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SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON
AGENDA ITEM 4

- 4.2.1 The General Committee reviewed the material presented to it under Agenda Item 4 and made no comment.

SECTION 3: STATEMENTS BY DELEGATIONS ON THE ACTION TAKEN ON AGENDA
ITEM 4

4.3.1 STATEMENT BY THE DELEGATION OF CANADA

Recommendation 4/8 - Requirements for D.M.E.

The airway structure, traffic density and radar coverage in Canada is such that Canada does not consider there is a valid requirement for the installation of civil D.M.E. to supplement either A.T.S. or navigation aids. Canada has no plans for the implementation of civil D.M.E.

4.3.2 STATEMENT BY THE DELEGATION OF THE UNITED STATES OF AMERICA

Agenda Item 4.1 - Replacement of Loran Transmitter at Frederiksdal

The United States considers that adequate technical and operational data was provided the meeting to warrant fully a finding that the existing transmitting equipment at Frederiksdal should be replaced by a modern transmitter of 1000 KW, rather than one of only 160 KW.

In view of the rejection by the meeting of the United States proposal that 1000 KW equipment be installed, the position of the United States as respects any future action on this matter is reserved.

Agenda Item 5: Aeronautical Information ServicesSECTION 1: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 55.1.1 Adequacy of Aeronautical Information Services associated with the Region

5.1.1.1 In examining this question the Sub-Committee brought to light several major inadequacies in the AIS service provided by States of the NAT Region, most of which resulted from non-compliance with the provisions of Annex 15. In some instances it was indicated that national aviation administration had not fully appreciated the significance of AIS as a basic and integral part of the technical and operational organization. Deficiencies of the following types were noted:

- (a) No check lists for NOTAMS Class I are issued.
- (b) NOTAMS Class II are issued in a manner other than that prescribed by Annex 15, and do not serve their intended purpose.
- (c) Very abbreviated language is used, particularly in NOTAMS Class II, rendering them difficult to understand and translate.
- (d) The issuance of information in a large variety of documents by several governmental services necessitates a great deal of sifting in order to find the basic information which is applicable to international operations.
- (e) When a NOTAM Class I is cancelled no NOTAM is issued to this effect.
- (f) Previously cancelled NOTAMS sometimes reappear in a check list of current NOTAMS.
- (g) Some States have failed to provide preflight briefing service at international aerodromes or have temporarily suspended such service over a considerable period of time.
- (h) Some States have not yet produced Aerodrome Obstruction Charts - Type A for international aerodromes, in accordance with the provisions of Chapter 3 of Annex 4.

5.1.1.2 The meeting was informed that the United States had already undertaken a fundamental reorganization of its AIS which would result in centralization of all AIS functions under one body with the provision of much better service for international operations. The target date anticipated for full compliance with Annex 15 is July 1962. Canada indicated that it had also taken steps to revise its AIS and expected that Annex 15 would be complied with by July 1962. Other states indicated that they were taking steps to ensure fuller compliance with the provisions of Annex 15. With the rapid increase in speed and range of transport aircraft, the safety of aircraft operations has become more and more dependent upon the adequacy and efficiency of the aeronautical information services provided by all states. Since any weak links in the chain can create a serious deficiency, the Sub-Committee recommended the following:

RECOMMENDATION 5/1 - ADEQUACY OF AIS PROVIDED BY STATES OF THE NAT REGION

That contracting states give the highest priority to the provision of an adequate aeronautical information service in accordance with the requirements of Annex 15 since this is essential to the safety of international aircraft operations with aircraft whose speed and range will continue to increase.

5.1.1.3 The Sub-Committee was informed that some states had not yet produced aerodrome obstruction charts for several international aerodromes, as required by Chapter 3 of Annex 4, and recommended the following:

RECOMMENDATION 5/2 - PROVISION OF AERODROME OBSTRUCTION CHARTS - ICAO - TYPE A

That states give high priority to the production of up-to-date Aerodrome Obstruction Charts-ICAO-Type A for all international regular and alternate aerodromes, giving highest priority to regular aerodromes and aerodromes at which the operation of turbo-jet aircraft could be restricted due to inadequate information on obstructions.

5.1.1.4 The Sub-Committee was informed that an amendment to Chapter 3 of Annex 4 was now being considered by the Air Navigation Commission and that this amendment was intended to meet the needs of operations conducted with turbo-jet aircraft.

5.1.1.5 The Sub-Committee discussed the need for greater standardization of NOTAM summaries but, having noted that current practices for the exchange of such summaries had proven quite satisfactory concluded that these practices should be encouraged wherever such an exchange was required.

5.1.2 TABLE AIS I. - International Exchange of NOTAMS - Class I

5.1.2.1. Considerable time was devoted to examining the intended purpose and value of this table in the NAT Plan. As a result the Sub-Committee arrived at the unanimous conclusion that, from the point of view of AIS, the table should be deleted from the plan for the following reasons:

- (a) The requirements of 3.3.4 and 3.3.5 of Annex 15 enable any state to request the NOTAMS which it requires and these requests need not be anticipated in a regional plan.
- (b) The amendment procedure applicable to the table is cumbersome, time consuming and costly.
- (c) The table can never be up-to-date and at times provides misleading information. Instances have been reported where NOTAMS have been withheld because the exchange was not listed in the table.
- (d) Inconsistencies have been noted between this table and the world-wide table in Doc 7383.
- (e) Due to the rapid increase in the range of aircraft, the number of NOF's listed will increase to the point where much of information listed for any one region will be duplicated in the tables for other regions. This can be avoided by developing the single world-wide table in Doc 7383.

RECOMMENDATION 5/3 - TABLE AIS I IN NAT PLAN - DOC 7674

That the Table AIS I "International Exchange of NOTAMS Class I" be deleted from the NAT Regional Plan, Doc 7674, since it serves little useful purpose, is usually out-of-date, and, in view of 3.3.4 and 3.3.5 of Annex 15, is largely redundant.

5.1.2.2 There was also general agreement that the world-wide table contained in Doc 7383 provided a useful overall reference. It was noted, however, that the present six monthly amendment of this document was quite insufficient and the Sub-Committee recommended:

RECOMMENDATION 5/4 - FREQUENCY OF AMENDMENT OF DOC 7383-AIS/503
AIS SUMMARY

That Doc 7383 - AIS/503 "Summary of Aeronautical Information Services Provided by States" be amended at more frequent intervals, preferably not more than three months, in order that this document may be kept sufficiently up-to-date to serve its intended purpose.

5.1.2.3 The Sub-Committee was also of the opinion that the preparation of a table such as Table AIS I in Doc 7674 could be deleted from the agenda of regional meetings unless it was necessary for the amendment of Doc 7383, in which case it would be included in the report of a meeting but not in the regional plan.

5.1.3 Regulation and Control of Amendments to Aeronautical Information

5.1.3.1 The Sub-Committee, having noted the views of Contracting states on the need for some procedure which would control and regulate the flow of amendments to aeronautical information (replies to State Letter AN 2/11-60/184 dated 29 November 1960) proceeded to examine this problem as it applied to the NAT Region. There was general agreement that this problem should be treated on a regional basis and a suitable procedure was developed for use by States associated with the NAT Region. In view of the fact that first route segments overlap into other regions the Sub-Committee was of the opinion that this subject should be included in the Agenda for other Regional Air Navigation Meetings. This procedure implements Recommendation 8/2 of the AIS/MAP Division Meeting (1959) which was approved by the Council and it was adopted by Sub-Committee 1 without any objection by States, IATA or IFALPA.

5.1.3.2 The procedure calls for the issuance of a special series of NOTAMS Class II at intervals of 28 days, said NOTAMS to become effective 28 days after the date of issue. The date of issue, and the effective date are the same day of the week, that is Thursday. Although the procedure calls for a minimum period of advance notice of 28 days, a longer period may also be used so long as it is some multiple of 28 days. On those occasions when no information is available for publication on the date of issue, the usual NOTAM is to be published indicating that there is no such information to publish, in order to allay any fears that the schedule NOTAM may have gone astray.

5.1.3.3 This special series of NOTAMS is to be reserved for information on changes in facilities, services and procedures which can be anticipated in time to be issued at least 28 days in advance of the effective date. Although the adoption of such a procedure can result in a large overall saving in time and money by the users of aeronautical information, and an appreciable reduction in the load on the AFTN, it can only be realised when the various services (COM, MET, AGA, ATC, etc.) of national aviation administrations make full use of the procedure by scheduling their changes to coincide with the series of "effective dates" which are published by the AIS.

RECOMMENDATION 5/5 - APPLICATION OF AIS SUPPLEMENTARY PROCEDURES

That following the inclusion in DOC 7030 of the NAT Supplementary Procedure proposed in RECOMMENDATION 5/6, States be advised of the necessity of co-ordinating changes in facilities, services and procedures originated by various services (AGA, COM, MET, RAC etc.) with the schedule of effective dates called for by this procedure.

5.1.3.4 Regarding the minimum interval of 28 days between the "date of publication" and the "effective date," which is basic to the procedure, the Sub-Committee noted that this was inconsistent with the period of 30 days stated in the Recommended Practice in 5.1.2.1.1 of Annex 15. The meeting also noted, however, that the figure of 30 days had been selected purely as an adequate "nominal" interval. Since the procedure which has been proposed by this meeting involves the use of a special series of NOTAMS Class II and since a period of 28 days must be used to ensure that all such NOTAMS are issued and become effective on the same day of the week, it was believed that the Air Navigation Commission would be able to reconcile this apparent conflict.

RECOMMENDATION 5/6 - REGULATION OF AMENDMENTS TO AERONAUTICAL INFORMATION

- (a) That Part I-GEN of the Regional Supplementary Procedures (Doc 7030) be amended by inserting the following NAT Supplementary Procedures:

"3.2 Regulation of Amendments to Aeronautical Information.

3.2.1 States issuing information dealing with changes in facilities, services and procedures associated with the NAT Region, shall schedule and issue a series of NOTAMS Class II containing changes which can be published at least 28 days in advance of the scheduled effective date of such NOTAMS. The effective day for such NOTAMS shall be Thursday*. The date of publication shall be 28 days in advance of the effective date or some multiple of 28 days."

* Note 1: The schedule of effective dates should include Thursday, 18th January 1962

Note 2: See additional guidance material contained in the AIS Manual Doc 8126-AN/872

- (b) That this procedure be supplemented by additional guidance material in the AIS Manual

5.1.3.5 Since the many considerations involved in the application of this procedure cannot be adequately treated in a Regional Supplementary Procedure, additional guidance material should be inserted in the AIS Manual indicating:

- (a) that a change, published as becoming effective in any multiple of 4 weeks need not be repeated in a subsequent scheduled NOTAM.
- (b) that it is essential that all departments originating information dealing with changes (AGA, COM, MET, ATC, etc.) should plan such changes to coincide with the programme of "effective dates" established by AIS.

5.1.3.6 The following explanatory material provided by one State which is using the recommended procedure may be of value when developing guidance material for the AIS Manual.

"The Regulated System"

1. The system will consist of two elements:-
 - 1.1 a standard period of notice (28 days) of operational changes
 - 1.2 a series of predetermined dates at 4 weekly intervals on which operational changes will be made effective.

Appendix I lists in column (C) the dates up to the end of 1962 on which operational changes will be introduced. In column (B) are listed the dates on which changes to become effective 28 days later will be notified.

Objects of the Regulated System

2. The system will enable those concerned to prepare new editions of charts and route manuals, timed to become available on each effective date, incorporating all changes introduced into service up to and including that date; and will ensure that for 4 weeks after publication such charts and manuals will require amendment only in respect of changes sufficiently urgent to demand introduction with less than 28 days notice.

Operational Data to which the Regulated System will apply

3. It is the intention that all changes of a permanent and semi-permanent nature will eventually be notified in accordance with the regulated system, except when operational urgency makes necessary their introduction at shorter notice. Examples of the categories of data to which the regulated system will normally be applied are listed at Appendix 2.

4. As the full benefit of the regulated system to pilots and operators can only be achieved if "non-regulated" data is kept to the minimum, those responsible for the planning and implementation of such operational changes are urged to adhere to the regulated system whenever practicable. To assist in this, Appendix I contains in column (A) the latest dates by which NOTAM material must reach AIS, in order to be promulgated on one of the selected notification dates. Material should always be forwarded well ahead of the final date when possible. In order to ensure that charts and route-manuals are correct on the date of publication, it is essential that an effective date should not be notified until a high degree of certainty exists that it will be met.

Method of Notification

5. Operational changes to which the regulated system is applied will be notified by NOTAMS Class 2 which will be identified by the indication "AIRAC" and published separately from any others promulgating either temporary data or permanent changes necessarily introduced at shorter notice.

APPENDIX I

Cycle No.	(A) Date to reach AIS	(B) Publication date of NOTAM	(C) Effective Date
1/62	Dec. 13, 1961	Dec. 21, 1961	Jan. 18, 1962
2	Jan. 10	Jan. 18	Feb. 15
3	Feb. 7	Feb. 15	Mar. 15
4	Mar. 7	Mar. 15	Apr. 12
5	Apr. 4	Apr. 12	May 10
6	May 2	May 10	June 7
7	May 30	June 7	July 5
8	June 27	July 5	Aug. 2
9	July 25	Aug. 2	Aug. 30
10	Aug. 22	Aug. 30	Sept. 27
11	Sept. 19	Sept. 27	Oct. 25
12	Oct. 17	Oct. 25	Nov. 22
13	Nov. 14	Nov. 22	Dec. 20

Note: the dates shown in Column 'A' are those used by the particular state in question, each state will, of course, adopt its own dates to suit its own printing schedule.

APPENDIX 2

Examples of Operational Changes to which the Regulated System Should be Applied

Boundaries, vertical limits, etc., of:-

Flight Information Regions

Control Areas (including Airways)

Control Zones

Advisory Routes and Areas

Reporting Points

Boundaries, vertical limits and types of Danger, Prohibited or Restricted Areas or amendments thereto.

Positions, frequencies, call-signs, etc., of radio navigation aids and communication facilities

Aerodromes: data concerning their opening or closing; runways, taxiways, or other parts of the manoeuvring area; lighting; obstructions; approach procedures; safe altitudes

Meteorological facilities and procedures

Hours of Service of aerodrome and other services."

5.1.3.7 It will be noted that the date of "18 January 1962" has been specified in the supplementary procedure contained in Recommendation 5/5 in order to provide a "reference Thursday" on which the schedule produced by all states can be based.

5.1.3.8 Since the procedure contained in Recommendation 5/6 is intended to cover the introduction of changes such as those which result from recommendations of Regional Air Navigation Meetings, Subcommittee recommended:

RECOMMENDATION 5/7 - IMPLEMENTATION DATES FOR NAT IV RECOMMENDATIONS

That ICAO consider the feasibility of adjusting the dates of implementation for facilities, services and procedures recommended by this meeting so as to meet the intent of the procedure recommended in Recommendation 5/6.

5.1.3.9 Several states and IATA indicated that they were quite concerned about the short advance notice given to operators on changes which were of vital importance to the safety of aircraft operations and the Subcommittee recommended:

RECOMMENDATION 5/8 - MINIMUM NOTICE OF CHANGES AFFECTING AIRSPACE RESTRICTIONS

That Part 1 GEN of Doc 7030 be amended by inserting the following NAT Regional Supplementary Procedure.

"In applying 5.1.2 of Annex 15 every effort should be made to provide at least 7 days' notice of the establishment of temporary restricted, danger or prohibited areas or of the activation of notifiable areas of this kind."

X = Implemented - Mis en oeuvre
 O = Required - Nécessaire
 F = Future requirement - Besoin futur

TABLE OF INTERNATIONAL EXCHANGE OF NOTAMS - Class 1

TABLEAU D'ECHANGE INTERNATIONAL DES NOTAMS DE 1ère Classe

COUNTRY PAYS	TO BE SENT BY A ENVOYER PAR NOF	TO BE SENT TO A ENVOYER A NOF	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33																																	
			Nassau	Bruxelles	New York (Bermuda)	Ottawa	Bogota	Habana	Kobenhavn	Sondre Stromfjord	Paris	Frankfurt	Reykjavik	Shannon	Roma	Mexico	Amsterdam	Curacao	Oslo	Lisbon	San Juan	Dakar	Madrid	Paramaribo	Stockholm	Zurich	London	Anchorage	Miami	New York	Seattle	San Francisco	Caracas	Kingston	Port of Spain	
BAHAMAS	Nassau		1		O	X	O												O	X						O		X	X					X	O	
BELGIUM	Bruxelles		2	O		O	X			X		X	X	X	X	O	X		X	X	O		O	X	X	X	X	O	O	X	O	O	O			
BERMUDA	New York		3	X			X	O	X		X			O					X	X			O	O										X		O
CANADA	Ottawa		4	X	X	X				O	X	X	X	X	O		X		X	X					X	X	X	X	O	X	O	O	O		X	O
COLUMBIA	Bogota		5	O		O			O		O	O			O		O		O	O			O				O					O	O	O	O	
CUBA	Habana		6	X		X	O			O		O	O			O			O	X			O						X	O			O	X	X	
DENMARK	Kobenhavn		7		X	O				X	X	X	X	X	X	X		X	X			X		X	X	X	X		X	F	F					
(Greenland)	Sondre Stromfjord		8		O	O			O			O	O	O			O								O	O	O	O	O	O	O	O	O	O		
FRANCE	Paris		9	X	X	X	O	O	X	O		X	X	X	X	O	X		X	O	O	X	X	O	X	X	X	O		X	O	O	O	O	O	O
GERMANY	Frankfurt Main		10	X		X	O	O	X	O	X		X	X	X		X		X	X		X	O	X	X	X	O		X	O	O	O	O	O	O	
ICELAND	Reykjavik		11	X		X			X	X	X	O		X	O		X		X	O			X	X	X	O		X	O	O						
IRELAND	Shannon		12	X	O	X			X	X	X	X	X	X		X		X	X				X	X	X	O		X	O	O						
ITALY	Roma		13	X		O	O	O	X	O	X	X	O	X		O	X		X			X	O	X	X	X	O		O	O	O	O	O		O	
MEXICO	Mexico		14		O	O			O		X				O		O				O			O	O	O		X	X							
NETHERLANDS	Amsterdam		15	X		X	O	O	X	O	X	X	X	X	X	O			X	X	O		X	O	X	X	X	O		X	O	O	X	X	X	
(Antilles)	Curacao		16		O															O																
NORWAY	Oslo		17		X		O			X	O	X	X	X			X			X					X	X	X	O			O	O				
PORTUGAL	Lisbon		18	O	X	X	X			X		X	X		X	X	O	X	O	O		X	X	X	O	X	X	X		O	X			O	O	X
PUERTO RICO	San Juan		19		O			O	O		O	F			O		O			O			O				O		X	X					X	
SENEGAL	Dakar		20		O						X						X			X	X		X	X	X	X			O							
SPAIN	Madrid		21		X	X	O	O	O	X		X	X			O	X		X	X	O			O	X	X	X		O	X			O	O	O	
SURINAM	Paramaribo		22		X					O	O	O			O		O			O		O	O				O			O			X		X	
SWEDEN	Stockholm		23		X		O			X		X	X	X	X		X		X	X		X			X	X	X		X	O	O					
SWITZERLAND	Zurich		24	X		X			X	O	X	X	O	X	X	O	X		X	X	O		O	O	X		X		X	O	O	O				
U.K.	London		25	O	X	X	X	O	O	X	X	X	O	X	X	X	O	X		X	X	O	X	O	X	X	X		O	O	X	O	O	O	O	O
U.S.A.	Anchorage		26		O		O			O	O	O	O	O	O		O								O	O	O									
"	Miami		27	X	O	X	O	O	X							X				O	X		O			O				X				O	X	X
"	New York		28	X	X	X	X	O	X	X	X	X	O	X	X		O	X	X	O	X		O	X	O	X	X		X				O	X	O	X
"	Seattle		29		O		O			O	O	O	O	O	O		O								O	O	O						O			
"	San Francisco		30		O		O			O	O	O	O	O	O		O								O	O	O			O						
VENEZUELA	Caracas		31		O	X		X	X	O		O	O			O				X			O	X		O			X					X	X	
WEST IND. FED.	Kingston		32	X		X	X	O	X	O		O	O			O	O			O	X				X		X	X					O		X	
" " "	Port of Spain		33	X	O	O	O		X	O		O	O			O				O	X		O	X		O		X	O				X	X		

SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 5

5.2.1 The General Committee reviewed the material presented to it under Agenda Item 5 and made no comment.

Agenda Item 6: Aeronautical Fixed ServicesSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 6:

The plan of aircraft operations, together with the statement of regionally agreed operational requirements, established by Subcommittee 1, as reported in paragraph 1.1.1 and 2.1.1.1, 2.1.1.5 of the Report on Agenda Items 1 and 2 governed the consideration of Agenda Item 6.

SECTION 1: ACTION BY THE COM COMMITTEE ON AGENDA ITEM 6

6.1.1 Three main topics were considered under this agenda item:

- a) The functional allocations to be made in respect of the four teletypewriter channels of the SCOTICE and ICECAN submarine cables.
- b) Revision of the NAT AFTN to take into account i) the planned implementation of these submarine cables and ii) new requirements for fixed communication circuits necessary for MET, ATC and AIS Services.
- c) Revisions of the NAT AFS (i.e. exclusive MET circuits and ATC direct interphone circuits).

It was found practicable to deal with a substantial portion of a) and b) whilst awaiting the listing of detailed communication requirements from the MET and RAC Committees and the Subcommittee 1 approved Table of International Exchange of NOTAMS - Class 1.

6.1.2 The 'SCOTICE' and 'ICECAN' submarine cables

Background. The Second Special North Atlantic Fixed Services Meeting, which was held in Paris in January, 1959, made a number of recommendations (see Doc 7953, SP/NAT-FS/2) directed towards the provision of voice and teletypewriter channels across the North Atlantic. Following the appropriate approvals by the Council of ICAO and notification of the necessary consents by the participating States of the 1956 Danish and Icelandic Joint Financing Agreements (see Supplement No.1 to Doc 7953), these recommendations have permitted the completion of plans for the laying of submarine telephone cables between Scotland and Iceland via the Faroes

(the projected SCOTICE cable) and between Iceland, Greenland and Canada (projected ICECAN cable). The agreed programme allows for the completion of SCOTICE by the end of 1961 and completion of ICECAN by the end of 1962. The recommendations referred to were primarily in respect of the leasing, by the Contracting States upon whose territories the cable landings would be located (i.e. the "Implementing States", Canada, Denmark, Iceland, Ireland and the United Kingdom), of one voice circuit and four teletypewriter channels over the complete cable system and of appropriate connecting facilities in certain ancillary links, and with the associated Joint Financing arrangements. The scope of the recommendations gave sufficient mandate for the Implementing States, initially via the medium of discussion and correspondence with the Cable Companies and PTT's concerned, and subsequently during a meeting (27-29 July, 1960), of a Joint Coordinating Group, to formulate much of the outstanding detail of the project. Such detail covered, for example, the nature and use of the voice circuit, the standby and maintenance arrangements, the arrangements for the interim period between the end of 1961 and the end of 1962 (during which period only the SCOTICE cable would be available), and the technical characteristics of the teletypewriter channels. The 1959 (Paris) Meeting left unresolved the detailed functional application of the four teletypewriter channels provided in the cable project but subsequently the Implementing States met (July 1960) and reached agreement on this point among themselves. Inasmuch as this detail is a matter which is not solely the concern of the Implementing States it logically became an item for consideration at the present NAT IV RAN Meeting. The NAT IV RAN COM Committee, therefore, was requested by the Air Navigation Commission to consider the functional application of the teletypewriter channels that would become available in the approved cable project and to recommend, as part of the NAT Regional Plan, an allocation appropriate to the operational requirements for communication services in the region. The application system envisaged by the "Implementing States" was formally proposed to the NAT IV RAN Meeting by the United Kingdom: an alternative method of application was proposed by the United States.

6.1.2.1 When reviewing the message traffic statistical data placed before it, the COM Committee of NAT IV RAN agreed that the most critical needs for improvement of the North Atlantic communications were:

- i) a need to improve the inter-connection between aeronautical stations of the radiotelephony network responsible for the provision of the air-ground communication service to aircraft in flight.
- ii) a need for means whereby the interchange of aeronautical operational meteorological data, together with a percentage of aeronautical basic meteorological data could be improved.

- iii) a need for means whereby the AFTN message traffic could be transmitted across the North Atlantic without periodic interruption and dislocation from radio circuit outages.

Following agreement upon this point of principle, the COM Committee then examined the various proposals made to it in respect of the functional use to be made of the four teletypewriter channels.

6.1.2.2 Functional use of the first teletypewriter channel

Two possibilities were examined. Firstly, the recommendation of the "Implementing States" to operate this channel in a simplex* manner as an omnibus system# connecting the aeronautical stations serving Gander, Prins Christians Sund, Reykjavik, Shannon and Prestwick. These aeronautical stations would thereby be provided with adequate and reliable fixed service facilities for the rapid exchange between them of messages essential for coordination and cooperation in respect of NAT radiotelephony network operations (see Doc 7181-COM/546/5, paras. 11 - 11.14.1 inclusive). At the present stage of NAT operations the coordination methods available to these aeronautical stations involve either the use of AFTN channels necessitating complete message format (Doc 7181, COM/546/5, para. 11.4.3) or alternatively, the use of air-ground channels (Doc 7181, COM/546/5, para. 11.5). Representative traffic figures notified to the COM Committee indicated that the present needs for coordination and cooperation between aeronautical stations of the radiotelephony network represented a considerable amount of channel time on both the aeronautical mobile and AFTN circuits. It was suggested that the transferring of this material on to the first teletypewriter channel of the NAT cable system could do much to improve the present situation, in addition to ensuring a practicable utilization factor in respect of the simplex omnibus cable channel at the time of its introduction.

The alternative suggestion for use of the channel envisaged a split at Reykjavik so as to form two simplex omnibus channels - the eastern channel interconnecting the aeronautical stations serving Reykjavik, Shannon, Prestwick and London, the western channel then interconnecting the aeronautical stations serving Reykjavik, Prins Christians Sund, Goose, Gander and New York. Message traffic requiring relay between these two separate channels would be relayed by Reykjavik. Consideration of this alternative suggestion necessitated recognition of a need to revise the existing radiotelephony procedures for the aeronautical mobile service so as to

* Simplex operation - Operating method in which transmission is made possible alternately in each direction.

Omnibus system - System in which a number of stations are permanently connected together, the signals transmitted by any one station being received by all.

remove the network intercept concept (Doc 7181-COM/546/5, para. 11.4; A 10, Part III, 5.3.3.3.1) and to permit each aircraft to communicate with the aeronautical station of its choice. Only that aeronautical station would concern itself with the aircraft's transmission and following reception (involving recording in page copy with associated typing reperforators), would inject into the cable channel the message traffic received from the aircraft. Application of this communications operating concept could thus lead to rapid dissemination, to all aeronautical stations inter-connected by the cable channel/s, of messages received from aircraft in flight. Furthermore, those services or offices (i.e. ACC/FIC and Operational Control Offices of aircraft operating agencies) having a direct interest in these messages originated in aircraft stations could be connected to the appropriate omnibus AFS channel by means of a "receive-only" drop. It was suggested that such a method of operation would ensure greater integration of the fixed and mobile services, remove from AFTN channels the aircraft originated traffic now currently being processed for onward relay and delivery, simplify the existing ICAO radiotelephony procedures and, reduce delays in the delivery of aircraft originated message traffic. Further, it was submitted that such a method of the cable channel operation would achieve a more desirable use of the channel, giving a more adequate return for its cost, when compared to the Implementing States' suggestion for functional use.

6.1.2.2.1 The suggestion made for tying-in directly to cable Channel No.1 the aeronautical stations of Goose and New York was questioned on the grounds that the Gander aeronautical station services were equipped with adequate landline facilities to these proposed additional locations so as to serve as an efficient relaying agent, and thus provided New York and Goose with effective access to the Channel. As for the viewpoint that use of the channel for delivery of messages received from aircraft in flight would result in optimum use of the channel it was countered that by having an omnibus system of operation, the suggested channel splitting at Reykjavik (i.e. 20° West separation) would, of necessity, require stations connected to a channel having to scrutinize the total message traffic carried thereon in order to extract those messages related to their direct responsibility and interest in respect of specific aircraft in flight. Whilst such a practice may be found to be acceptable to the aircraft operating agencies, it was not likely to be operationally acceptable to the Air Traffic Services. Furthermore, associated with the concept of the alternative method of allocation was a proposal for 75 Baud (100 wpm) operation of the channel so as to provide the maximum capacity for handling the contemplated message traffic; such a speed of working would not be practicable for aeronautical stations at the time of implementation of the cable, due to certain tertiary landline and equipment limitations that had necessitated the specification by the Implementing States of 50 Baud (66 wpm) speed of operation until further notice. Further discussion of the two suggested methods of allocation established that various planning arrangements for implementing the cable service were well advanced in both time and

financial agreements. A need for rearrangement so as to accommodate bringing the channel into operation in the manner envisaged by the suggested alternative method of use, would inevitably delay implementation of the overall cable project. Such a delay was unacceptable and, therefore, the COM Committee agreed that implementation of the cable system should continue on the basis that had been suggested by the Implementing States i.e. that the initial usage of the First teletypewriter channel would be for the exchange between aeronautical stations, of messages necessary for coordination and cooperation in respect of the NAT radiotelephony network. However, after the operational experience with the channel in this manner was such as to permit an overall assessment to be made of its effective utilization in this type of channel configuration and usage, a further review should be undertaken by ICAO and, at that time, consideration should be given to the possibility of splitting the channel at Reykjavik, extending the eastern channel terminal to Paris, adding both Goose and New York to the western channel and then, utilizing these two simplex omnibus channels for the distribution of messages received from aircraft in flight.

RECOMMENDATION No. 6/1 - FUNCTION OF THE FIRST TELETYPEWRITER CHANNEL

- a) That the First teletypewriter channel of the SCOTICE, ICECAN submarine cable be approved as an AFS channel to be operated initially in a Simplex manner as an Omnibus system inter-connecting the Aeronautical Stations at Gander, Prins Christians Sund, Reykjavik, Shannon and the Aeronautical Station serving Prestwick, so as to permit the exchange between these Stations of messages necessary for coordination and cooperation in respect of the NAT radiotelephony network operations.

Note: Traffic on this channel would not require to be prepared in AFTN message format.

- b) That when the operating experience with the First teletypewriter channel has been sufficient to provide information, respecting its performance and other operational aspects, adequate enough to permit an assessment to be made of its effective utilization in the manner prescribed in a) preceding, a further review of its operational function should be undertaken through the ICAO consultative process with NAT States. During such review, consideration should be given to the possibility of splitting this channel at Reykjavik, extending the eastern channel terminal to the Paris Aeronautical Station, adding to the western channel the Aeronautical Stations serving Goose and New York respectively and then, in lieu of the function prescribed in a) preceding, utilizing the resultant two simplex omnibus AFS channels for the distribution and delivery of messages received from aircraft in flight.

6.1.2.3 On the general question of the initial speed of operation (50 Bauds-66 wpm) already specified by the Implementing States for the cable system at its time of implementation, the COM Committee agreed that this limitation should be overcome as soon as practicable so as to ensure optimum usage of the capacity inherent in a submarine cable system that in itself is already engineered to permit 75 Baud (100 wpm) working.

RECOMMENDATION No. 6/2 - FUTURE OPERATING SPEED OF CHANNELS

That the Implementing States should make every effort in procuring equipment and connecting landlines to achieve the earliest practicable introduction of a 75 Baud (100 wpm) speed of operation over the aeronautical teletypewriter channels of the SCOTICE, ICECAN cable system.

6.1.2.4 Functional use of the Second Teletypewriter Channel

The suggestion of the Implementing States was that the second channel be a channel operated as a Simplex Omnibus system interconnecting the AFTN stations at Gander, Prins Christians Sund, Reykjavik and London. Such a channel would be designated for primary use for the exchange of operational meteorological traffic, and for secondary use for specific flows of certain basic meteorological data. Two particular cases envisaged in respect of basic data were a flow from Prins Christians Sund to Gander and a flow from Reykjavik to London.

6.1.2.4.1 As an alternative to the aforementioned suggestion, the COM Committee examined a proposal of the USA that the second teletypewriter channel be engineered so as to serve New York, Gander, Prins Christians Sund, Reykjavik, Shannon, Prestwick, London and Paris. The facilities and circuitry envisaged by this proposal were intended to permit the transmission of signals in both directions simultaneously through the provision of certain additional equipment at each station along each path of the channel, terminating each incoming path of the channel in such equipment that is capable of storing the incoming message traffic during periods a station is transmitting to the next station along the route (easterly or westerly direction as the case may be), then finally relaying the stored traffic as soon as the outgoing channel became available. The proposal also urged that Channel No.2 of the submarine cable system be operated at a speed of 75 Bauds (100 wpm) as an exclusive MET channel and utilized for the interchange of both operational and basic meteorological data essential to NAT air operations.

6.1.2.4.2 Considerable discussion took place on these two proposals, particularly following the receipt from the MET Committee of its agreed requirements for the exchange on this channel of basic and operational meteorological data between aeronautical telecommunication stations. From time to time consultations with members of the MET Committee took place in an effort to determine the minimum requirements for basic meteorological data to serve

Greenland and Iceland at the time of initial operation of the cable system. In respect of the communications engineering aspects, discussion thereof led to recognition that the system envisaged by the USA proposal could not be provided at the planned date of commencement of communication service with the SCOTICE (expected completion date December 1961) or ICECAN (expected completion date November/December 1962) submarine cables, due to a need for additional equipment procurement and the fact that a necessary extensive revision of the arrangements previously planned for implementation purposes would require some time and thus inevitably lead to a delayed date for bringing the cable service into being. In the case of the Prins Christians Sund station, for example, it would possibly require a period of two years before this installation could operate in the full manner suggested by the USA. The COM Committee also recognized that because of limitation in facilities necessary for retransmission between Gander-Montreal-New York and London-Paris, it would not be possible at the date of introduction into service of the cable to accommodate, in addition to the operational meteorological traffic for which the second teletypewriter channel is primarily provided, a high percentage of the basic meteorological data exchanges called for in the requirements specified by the MET Committee.

6.1.2.4.3 Following agreement that implementation of the cable system was urgently required for NAT communication operations and thus should not be delayed, the COM Committee decided to invite the approval by Council of a three stage programme relative to the utilization of the second teletypewriter channel in the cable system. The initial (or first) stage covering the operations that can be performed at the commencement of cable service. An interim (or second) stage to permit some expansion of operations (perhaps involving additional circuitry). A final (or third) stage wherein a form of communications engineering can be developed and agreed to by States so as to ensure full and efficient utilization of the channel capacity.

6.1.2.4.3.1 In respect of the initial stage, the COM Committee agreed to recommend that the Second teletypewriter channel be designated for initial use in the manner outlined in 6.1.2.4 but that, in lieu of a simplex omnibus system, the channel be operated as two one-way simplex channels connecting the AFTN stations at Gander, Prins Christians Sund, Reykjavik and London with automatic relaying by Reykjavik (eastbound and westbound directions) and with Prins Christians Sund having transmitting capability only on the westbound channel to Gander.

6.1.2.4.3.2 Concerning the interim (or second) stage, the Committee recognized that the manner of expanding the amount of basic meteorological data exchanges to be accommodated on the second channel was closely linked to the question of facilities available for retransmission from the present cable terminals (Gander and London) to Montreal and New York (Western end) and Paris (Eastern end). In view of this, and recognizing that a need for additional circuitry could arise, the Committee believed that the Implementing States, together with

France and the U.S.A. should be invited to develop as early as possible the more extensive exchange programme based upon the overall exchange requirements specified by the MET Committee of this Regional Air Navigation Meeting.

6.1.2.4.3.3. In association with the foregoing, the COM Committee agreed to recommend early establishment of some ICAO consultative machinery whereby a draft plan of final engineering arrangements, together with a planned exchange programme for operational and basic meteorological data could be developed to secure by 1 January 1964 the eventual full utilization of the communication facility offered by the second teletypewriter channel of the SCOTICE, ICECAN submarine cable system. The Committee envisaged that establishment of an ICAO Advisory Panel, comprising members nominated by the Implementing States, France, U.S.A. and WMO would be of direct assistance in the development of such a draft plan and exchange programme.

***RECOMMENDATION No. 6/3 - FUNCTION OF THE SECOND TELETYPEWRITER CHANNEL**

- a) That the Second teletypewriter channel of the SCOTICE, ICECAN submarine cable be operated initially as two AFS one-way simplex channels connecting the AFTN stations at Gander, Prins Christians Sund, Reykjavik and London with automatic relaying by Reykjavik (eastbound and westbound directions) and with Prins Christians Sund having transmitting capability only on the westbound channel to Gander.
- b) That this channel be designated initially for primary use for meteorological operational traffic flowing between the stations concerned and for secondary use for the transmission of basic meteorological data from Prins Christians Sund to Gander and from Reykjavik to London.
- c) That until further notice, message traffic handled on this second channel use the AFTN message format.
- d) That with a view to securing full utilization for meteorological message traffic of this channel's capacity, at the earliest practicable date, if possible coincident with the bringing of the submarine cable system into operational service, the Implementing States (Canada, Denmark, Iceland, Ireland, United Kingdom), France and the United States should be invited to establish a more extensive programme of basic meteorological data exchanges, based upon the requirements specified in pages 12-9 to 12-10 of this Report, including, if necessary, proposals for additional requirements for Regional Plan circuitry necessary to facilitate retransmission of the additional exchanges from the Gander and London terminals of the submarine cable system. The draft programme, together with any associated suggestions for additional circuitry should then be circulated to all NAT States for comment prior to submission to Council for approval.

* See statement by the Delegation of France at Part 6, Section 4.

- e) That an ICAO advisory panel, comprising members nominated by the Implementing States (Canada, Denmark, Iceland, Ireland, United Kingdom) France, USA and the WMO, be established as soon as practicable for the purpose of developing a draft plan for the ultimate allocation and optimum utilization, by 1 January 1964, of the Second teletypewriter channel in the ICECAN, SCOTICE submarine cable system and to recommend, as part of the NAT Regional Plan, an allocation appropriate to the communication requirement for the use of this channel for the exchange of operational meteorological traffic and basic meteorological data essential to NAT aircraft operations. That this advisory panel also develop a proposal for the final exchange programme in respect of the basic data to be transmitted and, if considered necessary, any operational practices to govern the usage of this second channel.

6.1.2.4.4 In conjunction with the programme outlined in Recommendation 6/3 the COM Committee noted the efficient manner for collection and redissemination of operational MET information in Europe through the MOTNE system and was of the opinion that the possibility of using this system for handling the NAT operational MET information in Europe should be explored.

RECOMMENDATION No. 6/4 - POSSIBLE USE OF MOTNE CHANNELS FOR RELAYING NAT OPERATIONAL METEOROLOGICAL INFORMATION

That the MOTNE Panel be invited to study as a matter of urgency the possibility and implication of including NAT operational MET information in the MOTNE system phases 2 and 3.

6.1.2.5 Functions of the Third and Fourth Teletypewriter Channels

Arising out of the agreement recorded in 6.1.2.1 iii), the COM Committee considered that the needs of AFTN message traffic necessitated a full duplex^ø cable channel (AFTN) between London and Gander with New York having access to that channel through an automatic relay installation (see Annex 10, Part III, Chapter 1, para.5) at Gander. Channel No.4 of the cable was so recommended for this allocation.

6.1.2.5.1 As a back-up to the Fourth Channel (Gander-London) to cater for heavy AFTN traffic loading on No.4 Channel, it was suggested on behalf of the Implementing States that the Third teletypewriter Channel of the cable be split at Reykjavik so as to provide one duplex channel between London and Reykjavik and one duplex channel between Reykjavik and Gander; that such channels be designated AFTN and that Reykjavik effect the necessary relaying of traffic between these channels. Access to the third channel for New York would be

ø "Duplex Operation" - Operating method in which transmission is possible simultaneously in both directions.

available through Gander. As it concerns the Gander-Reykjavik channel, an alternative allocation possibility suggested by the USA envisaged its operation as simplex omnibus with interconnexion between Reykjavik, Prins Christians Sund, Gander and New York. This latter simplex omnibus arrangement, it was claimed, could permit the interchange of AFTN traffic independently of that to be carried on Channel No.4. At the same time, it would permit normal direct interchange of AFTN message traffic with Prins Christians Sund. In this respect the COM Committee noted that, were Channel No.3 to be operated duplex between the terminals Gander and Reykjavik, then Prins Christians Sund would have to have its AFTN traffic interspersed with AFS traffic on the omnibus Channel No.1 of the Cable system. In view of the relatively small requirements for teletypewriter traffic from Prins Christians Sund, such a practice was acceptable to the COM Committee.

6.1.2.5.2 Following examination of the anticipated AFTN message traffic loading figures representative of NAT aircraft operations, the COM Committee agreed to the following recommendation for allocation of the No.3 and No.4 teletypewriter channels of the ICECAN, SCOTICE cable system.

RECOMMENDATION No. 6/5 - FUNCTIONS OF THE THIRD AND FOURTH
TELETYPEWRITER CHANNELS

- a) That the Third teletypewriter channel of the SCOTICE, ICECAN submarine cable be split at Reykjavik so as to provide one Duplex channel between London and Reykjavik and one Duplex Channel between Reykjavik and Gander aeronautical telecommunication stations.
- b) That this channel be designated as an AFTN channel used for overspill AFTN message traffic between Europe and Gander when traffic peaks require, and that Reykjavik effect the relay of traffic which this will necessitate.
- c) That should a significant increase in AFTN traffic arise at Prins Christians Sund at a later date, wherefrom a requirement for reallocation of the Third teletypewriter channel becomes necessary, consideration should then be given by the States concerned to converting the Reykjavik-Gander Duplex channel to Simplex working with connexion to Prins Christians Sund.
- d) That the Fourth teletypewriter channel be operated as a Duplex channel between London and Gander.
- e) That this channel be designated an AFTN channel

6.1.3 Revision of the Existing AFTN Plan

As a consequence of the planned availability and functional use of the ICECAN, SCOTICE cable channels, the COM Committee directed its efforts towards revising the existing Aeronautical Fixed Services Plan of the requirements for AFTN circuits. In so doing, the Committee was mindful of the difficulties being encountered by States in finding suitable interference-free high frequencies for the expanding long-distance radiocommunication services (see Resolution No.3, ITU Administrative Radio Conference, Geneva, 1959). It recalled that when the Special North Atlantic Fixed Services Meeting (Montreal, 1957 - Doc.7761, SP/NAT - FS/1) recommended establishment of an ionospheric forward scatter system between Canada and the United Kingdom via Greenland and Iceland, it also recommended (Recommendation No. 19) that when this system had been established, the need for retention of a number of existing high-frequency circuits should be reviewed. The subsequent decision in 1959 (Doc 7933, SP/NAT-FS/2) to replace the projected forward scatter system by the ICECAN, SCOTICE coaxial submarine cables, providing increased capacity and circuits of better technical quality, was considered to strengthen the case for the NAT IV RAN COM Committee reviewing the need to retain not only the circuits directly superseded by the submarine cable system, but other high frequency aeronautical fixed circuits at present in operation in the North Atlantic Region. With this consideration in mind, the COM Committee reviewed in detail the existing Regional Plan in the light of the requirements for communications notified in respect of the ATS, MET and AIS Services and the accepted table of aircraft operations.

RECOMMENDATION NO. 6/6 - REVISION OF NAT AFTN

That:

- i) the following amendments be made to requirements for AFTN circuits as now set forth in the ICAO Publication Doc 7674/2 "Air Navigation Plan - North Atlantic Region" (as revised by Amendment No.5).
 - ii) the listing of required circuits as thus amended by this recommendation, be then approved as the AFTN Plan for the NAT Region to supersede the Plan now set forth in Doc 7674/2.
- A) Revisions taking into account the planned implementation of the SCOTICE, ICECAN submarine cables:
- 1) Insert the following 'Remark' against the Amsterdam-Shannon RTT dx Circuit EE 143:

"Need for this circuit to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained."

- 2) Insert the following 'Remark' against Gander-London RTT dx Circuit CE 974:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained."

- 2.1) Insert the following circuit:

"Gander-London LTT dx No. ... 'Remark' Channel 4 of SCOTICE, ICECAN cables - implementation expected Nov/Dec 1962."

- 2.2) Amend the Gander-New York LTT dx Circuit CK 975 to read:

"Gander-New York LTT dx* CK 975."

* Following implementation and operational experience with the ICECAN, SCOTICE submarine cable system, a review of circuit CK 975 is to be undertaken to determine whether an additional channel will be needed so as to expeditiously handle the increased message traffic for/from New York that is handled over the third and fourth tele typewriter channels of the ICECAN, SCOTICE cable system.

- 3) Insert the following Remark against the Gander-Reykjavik Circuit BC 976 RTT dx:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained."

- 3.1) Insert the following circuit:

"Gander-Reykjavik LTT dx No. ... 'Remark' Channel 3 of the ICECAN cable - implementation expected Nov/Dec 1962."

4. Insert the following 'Remark' against Gander-Shannon RTT dx Circuit CE 978:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained."

- 5) Insert the following 'Remark' against London-New York RTT dx Circuit EK 1355:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained."

- 6) Insert the following 'Remark' against the London-Reykjavik RTT dx Circuit BE 1357:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained".

Comment Withdrawal in advance of the completion of ICECAN would leave the communications from Iceland to Europe (via London) vulnerable to complete breakdown in the event of failure of the SCOTICE cable system.

- 6.1) Insert a new circuit:

London-Reykjavik LTT dx No. ... and the 'Remark' "To be implemented upon completion of the SCOTICE cable circuit (expected December 1961)."

- 6.2) Insert a further new circuit London-Reykjavik LLT dx and the 'Remark': "To be implemented upon completion of the SCOTICE cable (expected December 1961) but to be later withdrawn on satisfactory completion of the ICECAN cable circuit (expected December 1962)".

- 7) Insert the following 'Remark' against the Paris-Shannon RTT dx Circuit EL 1576:

"Need for this circuit is to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos. ... has been gained".

- 8) Delete the Prestwick-Reykjavik MAS Circuit BE 1611.

Comment Circuit BE 1357 is planned for Landline operation on completion of ICECAN cable (see 6) and 6.1) preceding). The standby requirement for BE 1611 is no longer justified.

- 9) Insert the following Remark against the Prins Christians Sund-Reykjavik MAS circuit BB 1526 in lieu of the present Remark:

"To be withdrawn following satisfactory operation of AFS Channel 1 of the ICECAN cable circuit No. ...".

- 10) Delete the Gander-Prins Christians Sund RTT dx Circuit BC 979.

Comment Were this radioteletypewriter duplex circuit to be implemented in the near future it would become redundant as an ICAO requirement following operation of the ICECAN cable circuit (expected December 1962). The intervening time period is considered to be insufficient to allow the States concerned a realistic period for amortization of the capital expenditures involved in establishing the RTT link. At the present time, Prins Christians Sund is served by the AFTN MAS (RTG) Circuit BB 1526 from Reykjavik and by the aeromobile service (RTF) at Gander (see Doc 7181 COM/546/5, para.11.5 "Radiotelephony Procedures"). Following implementation of the ICECAN cable, Prins Christians Sund will have its AFTN traffic interspersed with AFS traffic on the omnibus AFS channel No. 1 of the cable, with relay on the AFTN as necessary by other aeronautical stations that are interconnected by cable Channel No. 1. Such an arrangement can be accommodated without difficulty due to the relatively small requirements for teletypewriter traffic from Prins Christians Sund.

- B. Revisions taking into account the ATS requirements for Printed Communications

- 11) Amend Lisboa-Santa Maria RTT dx Diplex Circuit LL 1335 to show RTT dx service and insert the 'Remark';

"This circuit has been multiplexed and provides 1 AFTN, 1 ATS/AFS (both ARQ equipped) and 2 MET/AFS channels."

- 11.1) Delete the Lisboa-Santa Maria MAS Circuit LL 1336.

Comment Stand-by requirement is no longer justified.

- 11.2) Delete the 'Remarks' now shown in respect of the New York-Santa Maria RTT dx Diplex Circuit KL 1538 and insert in lieu:

"ISB operation with 1 AFTN) (ARQ planned)
1 MET/AFS)
1 MET/AFS

but will be discontinued following implementation of the New York-Lisboa RTT dx Circuit No."

Comment Discontinuance of Santa Maria FIR and the implementation in lieu thereof of the Lisboa Oceanic FIR.

- 11.3) Insert the circuit:

"New York-Lisboa RTT dx No. and the 'Remark':
This circuit is being multiplexed to provide
1 AFTN and 2 MET AFS channels."

Comment See amendment 11.2) preceding.

- 11.4) Delete the Paris-Santa Maria RTT dx Circuit LL 1575.

Comment Discontinuance of Santa Maria FIR.

- 11.5) Delete the Sal Island-Santa Maria MAS Circuit DL 1663.

Comment Discontinuance of Sal and Santa Maria FIRs.

- 11.6) Delete the Santa Maria-Shannon RTT dx Circuit
EL 1686.

Comment Discontinuance of Santa Maria FIR and implementation in lieu thereof of the Lisboa-Oceanic FIR.

- 12) Delete the Lisboa-Sal Island MAS Circuit DL 1334.

Comment Discontinuance of SAL FIR.

- 13) Insert the circuit Goose-Søndre Strømfjord RTT dx No. ..

Comment Requirement arising from establishment of Søndrestrom FIR. Message traffic to/ from Gander will be effected through relay at Goose. By 1965 it is expected that an automatic relay installation will be in operation at Goose.

- 13.1) Delete the requirement for the circuits:

Narssarssuaq/Søndre Strømfjord MAS BB 1527
Narssarssuaq-Thule MAS BB 1528

Comment Elimination of the Narssarssuaq FIC.

- 14) Delete the requirement for the MAS circuit Nord-Reykjavik BB 1544.

Comment The requirement was based upon the Nord FIR which has now been incorporated within the (new) Thule FIR.

- 15) Insert the Thule-Bodo MAS Circuit No.

- 16) Delete the Reykjavik-Saudarkrokur via Akureyri RTF Circuit BB 1635.

Comment This domestic circuitry between a designated Regular aerodrome and its associated Alternate should not be included in the AFTN Plan.

- 17) Delete the requirement for Reykjavik-Thule MAS Circuit BB 1637.

Comment The amended Plan provides (see 18)) for RTT circuit Reykjavik-Søndre Strømfjord then RTT relay to Thule.

- 18) Insert the following requirements:

"Søndre Strømfjord-Reykjavik RTT dx No."
"Søndre Strømfjord-Thule RTT dx No."

Comment Now in service and will meet the requirements associated with establishment of Søndrestrom and Thule FIRs.

- 19) Delete the requirement for Reykjavik-Stavanger MAS Circuit BE 1636.

19.1) Insert the following requirements:

"Stavanger-Oslo LTT No..."
"Oslo-London LTT No..."
"Bodø-Oslo LTT No..."

Comment

1) Communications linkage of Reykjavik-Stavanger was initially provided by MAS Circuit 2014 (EUM Plan Circuit 1541) (Doc 7550, NAT/III, page COM/13). This produced an average transit time performance of 28 minutes. The circuit was, therefore, discontinued and in lieu thereof "torn-tape" relay was introduced at Stavanger so as to give a current routing pattern of LTT Stavanger-Oslo-Kobenhavn-London thence RTT to Reykjavik with an average overall transit of 20 minutes. A reduction of this latter figure can be expected in the near future through introduction of the SCOTICE cable (expected December 1961) and at a later stage through gradual improvements in relaying times of AFTN stations following application by States of Amendment 39 to Annex 10 and the introduction into service of "push-button-torn-tape" or automatic relay installations. In principle and notwithstanding this anticipation of reducing current transit times, further simplification of the circuit routing will be necessary in order for the RAC Committee's stated requirement of 5 minutes transit time to be satisfied.

1.1) When considering the question of Reykjavik-Stavanger fixed communications, the COM Committee recognised that similar factors were associated with the RAC Committee's requirement for 5 minutes Transit Time between Bodø and Reykjavik. This fixed service message traffic was presently being routed LTT Bodø-Trondheim-Oslo-Kobenhavn-London thence RTT to Reykjavik.

1.2) Examination of current statistics for AFTN messages indicated that London was relaying approximately 150 messages per day for further retransmission by Oslo - of these messages relatively few necessitated retransmission to Stavanger or Bodø. Message traffic originated by Stavanger or Bodø for Reykjavik was also relatively slight in numbers. After taking into account the accepted table of aircraft operations, it was considered that little change in these figures was likely to occur in the foreseeable future. Because of the relatively small amount of message traffic exchanged between Stavanger-Reykjavik, Bodø-Reykjavik, the COM Committee was diffident to prescribe an AFTN Plan requirement for either RTT Reykjavik-Bodø, or Reykjavik-Stavanger.

1.3) Yet a further factor relative to the manner of satisfying these two requirements specified by the RAC Committee was that the question of expanding the Sharwick FIR so as to encompass all or part of the Reykjavik FIR was an item for further study by ICAO States (see Recommendation No. 14/3, page 14-5).

1.4) In the light of the foregoing examination, the COM Committee agreed to include in its revision of the NAT AFTN Plan, the requirements specified in 19), 19.1) preceding.

C) Other revisions of AFTN

20) Delete Bermuda-Santa Maria Circuit LM.420 MAS

Comment Redundant - relay via New York is effective.

20.1) Delete the circuit Gander-Santa Maria CL 977 MAS

Comment Relay via New York is effective.

21) Insert the circuit London-San Juan RTT No. EM... and the 'Remark'

"Need for this circuit to be reviewed after experience of operation of SCOTICE, ICECAN cable circuits Nos.....has been gained".

Comment Approximately 15 months will elapse before the complete introduction into operational service of the ICECAN, SCOTICE cable systems will have occurred. In the interim period the London-San Juan circuit can perform a useful function as the southern alternate route for AFTN message traffic (see Doc 7550, NAT III page COM-16, Recommendation No.2).

21.1) Delete the present entry in respect of New York-San Juan RTT dx Diplex Circuit KM 1537 and insert in lieu thereof the New York-San Juan RTT dx circuit No. KM... with the 'Remark':

"Being converted to SSB operation in late 1961 with provision for automatic switching to the London-San Juan circuit No. EM-----"

Comment Associated with Amendment 21.

22) Delete Bermuda-Gander Circuit CM 413 MAS

Comment Redundant - relay via New York is effective.

- 23) Amend Bermuda-New York Circuit KM 417 to read service "LTT", delete 'Remark' and insert in lieu thereof:
"Presently operating RTT dx, conversion to LTT planned for late 1961".
- 24) In the Plan listing of the Frobisher Bay-Goose RTT dx Circuit CC 965 and the Gander-Goose RTT dx Circuit CC 973 amend the service to read RTT dx (VHF).
Comment Now in operation.
- 25) Insert new circuit "Gander-Montreal No. CC ... LTT sx".
- 26) Delete the 'Remark' now shown against the circuit Gander-Sydney LTT sx Circuit CC 980.
Comment Improvements already effected.
- 27) Amend the Goose-Montreal RTT Circuit No. CC 1025 so as to show LTT service and delete the 'Remark'.
- 28) Delete the Moncton-Mont Joli LTT Circuit CC 1497 and insert in lieu thereof Montreal-Mont Joli LTT sx Circuit No. CC 1025.
Comment Already operating as Simplex (receive only) drop on Montreal-Goose omnibus circuit.
- 29) Delete the Moncton-Yarmouth LTT sx Circuit No. CC 1500.
Comment No longer a requirement. The Yarmouth aeronautical station is operated remotely from Moncton.
- 30) Delete the New York-Paris RTT dx Circuit KL 1536.
Comment AFTN requirements satisfied by EK 1355 Circuit to London.
- 31) In the listing shown for Stephenville-Torbay LTT sx Circuit CC 1706, amend the name Torbay to read "St. John's".
Comment Editorial to give correct nomenclature.
- 32) Delete the entry for Sydney-Yarmouth LTT sx Circuit No. CC 1713.
Comment No longer a requirement, the Yarmouth aeronautical station is operated remotely from Moncton.

33) Delete the Network RTF Group Ol-CC.

Comment This is domestic circuitry not associated with an AFTN requirement.

6.1.3.1 Examination of the MET operational requirements for fixed communication services was based upon the listing contained in MET Table 2 with particular reference to the need for transmission of routine observations and aerodrome forecasts, representing 77% of the exchanges listed. The random origination of the remaining 23% of exchanges was considered to be sufficiently diversified in time and routing to preclude overloading the AFTN. Taking into account the projected use of the second channel of the SCOTICE, ICECAN cable system for exchanging operational MET traffic, and the fact that, as reported by the MET Committee, the majority of the MET exchange requirements were currently being met, the COM Committee concluded that the Table MET 2 requirements specified by the present NAT RAN IV Meeting did not necessitate additional revision of the Regional AFTN Plan at this time.

6.1.3.2 Analysis of the volume and nature of the AIS message traffic requirements revealed that the aeronautical fixed telecommunication service required for the exchange of NOTAMS (Class 1) had been adequately covered by the preceding planning of AFTN circuitry to satisfy the RAC Committee's requirements for the NAT Region.

6.1.3.3 The COM Committee noting that AFTN frequencies do not form part of the Plan agreed that they need not be listed, especially since they are subject to frequent changes which render them of small value for planning purposes.

RECOMMENDATION No. 6/7 - FREQUENCIES OF AFTN CIRCUITS

That frequencies of AFTN circuits should not be listed in the NAT Regional Plan.

Comment: Guidance material in respect of frequency selection and planning is contained in the Report of the Fifth Session COM Division (Doc 7480-COM/548).

6.1.3.4 Collateral amendment of Annex 1, Part III of the Joint Financing Agreements

Arising from the work undertaken in respect of the functional allocation of the teletypewriter channels in the SCOTICE, ICECAN cable system and the revision of the AFTN Plan for the Region, the COM Committee recognized a need for amendment of Annex 1 (The Services), Part III (Aeronautical and Meteorological Telecommunication Services) of both the Danish and Icelandic Joint Financing Agreements (Doc 7726-JS/563; 7727-JS/564) so as to reflect changes resulting from the recommendations of this NAT RAN IV Meeting. The

Committee believed that details of these collateral amendments could best be left to the ICAO Secretariat to develop, subsequent to the approval by Council of the relevant recommendations of this regional meeting, and for such draft amendments to be then subjected to the ICAO consultative process with the States concerned, prior to submission to Council for approval.

RECOMMENDATION No. 6/8 - AMENDMENT OF JOINT FINANCING AGREEMENTS

That subsequent to the approval by Council of Recommendations Nos. 6/1 to 6/6 inclusive, draft collateral amendments of Annex 1, Part III to the 1956 Danish and Icelandic Joint Financing Agreements be developed by the Secretariat and circulated to the States concerned for comment prior to submission to Council for approval.

6.1.3.5 Discontinuance of radio circuits following introduction of the cable system

As indicated in para. 6.1.3 and Recommendation 6/6, several radio communication circuits now in operation are intended to be withdrawn from service after experience has demonstrated that the NAT operational requirements for communication services can be satisfied through the use of the SCOTICE, ICECAN cable system circuits. Since newly installed communication systems frequently require a period of time before complete operational reliability is reached, it will be necessary to retain in service the existing services until such time as the experience with the cable system demonstrates that the operational requirements can be met. The multiple-user nature of the international aeronautical fixed telecommunication services, plus recognition that certain of the existing facilities were covered by ICAO Joint Financing Agreements, led the COM Committee to indicate hereafter its suggestions for achieving a coordinated programme for the eventual withdrawal from service of those radio circuits superseded by the SCOTICE, ICECAN submarine cable system and its associated landline telegraph links.

RECOMMENDATION No. 6/9 - DISCONTINUANCE OF RADIO CIRCUITS

That when experience has demonstrated the operational requirements for communication service can be met by the circuits of the SCOTICE, ICECAN submarine cable system and hence that the need for continuance in operation of certain high frequency radio circuits no longer exists, the following procedure be applied:

1. For radio services considered to have been superseded by the submarine cable system and/or associated landline telegraph links but which are not operating under the ICAO Joint Financing Agreements, the elimination of the requirement for such radio circuits from the NAT Regional Plan is to be accomplished through bilateral arrangements between the States concerned and the normal ICAO Regional Plan amendment action.
2. For radio services which are operating under the ICAO Joint Financing Agreements the decision respecting the date of elimination from the NAT Regional Plan and the date of deletion from the 1956 Joint Financing Agreements is to be made by Council on the basis of information received from States directly concerned with the operation of those circuits which replace the radio circuits intended to be withdrawn.

6.1.3.6 Further improvement of AFTN operations

Following completion of its work in revising the existing Regional Plan for the AFTN, the Committee considered a suggestion for development of an additional recommendation concerning possible methods of improving the network's overall transit time performance. In this respect the Committee took note of Council's recent action in directing the transmittal to States for guidance and application as appropriate the new "Technical Principles and Associated Guidance Material on the Planning and Engineering of the AFTN". In the light of this, the Committee agreed that no additional recommendation on its part was necessary.

6.1.4 Revision of the NAT AFS for inter-area Voice circuits

The COM Committee reviewed the ATS requirements for inter-area voice communication between adjacent centres of flight information regions and control areas. The Committee recognized the increased requests being made by Regional Meetings for this type of communication service, due to the introduction into operation of aircraft of higher speeds, with the consequent reduction in the time available for coordination of aircraft movements by area control centres or flight information centres. Concern was expressed, however, at the financial and technical difficulties often associated with the implementation and satisfactory operation of such telephone services, particularly in instances where the requirements of successive ICAO meetings tended to impose a need for extension of existing landline telephone circuitry due to the impracticability of supplying additional landline, submarine cable, or radio circuits. During the COM Committee's appraisal of the methods to be employed to satisfy the stated voice channel requirements, it was observed

that, whereas the utilization factor of such circuits would be low by normal communication engineering standards, it was the prompt availability of such circuits for use when required that was of prime importance for the Air Traffic Services.

6.1.4.1 The Committee noted in respect of the present Meeting's requirements that as far as the North American Eastern seaboard and the European Western seaboard were concerned, several requirements are already being met, or in some cases, were capable of being met without too many serious difficulties. Similarly the eventual introduction into service of the voice circuit of the SCOTICE, ICECAN cable system would serve to overcome certain technical and organizational complexities now associated with attempts to provide ATS voice communications at Iceland and across the main ocean area. In other instances, however, the full satisfaction of the specified ATS requirements may not be practicable for some time due to a need for the States concerned to determine detailed methods as to how particular requirements could be met.

6.1.4.2 In the light of the foregoing appraisal, the COM Committee concluded that it would comply with its directives by preparing a draft NAT AFS Plan for voice communication channels capable, in principle, of progressive implementation by the States concerned in association with the implementation of the control areas delineated by this Regional Meeting. At the same time, however, the COM Committee agreed to suggest further study by ICAO of the subject of AFS voice channel for ATS Services with a view to securing closer integration and coordination of such circuitry, possibly with authorization for the use of conference techniques (similar to those afforded by the ICECAN, SCOTICE cable system), and eventually to the production of some suitable guidance material for use by future ICAO planning meetings.

RECOMMENDATION No. 6/10 - AFS VOICE CIRCUITS

That:

- 1) the NAT AFS Plan for ATS (Controller-to-Controller) voice communication channels should be that given in the following tabulation.
- 2) through agreements between the States concerned, the Plan should be implemented progressively between area control centres of contiguous control areas when these come into being.

FIC/ACC TERMINALS TO BE CONNECTED		SERVICE	REMARKS
BODØ	<u>Trondheim</u>	LTF	Now in operation
	<u>Stavanger</u>	LTF	Now being provided by switching at Oslo
GANDER	<u>Goose</u>	RTF	Now in operation
	<u>Lisboa</u>	(LTF	To be provided by switching at New York
	<u>New York</u>	(RTF	Now in operation
	<u>Reykjavik</u>	LTF	To be provided by voice circuit of ICECAN cable
	<u>Shanwick</u>	LTF	Now provided by interim facility but will be provided eventually by voice circuit of ICECAN cable
	<u>Sondrestrom</u>	RTF	Now provided by relay at Goose but is to be replaced with switching by Goose
<u>LISBOA</u>	<u>Casablanca</u>	Ø	Not yet provided
	<u>Gander</u>	(RTF	To be provided by switching at New York
	<u>New York</u>	(LTF	Not yet provided but in planning stage
	<u>San Juan</u>	RTF	To be provided by switching at New York
	<u>Shanwick</u>	Ø	Not yet provided Ø
NEW YORK	<u>Boston</u>	LTF	Now in operation
	<u>Gander</u>	LTF	"
	<u>Jacksonville</u>	LTF	"
	<u>Lisboa</u>	RTF	Not yet provided but is in planning stage
	<u>Miami</u>	LTF	Now in operation
	<u>Moncton</u>	LTF	"
	<u>San Juan</u>	RTF	"

Ø Type of service is to be determined by the States concerned.

Type of service is to be determined by the States concerned. At the present time the possibility of providing service through switching at a United Kingdom location is under consideration.

FIC/ACC TERMINALS TO BE CONNECTED		SERVICE	REMARKS
REYKJAVIK	<u>Gander</u>	LTF	To be provided by ICECAN
	<u>Shanwick</u>	LTF	cable voice circuit
	<u>Stavanger</u>	#	Through switching, acceptable
	<u>Sondrestrom</u>	RTF	Not yet provided.
	<u>Thule</u>	RTF	To be provided by switching at Sondrestrom
SHANWICK	<u>Gander</u>	LTF	Now provided by interim facility but to be provided by voice circuit of ICECAN
	<u>Lisboa</u>	Ø	SCOTICE cable system
	<u>London</u>	LTF	Not yet provided Ø
	<u>Madrid</u>	Ø	Now in operation
	<u>Paris</u>	LTF	Not yet provided. Ø
	<u>Reykjavik</u>	LTF	Now in operation
SONDRESTROM	<u>Gander</u>	RTF	To be provided by voice circuit of SCOTICE cable system
	<u>Goose</u>	RTF	Now provided via relay at Goose but is to be replaced with switching at Goose
	<u>Reykjavik</u>	RTF	Now in operation
	<u>Thule</u>	RTF	Not yet provided.
THULE	<u>Reykjavik</u>	RTF	Now in operation
	<u>Sondrestrom</u>	RTF	To be provided through switching at Sondrestrom

RECOMMENDATION No 6/11 - INTEGRATION AND COORDINATION OF AFS VOICE CHANNELS

That the subject of closer integration and coordination of AFS voice channels for the ATS (Controller-to-Controller) services be further studied by ICAO with a view to the preparation of appropriate guidance material on the subject for use in future planning meetings.

6.1.5 Revision of NAT AFS for Search and Rescue Communications

The Committee was advised of a requirement for certain additional facilities to be provided so as to provide telecommunication connection between designated Rescue Coordination Centres. It concluded that, inasmuch as search and rescue operations often involved the use of military services and facilities, the implementation of such facilities should best be left to the States concerned.

RECOMMENDATION No. 6/12 - SAR REQUIREMENTS FOR COMMUNICATIONS

That the States concerned endeavour to provide communication facilities and services so as to meet the SAR requirements for communication services listed at page 21-6 of this Report.

6.1.6 Revision of the NAT AFS for meteorological communications

As indicated in para. 6.1.3.1, the MET requirements did not appear to require further revision of the planned AFTN circuitry. Certain changes to the AFS Plan requirements now contained in Table COM 1B /page 3-1-11 dated 15/6/61 of Doc 7674/27 were needed. These are given hereunder.

RECOMMENDATION No. 6/13 - AFS METEOROLOGICAL CIRCUITS

That:

- a) the following amendments be made to the requirements for AFS MET circuits as now set forth in the ICAO Publication Doc 7674/2 "Air Navigation Plan - North Atlantic Region (as revised by Amendment No.5).
- b) the listing of required circuits as thus amended by this recommendation, be then approved as the AFS MET circuits Plan for the NAT Region to supersede the Plan now set forth in Table COM 1B of Doc 7674/2.
 - 1) Amend Circuit MET 1 to show LTT service and amend the 'Remark' to read:
"Presently operating RTT, conversion to LTT expected by 'late 1961'".
 - 2) Amend Circuit MET 2 to show LTT dx service.

- 3) Delete Circuit MET 4 and insert in lieu thereof:
"Goose-Gander RTT dx (VHF) Circuit MET 4".
- 4) Amend Circuit MET 6 to show LTT sx service.
- 5) Delete Circuit MET 7 and insert in lieu thereof:
"New York-Lisboa RTT dx - MET 7"
together with the remark -
"Two channels for MET; other channel is for
AFTN traffic (see AFTN circuit No. ...)".
- 6) Delete Circuit MET 8 and insert in lieu thereof:
Paris-Lisboa RTT dx MET 8 and the 'Remarks'
"Two MET channels"
"ARQ is planned"
Comment: Discontinuance of Santa Maria FIR and
planned replacement of New York-
Santa Maria RTT dx with New York-
Lisboa RTT dx circuit (MET).
- 7) Insert the following requirements:
- i) Angmagssalik-Prins Christians Sund RTT sx
MET 9 and the 'Remark': "Presently operating
MAS but to be converted to RTT or Automatic
Morse.
 - ii) Reykjavik-Søndre Strømfjord RTT MET 10.
 - iii) Goose-Søndre Strømfjord RTT MET 11.
 - iv) Søndre Strømfjord-Thule RTT MET 12 and the
Remark "Provides two MET channels".

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON ACTION TAKEN ON AGENDA ITEM 6

6.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 6 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 6

6.3.1 The General Committee reviewed the material presented to it under Agenda Item 6 and made no comment.

SECTION 4: STATEMENTS BY DELEGATIONS ON THE ACTION TAKEN ON AGENDA ITEM 6

6.4.1 STATEMENT BY THE DELEGATION OF FRANCE

Statement relating to channel 2 of the transatlantic cable (Rec. 6/3).

The French Delegation -

1. Notes the de facto situation arising of the steps already taken by the States operating the transatlantic cable; those steps, which anticipate the decisions of the Fourth NAT RAN Meeting on the ~~destinations~~ of exchanges handled on channel 2 of the cable and the procedures to be used for such exchanges, do not make it possible to meet fully the requirements set forth by the MET Committee of this Meeting;
 2. considers that use of this channel cannot be satisfactory from an international point of view as long as all efforts have not been made to permit New York and Paris to fulfill the functions entrusted to them, in the field of exchange and dissemination of meteorological information, by Recommendation 13 of the Thirteenth Session of the WMO Executive Committee;
 3. considers that no satisfactory solution will have been given to the problem as long as the information provided for by the MET Committee of the Fourth NAT RAN Meeting cannot be disseminated without delay at the New York and Paris MET Centres.
-

Agenda Item 7: Aeronautical Mobile ServicesSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 7

The plan of aircraft operations, together with the statement of regionally agreed operational requirements, established by Subcommittee 1, as reported in paragraphs 2.1.1.2.3 and 2.1.1.5.2 of the Report on Agenda Item 2 governed the consideration of Agenda Item 7.

SECTION 1: ACTION BY THE COM COMMITTEE ON AGENDA ITEM 77.1.1 Definitions and Planning Principles

The COM Committee accepted the following definitions and principles which were used as a basis of recommendations to amend the Regional Aeronautical Mobile Service Plan.

7.1.1.1 Definitions

7.1.1.1.1 The ATS "Pilot-to-Controller" System. Radiotelephony facilities implemented for the purpose of providing direct Pilot-to-Controller communications.

7.1.1.1.2 The "General Purpose" (GP) System. Radiotelephony facilities providing for the exchange of all categories of traffic listed in Annex 10, Part 3, para. 5.1.8. In this system communication is normally indirect, i.e. exchanged through the intermediary of a third person.

7.1.1.2 Planning Principles

7.1.1.2.1 The Committee considered the functional requirements for en-route communications to carry the categories of message listed in para. 5.1.8, Part III of Annex 10, to be as follows:

- a) communication between aircraft and the air traffic service unit responsible for air traffic service in the airspace in which the aircraft is flying;

- b) communication between aircraft and air traffic service units for advance flight information;
- c) communications between aircraft and aeronautical stations for the exchange of meteorological information;
- d) exchange of airline operational messages.

7.1.1.3 The Committee considered that there is a requirement for certain stations in the NAT Region to provide a GP communication system fulfilling the requirements listed above in para. 7.1.1.2.1. It is noted that the functions of individual facilities of the GP system will be dependent on whether or not the facility is at a location where Pilot-to-Controller communication is provided.

7.1.1.4 In order to meet the requirements listed in para. 7.1.1.2.1 the GP system will normally utilize an appropriately engineered HF network supplemented by VHF at selected en-route aeronautical mobile stations. At certain of these selected locations the VHF facilities should be engineered so as to obtain the maximum practicable range consistent with the present known state of the art.

Note: At locations where en-route Pilot-to-Controller VHF facilities are provided, arrangements should be made by local agreement to permit distribution of designated flight progress reports to the relevant airlines' operations offices, in order to apply the provisions of Annex 11, Chapter 3, para. 3.8.

7.1.2 VHF Aeronautical Mobile Facilities Plan

7.1.2.1 In considering the need to provide for the maximum possible VHF coverage, it was noted that significant advantages could be obtained from the use of "Extended Range VHF" techniques.

Note: Technical guidance material on VHF ground equipment suitable for the provision of extended range coverage is contained in Appendix A to this report on Agenda Item 7.

7.1.2.2 The geographical relationship between the location of an Extended Range VHF facility and the area encompassing the main air routes to be served by the facility will determine the technical and directivity characteristics of the antenna array/s to be employed and the optimum orientation of the array/s.

RECOMMENDATION No. 7/1 - PROMULGATION OF PREDICTED SERVICE COVERAGE AVAILABLE FROM EXTENDED RANGE VHF FACILITIES

That coincident with the operational implementation of Extended Range VHF facilities, States should promulgate in their AIPs all relevant information regarding the reliable service coverage which would be afforded from such facilities.

7.1.2.3 The Committee recognised that, in order to achieve the full potential of extended range VHF it is of importance that VHF airborne equipment be of a uniform high standard. In this respect it was felt that additional guidance on the desirable characteristics of VHF airborne equipment was required and accordingly made the following recommendation.

RECOMMENDATION No. 7/2 - VHF AIRBORNE EQUIPMENT CHARACTERISTICS

That an early opportunity be taken to develop on a world-wide basis guidance material on the desirable characteristics of VHF airborne equipment and its installation which will permit the full potential of extended cover VHF to be realized. Particular characteristics for which guidance appears necessary are:

- i) the sensitivity, selectivity and stability of receivers;
- ii) the stability and power of transmitters and
- iii) aircraft antennas.

Comment: It was the hope of the Committee that the Seventh Session of the Communications Division might be a suitable occasion for the development of such guidance material under its Agenda Items 9 and/or 12.1.

VHF Facility Requirements

7.1.2.4. The Committee established the locations at which en-route Pilot-to-Controller and GP VHF facilities are required and determined those centres and locations which should be served by Extended Range facilities.

** RECOMMENDATION No. 7/3 - PILOT-TO-CONTROLLER VHF FACILITIES

That Pilot-to-Controller en-route VHF facilities be provided at the following centres.

Bermuda * #	Moncton
Bodo	Montreal
Gander *	New York *
Goose	Prestwick *
Lisboa	Reykjavik
	Shannon *

* Required to have extended range capability

Comment: # While Bermuda is not an OAC, the special local ATC requirements are considered to be such as to justify the provision of this facility.

** See statement by the Delegation of France at Part 7, Section 4.

*RECOMMENDATION No. 7/4 - GP VHF FACILITIES

That with respect to GP VHF facilities changes to the Regional Plan be made as indicated for the following locations:

Goose (1)
Prins Christians Sund (1)
Lisboa (1)
Reykjavik (1)
Shannon (1)
Prestwick (3)
Angmagssalik (1)
Knob Lake (2)
Stavanger (4)

- Notes:
1. Provision of extended range capability required.
 2. Provision of conventional facility required.
 3. To be implemented, with extended range capability, when required operationally.
 4. Coverage of existing facility to be improved.

7.1.2.5 The Committee agreed that in the light of revisions to the List of Regular and Alternate Aerodromes made by Subcommittee 1, certain consequential amendments were necessary in Table COM 2a of the NAT Air Navigation Plan, Doc 7674/2 and therefore prepared the following recommendation.

RECOMMENDATION No. 7/5 - PLAN AMENDMENTS STEMMING FROM REVISION OF AERODROME LIST

That Table COM 2a be amended as follows as a consequence of amendments to the List of NAT Regular and Alternate Aerodromes:

- a) Page 3-2-7. Delete Narssarssuaq.
- b) Page 3-2-11. Delete Stockholm/Bromma.
- c) Page 3-2-11. Add Stockholm/Arlanda and insert data previously shown in Cols. 6 and 7 for Stockholm/Bromma.

(Note: 127.9 Mc/s should be shown as a GP en-route facility)

* See statement by the Delegation of France at Part 7, Section 4.

Frequency Planning for VHF Facilities

7.1.2.6 In considering the needs for frequency assignments for VHF facilities, the Committee noted that a large number of these facilities were at locations within -

- a) The EUM Region
- b) The North American Continent

In view of the critical nature of VHF planning in both of the above areas it was felt that it would be inadvisable at this time to assign discrete frequencies to VHF facilities in these areas which are required solely to meet NAT regional needs. In this connexion the meeting considered that these tasks could best be undertaken by the FCB in respect of those facilities falling within the EUM Region and by appropriate coordination between the US and Canadian Administrations in respect of North American facilities.

RECOMMENDATION No. 7/6 - FREQUENCY ASSIGNMENTS FOR VHF CHANNELS IN THE EUM REGION

That the attention of the FCB be drawn to the need to assign frequencies to those communication facilities serving NAT requirements and for which frequencies are not available within the provisions of the EUM VHF Frequency Plan. In taking such action the FCB should apply the technical planning principles employed for the EUM Regional VHF Frequency Plan.

RECOMMENDATION No. 7/7 - FREQUENCY ASSIGNMENTS FOR VHF CHANNELS - NORTH AMERICAN CONTINENT

That the attention of the US and Canadian Administrations be drawn to the need to coordinate the assignment of frequencies to those VHF facilities serving NAT requirements which are located within the North American Continent.

7.1.2.7 In considering the needs for frequency assignments to those NAT communication facilities which are located external to the EUM Region and the North American Continent, the following provisional parameters were applied.

<u>Function</u>	<u>Minimum Co-channel Separation</u>
All TMA facilities	450 nautical miles
All Pilot-to-Controller (conventional)	900 nautical miles
All Pilot-to-Controller (Extended Range)	1500 nautical miles

RECOMMENDATION No. 7/8 - ASSIGNMENT OF FREQUENCIES TO ADDITIONAL
PILOT-TO-CONTROLLER AND GP EN ROUTE VHF
FACILITIES

That the following frequency assignments be made to those facilities indicated under Recommendation No. 7/3 and 7/4 which are located in areas external to the EUM Region and the North American Continent.

Bermuda (Pilot-to-Controller Extended Range) (1)	
Reykjavik (Pilot-to-Controller)	119.7 Mc/s
Prins Christians Sund (GP Extended Range)	127.9 Mc/s
Reykjavik (GP Extended Range)	127.9 Mc/s
Angmagssalik (GP Extended Range)	127.9 Mc/s

- (1) Having regard to the separation distance criteria noted under para. 7.1.2.7 and the geographical relationship between Bermuda and the Eastern Seaboard of the United States, the Meeting considered that it would be inadvisable to assign a frequency to the planned Pilot-to-Controller Extended Range VHF facility at Bermuda and was of the opinion that this matter should be the subject of coordinated action between the US and the agency responsible for the provision of air navigation facilities at Bermuda.

7.1.2.8. The Committee noted that the use of the frequency 127.9 Mc/s by the existing Extended Range VHF GP facility at Shannon results in air-to-air and air-to-ground interference relative to the use of the same frequency of OSV-JULIET. Having regard to the restricted bandwidth of the high-gain antenna arrays, and the cost involved in replacement of such arrays, the Meeting considered it would be unreasonable to require a change of frequency at Shannon. Bearing in mind also the planned use of 127.9 Mc/s by Extended Range VHF GP facilities called for under Recommendation No. 7/8 the Committee was of the opinion that harmful interference would result from the shared use of this frequency by these facilities and certain OSVs. It was considered, however, that it would be operationally advisable to assign a common VHF frequency for en-route communications purposes to all OSVs. It was felt that the directivity of the antennas at the Shannon installation should be such as to ensure adequate protection between Shannon and other assignments of the frequency 127.9 Mc/s in Europe.

RECOMMENDATION No. 7/9 - ASSIGNMENT OF COMMON VHF FREQUENCY TO OSVs

That the frequency 126.7 Mc/s be assigned on a common basis to all OSVs to serve en-route communication purposes.

RECOMMENDATION No. 7/10 - VHF FREQUENCY ASSIGNMENTS TO ADDITIONAL AERODROMES TO BE INCLUDED IN THE REGIONAL PLAN

That the VHF frequencies already assigned to those additional aerodromes to be contained in the Regional Plan and which are located in other ICAO Regions and the North American Continent should be incorporated as appropriate in the NAT VHF Plan.

RECOMMENDATION No. 7/11 - LISTING AND COORDINATION OF VHF ASSIGNMENTS

That the VHF frequency assignments for those facilities at locations external to the EUM Region and the North American Continent together with the frequency assignments arising from action taken by the EUM FCB and the Canadian/US Administrations (in accordance with Recommendations 7/6 and 7/7) be incorporated in the NAT Regional Aeronautical Mobile Services Plan. Introduction of relevant new assignments and changes to existing assignments should be coordinated between ICAO and the States concerned.

7.1.2.9 The Committee noted that as yet there were no fully substantiated formulae governing forward scatter type VHF propagation. On the other hand, practical operational experience in the use of this technique with existing extended range VHF facilities indicates that ranges in the order of 400 nautical miles at Flight Level 400 can be achieved with a high degree of probability.

RECOMMENDATION No. 7/12 - EXTENDED RANGE VHF FREQUENCY PLANNING

That the attention of the Seventh Session of the Communications Division be directed to the need to complete an examination of the mechanisms governing forward scatter* VHF propagation and as a corollary to develop technical principles to guide the frequency planning aspect of Extended Range VHF facilities

Comment: It is understood that the CCIR has recently produced a series of curves which may assist in this work.

* The term "forward scatter" refers to propagation beyond the radio horizon.

7.1.2.10 It was considered that until such technical principles have been finalized, a minimum co-channel separation distance of 1500 nautical miles should be used for Pilot-to-Controller Extended Range VHF Facilities, bearing in mind the orientation of the antenna arrays of the stations under consideration.

7.1.2.11 It was the opinion of the Committee that it is not operationally mandatory to provide full co-channel protection to Extended Range VHF GP facilities. However, the maximum possible co-channel protection should be afforded consistent with availability of frequencies.

7.1.2.12 It was noted that requirements existed at certain locations in the Region for provision of direct VHF communications between aircraft en-route and the operating agencies' representatives.

RECOMMENDATION No. 7/13 - FREQUENCY ASSIGNMENTS FOR VHF OPERATIONAL CONTROL CHANNELS

That:

- a) where a requirement exists for provision of Pilot-to-Company VHF communication channels, frequencies for such channels for locations on the North American Continent should be assigned from the group 128.825 to 132.025 Mc/s inclusive and for other locations in the NAT Region from the group 131.4 to 131.95 Mc/s inclusive and specific assignments coordinated between the airline operating agencies and Administrations concerned;
- b) assignments made by States in this respect should be notified to ICAO for promulgation;

Comment: With respect to part (b) of this Recommendation, a similar practice has already been adopted for the EUM Region.

7.1.3 HF Aeronautical Mobile Facilities Plan

7.1.3.1 Deployment Principles

7.1.3.1.1 It was agreed that the geographical deployment principles employed in the present plan for the four available frequency Families A, B, C and D, are generally satisfactory and that no radically different approach was either necessary or desirable.

7.1.3.1.2 At times the frequency Families B and C used for the direct central flights do approach a condition of saturation and supplementary use of other families would then be desirable.

(Note: A specific means for doing this is proposed at Recommendation No. 9/1).

7.1.3.2 Frequencies in Families

7.1.3.2.1 It was agreed that the common use of a single 13 Mc/s order frequency for Families B and C is not considered satisfactory. This situation, stemming from the transfer of 13,264.5 kc/s to VOLMET could be overcome by transferring 13354.5 kc/s from Family A to Family C and retaining 13324.5 kc/s as a frequency common to both Families A and D.

RECOMMENDATION No. 7/14 - ALLOCATION OF FREQUENCIES TO HF FAMILIES

That the allocation of frequencies to families be:

Family A - 2931, 5611.5, 8947.5 and 13324.5 kc/s
Family B - 2987, 5671.5, 8888 and 13284.5 kc/s
Family C - 2945, 5641.5, 8862.5 and 13354.5 kc/s
Family D - 2868, 5626.5, 8913.5 and 13324.5 kc/s
Common frequency to the four families - 17966.5 kc/s

RECOMMENDATION No. 7/15 - PLAN AMENDMENTS TO REFLECT CHANGES IN ALLOCATIONS OF FREQUENCIES TO HF FAMILIES

a) That the frequency 13354.5 kc/s be deleted from:

Bermuda, Madrid, Santa Maria and Paris;
(Column 5 of Table COM 2a, Doc 7674/2 refers).

b) That the frequency 13354.5 kc/s be added at Reykjavik.
(Column 5 of Table COM 2A, Doc 7674/2 refers).

c) That the frequency 13324.5 kc/s be added at:

Bermuda, Madrid, Santa Maria and Paris;
(Column 5 of Table COM 2A, Doc 7674/2 refers).

d) That at OSVs Delta, Echo and Kilo the frequency 13354.5 kc/s be replaced by 13324.5 kc/s.
(Table COM 2B, Doc 7674/2 refers).

7.1.3.3 Additional points which reflect in the HF Aeronautical Mobile Facilities Plan

7.1.3.3.1 It was agreed that a requirement existed for the addition of NAT Family A frequencies at:

- a) Puerto-Rico
- b) Trinidad
- c) Paramaribo
- d) Pointe-a-Pitre, (when operationally necessary).

In respect of the three locations at b), c) and d) the intention is to serve the communications network requirements of flights routed to this part of the CAR Region via Santa Maria.

7.1.3.3.2 Note was taken of the interference problem which might arise from the use of the NAT frequencies 2931 Kc/s and 8947.5 Kc/s in the zone. It was therefore additionally agreed that the use of NAT Family A frequencies at these locations would be on a secondary basis, in accordance with the ITU Radio Regulations

RECOMMENDATION 7/16 - REQUIREMENT FOR FAMILY A AT PUERTO RICO, TRINIDAD, PARAMARIBO AND POINTE-A-PITRE

That NAT Family A frequencies 2931, 5611.5, 8947.5 and 13324.5 kc/s be added to the facilities and operated on a secondary basis in accordance with the ITU Radio Regulations at Puerto Rico, Trinidad, Paramaribo and Pointe-a-Pitre*.

* When operationally required.

7.1.3.3.3 It was agreed that the present H.F. Aeronautical mobile facilities provided on Family D frequencies at Mesters Vig, Angmagssalik and Stavanger are no longer required. In the case of Stavanger it was agreed that this requirement could be deleted in view of the transfer of control responsibility to Bodo. At the same time it was noted that the Norwegian authorities intended to implement a long range VHF facility at Stavanger.

RECOMMENDATION 7/17 - DELETION OF FAMILY D AT ANGMAGSSALIK, MESTERS VIG AND STAVANGER

That the NAT Family D frequencies of 2868, 5626.5 and 8913.5 kc/s in respect of Angmagssalik, 2868, 5626.5, 8913.5 and 13324.5 kc/s in respect of Mesters Vig and 2868, 5626.5 and 8913.5 kc/s in respect of Stavanger be deleted from the NAT Plan.

7.1.3.3.4 In view of the transfer of the Oceanic Control Centre from Santa Maria to Lisboa, it was agreed that there was no requirement to continue the operation of NAT Family B and NAT Family C frequencies at Santa Maria but there was a requirement to provide both NAT Families B and C, together with the common 17966.5 kc/s frequency at Lisboa. The Committee noted that in due course, if it is established that adequate coverage is provided from Lisboa, Portugal would probably propose the deletion of Family A from Santa Maria. The Committee was generally of the opinion that a decision on the desirability and practicability of withdrawing Family A from Santa Maria could not be taken at this time.

RECOMMENDATION 7/18 - DELETION OF FAMILIES B AND C AT SANTA MARIA

That the Family B and C frequencies 2987, 5671.5, 8888, 13284.5, 2945, 5641.5 and 8862.5 kc/s be deleted from the NAT Plan in respect of Santa Maria.

RECOMMENDATION 7/19 - REQUIREMENT FOR FAMILIES B AND C AT LISBOA

That NAT Family B frequencies 2987, 5671/5, 8888, 13284.5 kc/s and NAT Family C frequencies 2945, 5641.5, 8862.5 and 13354.5 kc/s and the common frequency 17966.5 kc/s be added to the NAT Plan in respect of Lisboa.

7.1.3.3.5 Terminal Area Communications

7.1.3.3.5.1 It was agreed that at all locations the supplementary frequency 3023.5 kc/s is no longer a requirement in Terminal Areas.

RECOMMENDATION 7/20 - WITHDRAWAL OF 3023.5 kc/s

That the Supplementary Terminal Area Frequency 3023.5 kc/s be deleted from the plan at all locations.

Comment: This recommendation in no way affects the continuing requirement for the provision of 3023.5 kc/s on OSVs.

7.1.3.4 Selective Calling Facilities (SELCAL)

7.1.3.4.1 The operational advantage of selective calling facilities (SELCAL), particularly in respect of the AMS GP facilities, were recognised by the COM Committee and the locations at which selective calling is available and those for which its provision is planned by the States concerned were noted. These are as follows:

STATE	LOCATION (EXISTING)	LOCATION (PLANNED)	SELCAL ON HF FREQ.FAM. (EXISTING)	SELCAL ON HF FREQ.FAM. (PLANNED)	SELCAL ON VHF (EXISTING)	SELCAL ON VHF (PLANNED)
United States	New York	-	A.B.C.D.	-	127.9.130.4	-
Canada	Churchill	-	D.		126.9	
	Frobisher	-	D.		126.9	
	Gander	-	A.B.C.D.		126.9;127.1	
	Goose	-	B.D.		126.9	
	Moncton	-	D.		126.9	
	Mont Joli	-	D.		126.9	
	Montreal	-	D.		126.9	
	Resolute Bay	-	D.		-	
	Winnipeg	-	D.		126.9	
	Sydney	-	-	-	126.9	
	Yarmouth	-	-	-	126.9	
Denmark	København Prins Christians Sund Søndre Strømfjord	Nord	D. B.C.D. D.	D	127.9 127.9	127.9
Iceland	Reykjavik	Reykjavik	B.C.D.	-	-	127.9
Ireland	Shannon	-	A.B.C.D.			
United Kingdom	Prestwick	-	A.B.C.D.			
France	Paris	Paris	A.	D.		
Norway	Bodø Stavanger	Isfjord	D.	D.	127.9	
Portugal	Santa Maria Lisboa	Lisboa	A.B.C. A.	B.C.	127.9	
Spain		Madrid		A.		

RECOMMENDATION No. 7/21 - AVAILABILITY OF SELECTIVE CALLING FACILITIES

That the details given in the above Table be included in the NAT Plan Document for information.

7.1.4 NAT VOLMET Broadcasts

7.1.4.1 The NAT HF A3 VOLMET Broadcast Plan

7.1.4.1.1 It was noted that the inclusion of QNH values in NAT HF A3 VOLMET Broadcasts was not necessary.

7.1.4.1.2 It was agreed that normally with deletion of QNH, and by use of all approved abbreviations such as NOSIG, GRADU, etc., the voice transmission of 6 Routine Reports (or Selected Special Reports) plus Trends, and 3 Aerodrome Forecasts was possible in a time of 5 minutes if a speed of delivery suitable for copying in aircraft were employed.

RECOMMENDATION No. 7/22 - NAT HF A3 VOLMET BROADCAST PLAN

That the existing NAT HF A3 VOLMET Broadcast Plan on 3001, 5559, 8828.5 and 13264.5 kc/s should be replaced by the following plan on the same radio frequencies:

<u>SHANNON</u>	Amsterdam	AT	<u>SHANNON</u>	Amsterdam	A
H+	Bruxelles	AT	H+	Bruxelles	A
00-05	Frankfurt	AT	30-35	Frankfurt	A
	Köln	A		Köln	AT
	Zürich	A		Zürich	AT
	Geneve	A		Geneve	AT
<u>SHANNON</u>	Shannon	AT	<u>SHANNON</u>	Shannon	A
H+	Dublin	AT	H+	Dublin	A
05-10	Prestwick	AT	35-40	Prestwick	A
	London	A		London	AT
	Gatwick	A		Gatwick	AT
	København	A		København	AT
<u>SHANNON</u>	Paris/Orly	AT	<u>SHANNON</u>	Paris/Orly	A
H+	Paris/Le Bourget	AT	H+	Paris/Le Bourget	A
10-15	Rome/L. de Vinci	AT	40-45	Rome/L. de Vinci	A
	Madrid	A		Madrid	AT
	Lisboa	A		Lisboa	AT
	Santa Maria	A		Santa Maria	AT

<u>NEW YORK</u>	New York/Int.	AT	<u>NEW YORK</u>	New York/Int.	A
H+	Newark	AT	H+	Newark	A
15-20	Boston	AT	45-50	Boston	A
	Baltimore	A		Baltimore	AT
	Philadelphia	A		Philadelphia	AT
	Washington	A		Washington	AT
<u>GANDER</u>	Gander	AT	<u>GANDER</u>	Gander	A
H+	Goose	AT.	H+	Goose	A
20-25	Montreal	AT	50-55	Montreal	A
	Stephenville	A		Stephenville	AT
	Halifax	A		Halifax	AT
	Toronto	A		Toronto	AT
<u>GANDER</u>	Sydney	AT	<u>GANDER</u>	Sydney	A
H+	Søndre Strømfjord	AT	H+	Søndre Strømfjord	A
25-30	Frobisher	AT	55-60	Frobisher	A
	Ottawa	A		Ottawa	AT
	Chicago *	A		Chicago *	AT
	Detroit *	A		Detroit *	AT

Note 1: A : Routine Report (or Selected Special Report) plus Trend when the latter is available.
T : Aerodrome Forecast

Note 2: * : Data to be included in the broadcast when the operational requirement is accepted by the State providing the broadcast service.

Note 3: : The inclusion of data for some European aerodromes may need to be the subject of reconsideration if and when EUM HF A3 VOLMET broadcasts are implemented.

RECOMMENDATION No. 7/23 - AMENDMENT OF THE VOLMET PLAN TO MEET UNFORESEEN REQUIREMENTS

That, if a State notes greatly increased request-reply traffic regarding an aerodrome not included in the Plan it should, as appropriate, following a preliminary consultation of interested States and international organizations, propose an amendment to the NAT Plan.

7.1.4.2 Transmitting Stations

a) East Atlantic

As regards the Eastern side of the Atlantic it was agreed that the NAT HF A3 VOLMET Broadcasts should be made from Shannon. It was noted that the Paris transmitting station would then become available for possible incorporation in a EUM HF A3 VOLMET Broadcast System.

b) West Atlantic

RECOMMENDATION No. 7/24 - SINGLE WESTERN ATLANTIC HF A3 VOLMET TRANSMITTING STATION

That the United States of America and Canada should give consideration to the advantages to be gained by combining, on the Western side of the Atlantic, the NAT HF A3 VOLMET Broadcasts at a single station, and should take appropriate action to this end.

7.1.4.3 Contents of Messages

RECOMMENDATION No. 7/25 - LANGUAGE FOR NAT A3 VOLMET BROADCASTS

That NAT HF A3 VOLMET Broadcasts should be made only in the English language.

RECOMMENDATION No. 7/26 - NEED FOR STANDARD SPOKEN FORMS OF OPERATIONAL METEOROLOGICAL MESSAGES FOR USE IN A3 VOLMET BROADCASTS

That a short standard spoken version of operational meteorological messages should be established for use in A3 VOLMET broadcasts

Comment: A Working Group of the MOTNE Development/Implementation Panel is at present dealing with the ground-to-ground aspect of the abbreviation of operational meteorological messages. However, as this group must inevitably also study the ground-to-air aspect of these messages, it is felt that it could contribute to the study of this subject. Attention has been called to the fact that, since present practice is for pilots to copy the broadcasts manuscript, any version enabling them to fill in standard proformas would be desirable. At the present time variations in formats, dimensional units, and radiotelephony speech practices exist on the two sides of the Atlantic. While this could probably be minimised by stricter attention to existing meteorological and communication procedures, it is likely that a more fundamental approach, as recommended above, is required. In the interim, pending completion of action on the Recommendation, conformity with all existing procedures (e.g. adherence to the order of elements in messages) is essential.

7.1.4.4 Contents of Broadcasts

RECOMMENDATION No. 7/27 - OLD DATA TO BE BROADCAST IF LATEST NOT AVAILABLE

That when the data has not arrived from an aerodrome in time for any broadcast, the latest earlier material should be included in the broadcast, together with the time of observation, rather than making no report at all, or saying that the information is missing.

Comment: The time of origin or of validity will indicate to pilots that old material is being broadcast.

Note: The above Recommendation is complementary to NAT MET SUPP 2.5.3 1) c).

RECOMMENDATION No. 7/28 - ORDER OF BROADCAST OF DATA

That the Aerodrome Forecasts should be transmitted at the start of each broadcast and before the Routine Reports plus Trends.

Comment: This permits approximately 3 additional minutes for the collection of the Routine Reports and permits more up-to-date material to be broadcast in a number of cases.

RECOMMENDATION No. 7/29 - ORDER OF STATIONS

That the same order of stations in the Broadcasts should always be maintained, and that this order should be published by normal AIP and NOTAM action.

RECOMMENDATION No. 7/30 - USE OF SPARE TRANSMISSION TIME

That, if all the elements of a broadcast have been transmitted in less than the 5 minutes allotted, remaining time should be used by: firstly a) repeating the first Routine Report, if there is time, and secondly b) repeating the station identification if there is insufficient time for a) or in any time remaining after a).

Comment: The intention is to ensure that the channels are never left dead, thus helping pilots' appreciation of propagation conditions. It presupposes very close adherence to the times for starting and ending individual broadcasts.

7.1.4.5 Supplementary Recommendations regarding VOLMET Broadcasts

RECOMMENDATION No. 7/31 - IRISH ADMINISTRATION TO STUDY ANTENNAS

That if, in spite of the changes in schedules which have been incorporated in the new Plan to minimise interference between the NAT and MID HF A3 VOLMET Broadcasts, the recurrence of such interference should be established, the Irish Administration should study possible modification of its transmitting antennas.

RECOMMENDATION No. 7/32 - NAT LF RTT EXPERIMENTAL BROADCASTS

That the trials of NAT ground-to-air LF RTT Broadcasts by interested States should continue at least pending a decision regarding acceptance of the system by ICAO on a worldwide basis.

Note: If the system is accepted by ICAO normal action for amendment of the NAT Regional Plan could be initiated for its inclusion.

APPENDIX A TO SECTION 1GUIDANCE MATERIAL ON EXTENDED COVER VHF SYSTEMS**1. Introduction**

1.1 In the course of its consideration of requirements for VHF extended cover facilities under Agenda Item 7, the COM Committee decided that certain parts of the documentation presented to the Meeting by the United States on this subject should be attached to its report since they would serve as useful guidance material, particularly for those States which had not as yet had experience with this form of communication.

1.2 Practical use of relatively weak signals for communications purposes can be accomplished through the employment of directive antennas, high power transmitters and sensitive selective receivers employed at ground stations. Through application of these improvements at modest cost, consistently usable VHF signals can be received beyond the radio horizon without modification or replacement of airborne equipment.

2. Typical Improved Coverage VHF Aeromobile Installation

2.1 The usual air-to-ground and ground-to-air attenuation loss between VHF airborne and ground station VHF equipment averages approximately 150 db to 155 db. The usable range is ten to twenty miles beyond the horizon if all equipment is performing normally. This distance will vary upward or downward, depending on a number of factors including weather and surrounding terrain.

2.2 The average range of a station at sea level and aircraft of various altitudes should be approximately as follows:

<u>Altitude</u>	<u>Distance</u>			
1,000'	60 - 75	Statute Miles	53 - 65	Nautical Miles
5,000'	120 - 130	" "	105 - 113	" "
10,000'	155 - 165	" "	135 - 143	" "
20,000'	215 - 225	" "	187 - 196	" "
30,000'	250 - 270	" "	218 - 235	" "
40,000'	300 - 315	" "	261 - 274	" "

These are average figures from National Bureau of Standards data and apply to temperate zones and a smooth earth. Any obstructions which obscure a clean horizon reduce the range in proportion to the height of the obstruction. Unless the path is over the ocean, a clean horizon usually does not exist, and the range is found to be considerably less than the above figures indicate.

2.3 The system gain in a chosen direction can be increased economically with improved ground equipment to at least 180 db. This should increase the range to approximately the following average distances:

<u>Altitude</u>	<u>Distance</u>					
1,000'	190 Statute Miles	-	165 Nautical Miles			
5,000'	225 " "	-	196 " "			
10,000'	250 " "	-	218 " "			
20,000'	315 " "	-	274 " "			
30,000'	360 " "	-	313 " "			
40,000'	395 " "	-	344 " "			

These figures, like those listed above, will vary upward or downward depending on climate and surrounding terrain.

2.4 The increase in range illustrated above results from improvements in ground station environment and equipment only. Further increases could be realized by improving the gain of the airborne antenna, increasing the airborne transmitter power, and increasing the sensitivity of the airborne receivers. Approximately eleven db additional improvement could also be realized if it were possible to reduce the ground and airborne receiver I. F. bandwidth to about 3 kc/s. This would be possible only by maintaining extremely close frequency tolerances or by use of a suitable type of automatic frequency control to correct for the receiver and transmitter drift, such as are required for SSB. The inherent problems in automatic frequency control indicate the need for caution against selection of that technique as a solution. However, an overall tightening up of receiver and transmitter stability, as well as the accuracy of initial frequency adjustments is readily attainable and would give worthwhile improvement, possibly as much as 6 db. This figure does not seem significant until we note that quadrupling the size of the antenna gives only 6 db gain.

2.5 Basic improvements which can be undertaken to extend the range of existing facilities are as follows:

2.5.1 High Gain Antenna at the Ground Station

Gain and beam width are the major important features. It is wise to use the highest gain obtainable without sacrificing too much horizontal beam width. The beam width should be sufficient to cover the air route involved. Cost and vulnerability to wind and ice are also factors which will determine the final choice of the antenna type. The following have been used successfully. Many others may be equally effective. (The indicated pricing is supplied solely to demonstrate the relative cost. Time has not permitted pricing of similar arrays in other than the United States).

18 db 42° beam width antenna (collinear array with reflector) complete with towers. Approximate cost \$3,000.00.

21 db 42° beam width antenna (collinear array with reflector) complete with towers. Approximate cost \$6,000 to \$7,000.

19 db 32° beam width, 4 ea. 10 element Yagis stacked vertically 1/
Approximate cost - \$220 plus harness and pole.

23 db 32° beam width 8 ea. 10 element Yagis stacked vertically 1/
Approximate cost - \$440 plus harness and pole.

1/ Heavy duty TV receiving types. Not recommended for heavy icing conditions. Will handle 1 KW power.

2.5.2 Transmitters

Although a 200 to 250 watt transmitter is enough to balance the air-to-ground and ground-to-air attenuation losses, it is wise to use 1000 watts wherever feasible to provide a 6 db margin in the ground-to-air direction. This will offset some of the noise generated by the aircraft.

A 1 KW VHF transmitter complete with interlocked transmit/receive relays, stubs, Tee, etc., for the transmission line, and a 3 kc/s low pass filter.

Approximate cost - \$5,000

2.5.3 Receiver Modified for Extended Range Operations

Approximate cost - \$615.00

OR

Factory modification of existing receiver. Approximate cost - \$235.00.

2.6 Where it is necessary to preserve omnidirectional coverage in addition to directional coverage over a specific route, two complete systems, one on omnidirectional and one on directional antenna are used. Identical receivers with their audio outputs in phase, and their automatic gain control (AGC) busses interconnected are highly satisfactory in practice. Both receivers must have their squelch control set just above the noise level. The two transmitters, (one on directional and one on omnidirectional antenna) are keyed simultaneously. Their audio INPUTS must be properly phased so that the modulation is additive when both signals are received simultaneously. Their carrier frequencies are preferably offset from each other to avoid an audible heterodyne. Omnidirectional coverage is improved by the above arrangement because of the better receiver, and the diversity effect. Since all antennas are directional to some extent, and because of reflections from buildings, etc., nulls and lobes are generally present. The diversity effect resulting from this arrangement fills in many of these nulls to produce a more uniform coverage.

2.7 Mention should also be made of the dissymmetrical radiation pattern from existing airborne antennas. The Boeing 707 jet aircraft antenna system has a 2.5 db gain directly AHEAD from the top mounted antennas, and a 2.3 db gain to the REAR from the bottom mounted antenna. On the other hand, if the top mounted antenna is used for communication to the rear there may be a LOSS of 6 db. In other words, using the wrong antenna sacrifices as much as 6 to 10 db system gain. Similar results are characteristic of other aircraft, though specific figures on them are not available. It is very important that the aircraft always use the proper antenna to get the most effective VHF system coverage.

3. Radio Frequency Assignments for Extended Range Operations

3.1 It will be necessary, when considering the introduction of extended range VHF, in many instances, to revise the frequency assignments to prevent interference problems which may result with the greatly extended range afforded, since it has been established that during periods of "ducting" or temperature inversion conditions, the actual range of the facility can extend to well beyond 1000 NM. Air/ground loading in the North Atlantic is such that it would be impracticable to attempt co-channel frequency assignments to the en route or ATC channels where the ground facilities are closer than 2000 NM, at least until more operational experience is gained in the use of extended range VHF.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 7

7.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 7 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 7

7.3.1 The General Committee reviewed the material presented to it under Agenda Item 7 and made no comment.

SECTION 4: STATEMENTS BY DELEGATIONS ON THE ACTION TAKEN ON AGENDA ITEM 7

7.4.1 STATEMENT BY THE DELEGATION OF FRANCE.

RESERVATION PRESENTED BY THE DELEGATION OF FRANCE WITH RESPECT TO RECOMMENDATIONS Nos. 7/3 and 7/4.

considering:

- a) that the REYKJAVIK pilot-to-controller channel is only partly used to serve the NAT Region requirements;
- b) that no extended range VHF facilities are recommended for this communication link which is served at present by 4 CLIMAX type relay stations;
- c) that only one VHF frequency is required to handle all the communication traffic on the NAT region, that, according to document NAT IV-WP/3 of this Conference, is lighter in Iceland than in Bermuda;
- d) that a contraction of the REYKJAVIK FIR is envisaged in accordance with recommendation 14/3,

the Delegation of France declares that it will not commit itself concerning the position that might be adopted by the French Government if henceforth joint financing requests were made for the said installations.



Agenda Item 8: Radiotelephony Network PracticesSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 8:

None of the statements of operational requirements established by Subcommittee 1 related directly to Agenda Item 8.

SECTION 1: ACTION BY THE COM COMMITTEE ON AGENDA ITEM 8

8.1.1 The COM Committee noted that the capability of the NAT AMS to meet the standard of service required by such primary users as the ATS organization was largely governed by the total loading applied to the system during peak traffic periods. In considering this matter the Committee reviewed the implications in terms of system loading (i.e. high channel occupancy) resulting from various existing practices and supplementary procedures. Those which received consideration in this connexion were as follows:

- a) AIREP procedures
- b) Ground initiated messages to aircraft in flight
- c) Reduction in request/reply MET Messages
- d) "Read Back" of AIREP Messages

8.1.1.1 AIREP Procedures

With respect to the AIREP procedures, it was observed that a significant reduction of overall communications system loading could be achieved by avoiding transmissions of redundant information in a number of ways - including the following:

- a) AIREP Part 1: Abbreviation of the contents to a simple confirmatory message in respect of those flights where progress adheres to the Flight Plan within certain agreed tolerances.
- b) AIREP Part 2: Reduction in the number of occasions during a single Atlantic flight, when fuel load and ETA are reported, to a minimum consistent with the operational requirement. Ideally no more than one per flight if at all possible.
- c) AIREP Part 3: By application of exemption or designation procedures at all flight levels.

RECOMMENDATION No. 8/1 - NEED TO REVISE THE AIREP PROCEDURE

That at the earliest appropriate opportunity the existing AIREP procedure be reviewed relative to all aspects with a view to ensuring that all interests involved in this procedure derive maximum operational benefit consistent with the capacity of the communication systems involved in the transmission of such information.

Comment: In this connexion the MET Committee Recommendation 13/2 concerning the reporting of "spot" winds was noted and the view expressed that it too would need to be taken into account as a part of the review proposed.

8.1.1.2 Communications load arising from ground initiated messages to aircraft in flight

8.1.1.2.1 The Committee noted that a large proportion of ground initiated messages from airline operating agencies duplicated information already contained in VOLMET Broadcasts thereby resulting in unnecessary loading of the Aeromobile Channels.

RECOMMENDATION No. 8/2 - NEED TO REDUCE GROUND INITIATED MESSAGES TO AIRCRAFT IN FLIGHT

That where a VOLMET broadcast system is implemented the recognized objective should be that no ground initiated Meteorological information, duplicating the VOLMET data, be transmitted to an aircraft, unless specifically requested from the aircraft.

Note: Maximum possible use could be made of standard formats and abbreviations in transmitting airline operating agency originated messages to aircraft, e.g. in lieu of giving a complete aero or forecast for a particular airport it would only be necessary to indicate "ABOVE or BELOW Company Minima" and only in the case of the latter should additional detailed information be provided.

8.1.1.2.2 The Committee noted that with the introduction of Area MET Watch there has been a considerable increase in ground initiated SIGMETS thus adding to the communication load.

RECOMMENDATION No. 8/3 - NEED FOR ATS UNITS TO BE SELECTIVE IN THE DISSEMINATION OF SIGMETS

- a) That ATS units should specify exactly to which aircraft SIGMET information should be passed consistent with the area covered by the warning and actual and planned flight tracks through that area.

- b) The appropriate aeronautical station should endeavour to transmit such messages simultaneously to a group of aircraft when possible, making the maximum use of SELCAL where provided.

8.1.1.2.3 The Committee agreed that there was a positive need to reduce to a minimum the practice of airline pilots requesting MET information, on a request/reply basis, when in fact this information is already available on VOLMET Broadcasts.

RECOMMENDATION No. 8/4 - MAXIMUM USE OF VOLMET BROADCASTS

That the States should draw the attention of aircraft operating agencies to the need for pilots to make the maximum possible use of VOLMET Broadcasts in order to keep to a minimum requests for meteorological information available on VOLMET Broadcasts.

8.1.1.2.4 The Committee further agreed that in connexion with essential ground initiated messages that the transmission of redundant data would be prevented or at least minimized if such messages were addressed to only one aeronautical station serving the area in which the aircraft is known to be operating, and accordingly recommended.

RECOMMENDATION No. 8/5 - AVOIDANCE OF REDUNDANT MESSAGES TO AIRCRAFT IN FLIGHT

That in order to prevent, or at least to minimize, redundancy in the transmission of ground initiated messages to aircraft in flight, such messages addressed in conformity with Annex 10, Part III, Para. 4.4.1.2.3, shall be sent only to the one aeronautical station serving the area in which the aircraft is known to be operating.

8.1.1.3 Personnel Standards

8.1.1.3.1 The Committee noted that the adequacy of any communication system is dependent almost entirely on the calibre of personnel who operate and maintain it. Although there is no problem at the present time it is important to continue to maintain the high standard at present encountered in the NAT Region.

RECOMMENDATION No. 8/6 - NEED FOR PERSONNEL TRAINING AND LIAISON

That States be asked to continue to encourage in every way possible the technical and operational efficiency of personnel employed in the direct operation, maintenance and supervision of facilities related to the Communication facilities in the NAT Region.

Note: In this connexion it is felt that opportunities should be given for such personnel to visit other locations, freely exchange views and discuss difficulties: if possible ground operating personnel should be given the opportunity of familiarization flights on NAT operations.

8.1.1.4 RAC/SAR Requirements

8.1.1.4.1 The Committee noted the requirement established by SAR for an additional VHF "Scene of Action" frequency and the desirability of assigning thereto a common frequency throughout the region. The Committee took into consideration the assignment of 123.1 Mc/s for this purpose in the EUM Region and were also aware that this frequency was not acceptable for application to this function in the USA and Canada. Therefore in the circumstances the Committee was of the opinion that, as a provisional measure, and pending world-wide consideration of the subject, the frequency 123.1 Mc/s should be assigned as the "Scene of Action" frequency East of 30°W, and 121.6 Mc/s should be assigned for the same purpose West of 30°W.

RECOMMENDATION No. 8/7 - SCENE OF ACTION VHF CHANNEL

That where it is necessary to assign a VHF channel for "Scene of Action" communications, including its application to OSVs, the frequency 123.1 Mc/s be provisionally assigned to the area East of 30°W and the frequency 121.6 Mc/s be provisionally assigned to the area West of 30°W.

RECOMMENDATION No. 8/8 - CORRECT UTILIZATION OF VHF EMERGENCY FREQUENCY 121.5 MC/S

That the attention of all concerned be directed to the need to restrict the use of the VHF Emergency Frequency 121.5 Mc/s to that outlined in Annex 10, Part II, Chapter 4, para. 4.1.3.1.

RECOMMENDATION No. 8/9 - CONTINUOUS GUARD OF 121.5 MC/S ON OSVs

That, to the maximum extent possible, arrangements should be made aboard Ocean Station Vessels to enable a continuous guard to be maintained on 121.5 Mc/s during communication on 126.7 Mc/s at the same operating position.

8.1.1.4.2 Communication between Rescue Coordination Centres and OSVs

The Committee reviewed the RAC/SAR Report, on Agenda Item 21 (para. 21.1.3) and was of the opinion that coordination between RCCs and OSVs is adequately accommodated through available means. In the event of communications with AMS Stations being required by OSVs such communications could be accommodated on existing Aeromobile Channels in emergency without unduly congesting such channels.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON
THE ACTION TAKEN ON AGENDA ITEM 8

8.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 8 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION
TAKEN ON AGENDA ITEM 8

8.3.1 The General Committee reviewed the material presented to it under Agenda Item 8 and made no comment.

Agenda Item 9: Communications Supplementary ProceduresSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 9:

None of the statements of operational requirements established by Sub-Committee 1 related directly to Agenda Item 9.

SECTION 1: ACTION BY THE COM COMMITTEE ON AGENDA ITEM 99.1.1 NAT HF Family Utilisation.

9.1.1.1 In view of the revised deployment principles of NAT HF Families as outlined in para 7.1.3 it was agreed that an amendment would be necessary to the existing NAT COM SUPP 3.4.10 - accordingly it was recommended:

RECOMMENDATION No 9/1 - OPERATIONAL USE OF HF FAMILIES

That NAT SUPP 3.4.10 (Doc 7030 page COM 3.1.3) be amended to indicate that when in the opinion of one or more of the aeronautical stations at Gander, Shannon and Prestwick, the loading on frequency Families B and C is excessive, an appropriate number of aircraft should be requested to transfer their communications to frequency Family A. Preference should be given to the transfer of aircraft about to depart by liaison with other aeronautical stations in the region. In the event that frequency Families A, B and C all become too heavily loaded then as an extreme measure an additional number of aircraft that would normally use Family B or C should be requested to transfer to frequency Family D.

9.1.2 Loss of Communications Procedure

9.1.2.1 The Committee noted the working documentation presented to the Meeting by the Secretariat and agreed that the COM SUPP 3.3.3, is adequate in respect of overdue reports from aircraft operating in the NAT Region. To initiate action earlier than is prescribed by RAC requirements would result in unnecessary congestion of the communications system and further delays to subsequent reports.

9.1.2.2 The Committee agreed that the X time interval in DOC 7181 COM/546/5 para 11.14.1(b) should, in the case of the NAT Region be not more than 3 minutes: if contact is not established within that time unnecessary congestion can be avoided by obtaining the cooperation of other network stations, one or more of which may be more ideally situated from a propagation point of view.

RECOMMENDATION No 9/2 - LOSS OF COMMUNICATIONS

That a Regional COM SUPP be introduced in the NAT Region prescribing the time interval of 3 minutes from initiation of the action in calling the aircraft on primary and secondary frequencies before seeking the cooperation of other network stations.

9.1.3 RAC/SAR Requirements

9.1.3.1 The Committee noted the statement of the RAC/SAR Committee regarding the mandatory continuous watch by aircraft on the Emergency Frequency 121.5 Mc/s.

RECOMMENDATION No 9/3 - REQUIREMENT FOR A CONTINUOUS WATCH BY AIRCRAFT ON THE EMERGENCY FREQUENCY 121.5 Mc/s

That a NAT SUPP be introduced to the effect that aircraft on long over water flights within the NAT Region should continuously guard the VHF Emergency Frequency 121.5 Mc/s, except for those periods when aircraft are carrying out Communication on other VHF channels or airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels and that the SUPP have associated with it a note to the following effect: "When contact has been established between aircraft on the emergency frequency of 121.5 Mc/s, subsequent communication should be conducted either on the route frequency of 126.7 Mc/s or on another frequency mutually agreed between the aircraft concerned".

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 9

9.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 9 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 9

9.3.1 The General Committee reviewed the material presented to it under Agenda Item 9 and made no comment.

Agenda Item 10: Meteorological surface and upper air observation networksSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 10:

The plan of aircraft operations, together with the statement of regionally agreed operational requirements, established by Sub-Committee 1, as contained in the Report on Agenda Item 1 and in paragraph 2.1.1.4 of the Report on Agenda Item 2, governed the consideration of Agenda Item 10.

SECTION 1: ACTION BY THE MET COMMITTEE ON AGENDA ITEM 10General

10.1.1 The MET Committee examined, in relation to the aeronautical requirements for the Region, the WMO recommended network of meteorological observations as contained in WMO Resolutions 35(58-RA I), 2(II-RA IV), 2(III-RA VI) and 3(III-RA VI) together with the reports on implementation of that network as submitted by delegates and WMO. Taking into consideration the particular conditions created by the geographical characteristics of the Region and the possibility of supplementing the observations foreseen in the WMO plans by aircraft observations in the Region, the MET Committee agreed that the WMO plans are, in general, satisfactory, the full implementation of these plans being of great importance to meteorological aeronautical requirements. There were, however, particular points on which, it was felt, the Committee should comment.

Network of surface observations - land stations

10.1.2 The Committee studied a report presented by Iceland on the need for reports of hourly surface observations at Vestmannaeyjar as an aid to short-range forecasting at Keflavik. The report was presented consequent to Council action on MET Recommendation 12 of the 3rd NAT RAN Meeting. It contained statistics on 3-hourly synoptic reports for Vestmannaeyjar during the period 1953 to 1957 inclusive and corresponding statistics for Keflavik. The statistics showed that in the majority of cases instrument meteorological conditions are obtained at both Keflavik and Vestmannaeyjar practically simultaneously and it followed that reports of observations at Vestmannaeyjar would normally be of

little use as an indication in advance of changes in weather conditions at Keflavik. In the light of this it was agreed that reports of observations from a station located on the south coast of Iceland were unlikely to be of worthwhile assistance to local forecasting at Keflavik.

10.1.3 The Committee noted that Norway intended taking the necessary steps to implement the WMO recommended 2100 GMT network of observations in Norway.

Network of surface observations - ship stations

10.1.4 The Committee considered Recommendation MET 4 of the 3rd NAT RAN Meeting and agreed that action to improve the coverage of ship reports north of 60°N was still necessary. It also considered that improved coverage was necessary in certain parts of the North Atlantic ocean south of 40°N.

RECOMMENDATION 10/1 - SHIP REPORTS IN THE NORTH ATLANTIC SOUTH OF 40°N AND NORTH OF 60°N

That ICAO inform WMO that an increase in the number of weather reports from merchant ships operating in that part of the North Atlantic ocean south of 40°N and east of 60°W and from fishing and other vessels operating in that part of the North Atlantic north of 60°N is urgently required for aeronautical purposes.

10.1.5 It was noted that the Third Session of WMO Regional Association VI had invited (Res.6-III-RA VI) members of WMO responsible for the operation of ocean weather stations in the WMO Region VI (Europe) to take early action for the making and reporting by their own vessels of hourly surface observations in the ship code form FM21A in place of SPESH Reports. The question arose as to whether this change would in any way affect the aeronautical requirement for reports of surface observations from these vessels. After much discussion it was agreed that the proposed change was in effect a device whereby the existing requirement could be met and so did not call for further action by the Committee.

Network of upper air observations

10.1.6 The non-implementation of the WMO recommended radiowind observations at Thorshavn (Faroe Isles) was discussed. It was agreed that early establishment of a radiowind station at Thorshavn, particularly in view of the route pattern of NAT operations in the eastern part of the Region, would result in a worthwhile improvement in meteorological service for international aviation.

RECOMMENDATION 10/2 - RADIOWIND OBSERVATIONS AT THORSHAVN

That ICAO request WMO to take appropriate steps to promote early implementation of the recommended radiowind observations at Thorshavn.

10.1.7 The Committee noted that the WMO recommended radiowind observations at 0600 GMT and 1800 GMT at Kap Tobin, Egedesminde, Narssarssuaq, Danmarkshavn and Angmagssaliq in Greenland had not yet been implemented. The Committee was aware that the extension of the upper wind programme of these stations would involve joint financing implications and that the matter would, therefore, require in any case further examination.

10.1.8 There was discussion on the need for an upper air station on the eastern coast of Iceland and a location at Egilsstaðir (04089) was suggested by Iceland. It was noted that a study was being made by Iceland in accordance with Resolution 4 of the Third Session of WMO Regional Association VI on the necessity and possibility of establishing the station. The Committee felt that it would be desirable to await the outcome of this study before arriving at any conclusion on the need for the station in relation to aeronautical requirements. The Committee also considered that since the establishment of such a station might have joint financing implications, it was agreed that a further examination would be necessary.

10.1.9 In noting Resolution 6 of the Third Session of the WMO Commission of Maritime Meteorology concerning a programme of radio-sonde observations on board merchant ships, it was agreed that such observations could improve considerably the upper air network of observations in the southern part of the Region and the following recommendation was made:

RECOMMENDATION 10/3 - UPPER AIR OBSERVATIONS FROM MOBILE SHIP STATIONS

That ICAO inform WMO that reliable upper air observations at standard times for upper air observations from mobile ship stations such as merchant ships, research and auxiliary ships operating in the North Atlantic, particularly south of 40°N, would be of considerable benefit in the provision of meteorological service for aviation.

Climatological data

10.1.10 The Committee noted the requirement expressed by Sub-Committee 1 that climatological records should be maintained up to 30,000 metres (100,000 ft) to provide for the availability of climatological data necessary for the planning of future operations. It recognized that various aspects of upper air observing techniques such as balloon performance, accuracy of sensing elements at high levels and the tracking range of ground equipment would be affected by this requirement. Each of these aspects posed technical difficulties that could not be adequately assessed at this meeting. The Committee took this into account when making the following recommendation:

RECOMMENDATION 10/4 - CLIMATOLOGICAL DATA FOR HIGH LEVELS

That ICAO inform WMO :

- a) of the need for climatological records to be maintained on upper air observations of winds and temperatures so that data for levels up to 30,000 metres (100,000 ft) can be made available for the planning of future high level operations, and
- b) that these requirements be taken into account in planning the various aspects of upper air programmes.

That ICAO also take action as necessary to ensure coordination in all implementation planning aspects related to upper wind reporting stations under the ICAO joint financing arrangements.

Pilot Balloon observations

10.1.11 The Committee considered that upper air observations of winds carried out by optical means did not, in general, meet en-route requirements for information on upper winds in the NAT Region.

Air-reports.

10.1.12 ~~Through there was some discussion on air-reports under Agenda Item 10, the Committee noted that the WMO recommended redrawing observations at 0600 GMT and 1800 GMT at Kap Tobin, Egedesminde, Narsarsuaq, Danmarkshavn and Angmagssalik in Greenland had not yet~~ (paragraph 13.1.5). ~~It was agreed that the Committee's Report of action taken on this subject should be included under Agenda Item 13(b).~~

Meteorological reconnaissance flights

10.1.13 ~~There was discussion on the need for an upper air station on the eastern coast of Iceland and a location at Egilsstaðir~~ ^{It was recognized that the met. reconnaissance flights within the Region, made by civil aircraft, were of great value in the provision of aeronautical meteorological service, particularly those flights over areas where the network of meteorological observations was sparse, for example polar areas. It was also felt that it would be desirable for these flights to attain an altitude of at least 300 mbs.}

Transosonde observations

10.1.14 The Committee noted that continued experience was being obtained from the use of transosonde equipment though it is still considered to be in an experimental stage of development. It was felt that the technical usefulness of this system had already been demonstrated, but that the method cannot be adopted as a routine observational method in areas and at levels of aviation operations until the problem of potential collision hazard had been solved.

Meteorological satellites

10.1.15 The MET Committee reviewed the character of information presently being distributed by the United States from TIROS experimental meteorological satellites. It recognized the value of these observations as a means of extending and improving the observations of storm systems, particularly over oceanic areas where conventional data are scarce. It was informed of developments which might provide information, not only on cloud cover, but also on height of cloud and other cloud characteristics that would make such information of greater value to aeronautical operations over the North Atlantic. The Committee considered briefly the problems of communication of satellite cloud cover observations and because of the potential application to flight forecasting for the Region, suggested that some provision be made for the dissemination of such information over aeronautical meteorological circuits. It further recognized that the WMO was already taking action with respect to the form and means of transmission of satellite data and felt that no action was required by the Committee, other than noting that the schematic presentation appeared suited to meet aeronautical applications.

Ground weather radar

10.1.16 The MET Committee examined the use of ground weather radar for obtaining basic and operational meteorological information, and took note of the experience gained in this field. It recognized that information obtained from weather radars is very useful for both these purposes. The Committee noted with satisfaction that action by WMO, related to the use of ground weather radar as a means of obtaining meteorological information for analysis and forecasting, was in hand. The Committee further agreed that observations by ground weather radar at an aerodrome, where weather conditions justified the installation of equipment, would be valuable for detecting certain unfavourable weather conditions, the information concerning which is important for take-off, approach and landing. The following recommendation was therefore made:

RECOMMENDATION 10/5 - GROUND WEATHER RADAR

That ICAO draw the attention of NAT States to the usefulness of ground weather radar observations for approach, take-off and landing, and encourage them to install ground weather radar at aerodromes where meteorological conditions justify the use of such equipment.

Sferics Networks

10.1.17 The MET Committee noted that a network of sferics observations was in operation in the western part of the Region (Bermuda, Florida, along the East coast of the United States) and

in the United Kingdom. These networks embrace most of the oceanic area of the Region and provide information on severe weather phenomena that is useful in forecasting significant weather over the Region. Because of present flight operating levels and of the increasing use of airborne radar, the number of in-flight air-reports of thunderstorms have tended to decrease and thus reports of sferics have become of greater value. However, it was considered that the present sferics networks met requirements satisfactorily.

Automatic weather stations

10.1.18 There was some discussion on automatic weather stations as a means of filling gaps in the synoptic network of surface observations and during the discussion the Committee was informed that an automatic weather station was in operation on an experimental basis in the Gulf of Mexico. It was noted that the WMO Commission for Synoptic Meteorology at its Second Session 1958 had called for development and installation of automatic weather stations and since this matter was being actively pursued by several States, it was considered there was no point in making any recommendation on this subject.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 10

10.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 10 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 10

10.3.1 The General Committee reviewed the material presented to it under Agenda Item 10 and made no comment.

Agenda Item 11 : Meteorological operational facilities and servicesSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING
SPECIFICALLY TO AGENDA ITEM 11

The plan of aircraft operations, together with the statement of regionally agreed operational requirements, established by Sub-committee 1, as contained in the Report on Agenda Item 1 and in paragraph 2.1.1 of the Report on Agenda Item 2 governed the consideration of Agenda Item 11.

SECTION 1 : ACTION BY THE MET COMMITTEE ON AGENDA ITEM 11

Table MET 1: Aeronautical meteorological offices and their responsibilities

11.1.1 The MET Committee studied the present Table MET 1 of the Air Navigation Plan for the NAT Region and agreed in principle that the revised Table should list the following meteorological offices:

- (a) meteorological offices serving aerodromes appearing in the list of regular and alternate aerodromes given in paragraph 2.1.1.6 of the Report on Agenda Item 2;
- (b) meteorological offices serving additional regular international aerodromes, the inclusion of which was agreed to by the MET Committee in line with directives from Sub-Committee 1;
- (c) meteorological offices serving only FIC's.

11.1.1.1 The MET Committee agreed that in respect of DMO's and SMO's, it was not necessary to designate the associated MWO (Column 3), as it was believed that such a designation could well be left to the determination of individual States. The Committee also saw no need to specify the languages used at the various offices, and Column 5 was therefore left blank. The situation in respect of charts used for briefing purposes in meteorological offices in the NAT Region was generally found to be satisfactory. After a short discussion, it was agreed that there was therefore no need to specify the charts which should be available (Column 6).

11.1.1.2 The question of the need to include specifications in Columns 3, 5 and 6 in respect of the jointly financed MWO in Keflavik was also discussed. It was agreed that a general paragraph on the lines of the one presently shown on pages 4-0-3 to 4-0-4 (1/5/59) of the NAT Regional Plan (Doc 7674/2) would be preferable. It was agreed, however, that the stated requirements for material to be prepared and displayed by the MWO Keflavik should be brought up to date. A new recommendation on this point, replacing Recommendation 20 of the Second NAT RAN Meeting, will be found in the Report on Agenda Item 23.

11.1.1.3 Collecting centres for air-reports were indicated in Column 8. In overlap areas, generally the existing collecting centres indicated in relevant Regional Plans were also designated to be collecting centres for the NAT Region. Regional collecting centres were not designated, as this will be the responsibility of WMO (see Recommendation No. 13/3).

11.1.1.4 The Committee agreed that the area to be served by MWO's should be specified. Such specification had hitherto not been part of the Regional Plan, but is now required in view of PANS-MET 2.5.3.6.1. A new column (9) was provided for the purpose. The Committee also agreed not to specify MWO's to serve domestic FIR's or control areas, i.e. FIR's or control areas not designated in ATS Plans for ICAO Regions.

Table MET 2 : Required availability of operational meteorological information

11.1.2 Table MET 2, given as an Appendix to Recommendation 11/1, was prepared in accordance with the following principles:

- (a) Account was taken of the requirements stated in the tables of availability of meteorological information given in the Appendix to the regionally agreed operational requirements established by Sub-committee 1 under Agenda Item 2. The need for routine reports from significant observation stations along and adjacent to routes was examined and it was agreed that no such stations fulfilled the specified criteria. No entries were included for landing forecasts to meet in-flight requirements as the dissemination of such information is covered by the recommended Supplementary Procedure 2.4.2 3).
- (b) The distance up to which certain classes of meteorological information should be available was computed on the basis of two hours' flying time, using an average cruising speed of 350 knots. However, a few entries, corresponding to distances greater than this, were included where it was agreed exceptions were warranted. These entries are annotated as "Exception" in Column 3 of Table MET 2.

- 11.1.2 (cont'd)
- (c) The listing of exchanges in Table MET 2 was prepared on the basis of the agreed Table of aircraft operations and in the light of evidence produced by IATA and Delegates. However, Sub-committee 1 submitted to the MET Committee a list of aerodromes (annotated (1) in the Table) additional to those contained in paragraph 2.1.1.1.6 of the Report on Agenda Item 2, and requested that the combined list should represent the full extent of aerodromes for which exchanges of meteorological data might be necessary within the NAT Region. Table MET 2 was compiled on this basis. As regards aerodromes in the CAR and SAM Regions, Sub-committee 1 indicated that alternates had been excluded on the grounds that insufficient information was available to the Meeting concerning the status of aerodromes in these Regions.
 - (d) Requirements specified in relevant provisions of the PANS-MET, 3rd Edition, and the SUPPS-MET recommended by the Meeting were also included.
 - (e) Half-hourly reports were specified for stations located in the EUM Region wherever this was necessary to avoid conflict with corresponding requirements contained in the EUM Regional Plan. Elsewhere, hourly reports and selected special reports were specified.
 - (f) An introductory Note was inserted to clarify the status of Table MET 2, as recently approved by the Council when completing action on Recommendation 11/1b) of the 5th Session of the MET Division 2nd Session of CAeM.

11.1.2.1 The MET Committee wished to endorse the statement made at the 3rd AFI RAN Meeting (Doc. 8062, AFI/III, page 16-2, paragraph 16.1.3.4), relating to the difficulties experienced in the compilation of Table MET 2 and noted that some difficulties could be overcome if a list of regular and alternate aerodromes in the Region were available well before the beginning of the Meeting.

Table MET 3 : En-route forecast service

11.1.3. No Table MET 3 was included in the Regional Plan as the provision of en-route forecast service, in accordance with Recommendation 13/3, is to be by agreement between the operators and the Meteorological Authorities concerned.

Appendix MET B : Dissemination of warnings of severe storms of tropical or sub-tropical origin.

11.1.4 The MET Committee examined Appendix MET B of the NAT Regional Plan. It noted that Recommendation 2/8 of the 5th Session, MET Division/2nd Session, CAEM drew the attention of WMO to the need for developing standard definitions for the terms "tropical cyclone" and "tropical depression" and to the need for determining regionally, where necessary, the centres responsible for the dissemination of cyclone warnings and the procedures for such dissemination. It consequently agreed that, at present a recommendation calling for major changes in Appendix MET B was not appropriate.

Tables of meteorological facilities and services

11.1.5 The MET Committee made the following recommendation in respect of Tables showing meteorological facilities and services :

RECOMMENDATION 11/1 - OPERATIONAL METEOROLOGICAL FACILITIES
AND SERVICES

That the appended Table MET 1, Table MET 2, and Appendix MET B be included in the NAT Regional Plan as indicating requirements for operational meteorological facilities and services.

Table MET 1 - Aeronautical meteorological offices and their responsibilities

Tableau MET 1 - Centres météorologiques aéronautiques et leurs fonctions

Note 1 : Symbols have their usual meaning, except 'AF' which in this table denotes the responsibility of collecting air-reports from designated meteorological offices (not limited to a particular FIR). The collecting centres to which meteorological offices listed in Column 1 are to transmit air-reports received are indicated in parentheses in Column 8.

Les symboles ont leur signification habituelle, sauf 'AF' qui, dans ce tableau, indique la fonction de centre collecteur de comptes rendus en vol provenant de centres météorologiques désignés (ceci n'est pas limité à une FIR donnée). Les centres collecteurs auxquels les centres météorologiques énumérés dans la colonne 1 doivent transmettre les comptes rendus en vol reçus sont indiqués entre parenthèses dans la colonne 8.

Note 2 : The Meteorological Offices of Los Angeles, Portland, San Francisco and Seattle are listed in Table MET 1 so as to indicate clearly the source (or availability) of meteorological information required for flights to and from the NAT Region. The primary listing of these offices is with respect to another ICAO Region; their inclusion herein does not imply any requirement beyond that stated in the Table.

Les centres météorologiques de Los Angeles, Portland, San Francisco et Seattle figurent dans le tableau MET 1 afin d'indiquer clairement la source (ou disponibilité) de renseignements météorologiques nécessaires à des vols en provenance et à destination de la Région NAT. Ces centres figurent au premier chef, dans une autre Région OACI; leur inclusion ici n'implique aucun besoin autre que ceux qui sont indiqués dans le tableau.

TABLE MET 1 - Aeronautical meteorological offices and their responsibilities
TABLEAU MET 1 - Centres météorologiques aéronautiques et leurs fonctions

MET. OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
BAHAMAS/I. BAHAMA	MMO		H24				(Miami)	
Nassau/International								
BELGIUM/BELGIQUE	MMO MWO		H24			Bruxelles FIC & RCC	AF	Bruxelles FIR/UIR
Bruxelles/National								
BERMUDA/BERMUDES	MMO		H24			Kindley Field ACC	(San Juan)	
Kindley Field								
CANADA	SMO		HO					
Edmonton/International								
Frobisher Bay	DMO		H24					
Gander/International	DMO		H24			Gander FIC & ACC & Torbay RCC		Gander Oceanic FIR
Goose	DMO		H24				(Gander)	
Halifax/International	SMO		HO					
Montreal/International	MMO		H24					
Ottawa/Uplands	SMO*		HO					
Québec	SMO		HO					
Stephenville	SMO		H24					
Sydney	SMO		H24					

* For westbound flights only / E

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MWO ZONE DESSERVIE PAR LE MWO
1	2	3	4	5	6	7	8	9
CANADA (Cont'd/suite)								
Toronto/International	DMO		H24					
Vancouver/International	DMO		HO					
Winnipeg/International	DMO		HO					
CUBA								
Habana/José Martí	MMO MWO		H24			Habana FIC & RCC	(Miami)	Habana FIR
DENMARK/DANEMARK								
Aalborg	DMO		H24					
København/Kastrup	MMO MWO		H24			KøbenhavnACC & Karup RCC	AF	København FIR/UIR
DENMARK/DANEMARK (GREENLAND/GROENLAND)								
Søndre Strømfjord	MMO MWO		HO			Søndrestrom FIC & RCC	(Gander)	Søndrestrom FIR
Thule	MWO		HO			Thule ACC & RCC	(Gander)	Thule FIR
FINLAND/FINLANDE								
Helsinki	MMO MWO		H24			Helsinki ACC & RCC	AF	Helsinki FIR/ UIR
FRANCE								
Aix-en-Provence	MWO		H24			Marseille FIC Aix-en-Provence RCC		Marseille FIR

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
FRANCE (Cont'd/suite)								
Bordeaux/Mérignac	DMO MWO		H24			Bordeaux FIC & RCC	AF	Bordeaux FIR
Marseille/Marignane	DMO		H24				(Paris)	
Nice/Côte d'Azur	DMO		H24				(Paris)	
Paris/Le Bourget	DMO		H24				(Paris)	
Paris/Orly	MMO MWO		H24			Paris FIC RCC	AF	Paris FIR France UIR
Reims/Champagne	SMO		HO				(Paris)	
Tours/St. Symphorien	DMO		HO				(Paris)	
FRENCH ANTILLES/ ANTILLES FRANÇAISES								
Fort-de-France/ Lamentin, (Martinique)	MMO MWO		H24			Piarco FIC	(San Juan)	
Pointe-à-Pitre/Le Raizet, (Guadeloupe)	DMO		H24				(San Juan)	
GERMANY (Fed. Rep. of)/ ALLEMAGNE (Rép. féd.)								
Bremen	DMO		H24					
Düsseldorf	DMO		H24					
Frankfurt/Main	MMO MWO		H24			Frankfurt ACC	AF	Frankfurt FIR

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MWO ZONE DESSERVIE PAR LE MWO
1	2	3	4	5	6	7	8	9
GERMANY (Fed. Rep. of)/ ALLEMAGNE (Rép. féd.) (Cont'd/suite)								
Hamburg	DMO		H24					
Hannover	DMO MWO		H24			Hannover ACC & RCC	AF	Hannover FIR/UIR
Köln/Köln-Bonn	DMO		H24					
München	DMO		H24					
ICELAND/ISLANDE								
Keflavik	MMO MWO		H24			Reykjavik ACC & RCC	AF	Reykjavik FIR
Reykjavik	SMO		HO				(Keflavik)	
Saudarkrokur	SMO		HO					
IRELAND/IRLANDE								
Dublin	DMO		H24				(Shannon)	
Shannon	MMO		H24			Shannon FIC & RCC	AF	Shanwick FIR (South of 54° N) Shannon FIR/UIR
ITALY/ITALIE								
Milano/Linate	MWO		H24			Milano FIC & RCC		Milano FIR
Milano/Malpensa	MMO		H24					
Roma/Leonardo da Vinci	MMO		H24					

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC. AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
ITALY/ITALIE (Cont'd/suite)	MMO		H24			Roma FIC & Vigna di Valle RCC	AF	Roma FIR Italia UIR
Roma/Ciampino								
LUXEMBOURG	DMO		H24			Bruxelles FIC & RCC		
Luxembourg								
NETHERLANDS/PAYS-BAS	MMO MMO		H24			Amsterdam FIC & Valkenburg RCC	AF	Amsterdam FIR/UIR
Amsterdam/Schiphol								
Groningen/Eelde	DMO		HO			(Amsterdam)		
NORWAY/NORVEGE	MMO		H24					
Bergen/Flesland								
Bodø	MMO		H24			Bodø Oceanic FIC/ACC & RCC Bodø FIC/ACC & RCC	AF	Bodø Oceanic FIR Bodø FIR
Oslo/Fornebu	MMO		H24			Oslo FIC & RCC	AF	Oslo FIR/UIR
Oslo/Gardermoen	DMO		HO					
Stavanger/Sola	MMO MMO		H24			Stavanger FIC/ ACC & RCC	AF	Stavanger FIR

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
PORTUGAL	SMO		HO				(Lisboa)	
Funchal (Madeira)								
Lajes (Açores)								
Lisboa	MMO MWO		H24			Lisboa Oceanic FIC/ACC Lisboa ACC & RCC	AF	Lisboa Oceanic Lisboa FIR/ UIR
Porto Santo (Madeira)	SMO		HO				(Lisboa)	
Santa Maria (Açores)	DMO		H24			Lajes RCC	(Lisboa)	
PUERTO RICO/PORTO RICO	MMO MWO		H24			San Juan ACC & RCC	AF	San Juan FIR
San Juan/International								
SPAIN/ESPAGNE	MMO MWO		H24			Barcelona FIC	AF	Barcelona FIR
Barcelona								
Madrid/Barajas	MMO		H24			Madrid FIC & RCC	AF	Madrid FIR/ UIR
Sevilla/San Pablo	MMO MWO		H24			Sevilla FIC & RCC	AF	Sevilla FIR

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
SWEDEN/SUEDE	MMO MWO		HO			Göteborg FIC	(Stockholm)	Göteborg FIR/UIR
Göteborg/ Torslanda								
Malmö/Bulltofta	MMO MWO		HO			Malmö FIC	(Stockholm)	Malmö FIR/UIR
Stockholm/Arlanda	MMO MWO		H24			Stockholm FIC & RCC, Sundsvall FIC	AF	Stockholm FIR/UIR, Sundsvall FIR
SWITZERLAND/SUISSE	MMO		H24			Genève ACC	AF	
Genève/Cointrin								
Zürich	MMO MWO		H24			Zürich ACC & Berne RCC	AF	Zürich FIR/ UIR Genève FIR/ UIR
UNITED KINGDOM/ ROYAUME-UNI	SMO		HO				(Shannon)	
Bournemouth/Hurn								
London/Heathrow	MMO		H24				(Shannon)	
Manchester	DMO		H24					
Pitreavie	MMO		H24			Edinburgh RCC		
Plymouth	MMO		H24			Southern (Plymouth) RCC		

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
UNITED KINGDOM/ ROYAUME-UNI (Cont'd/suite)								
Preston	MWO		H24			Preston ACC		Preston FIR/ UIR
Prestwick	MMO MWO		H24			Scottish (Prestwick) ACC	(Shannon)	Shannon FIR (North of 54° N) Scottish FIR/UIR
Uxbridge	MWO		H24			Uxbridge (London) ACC	(Shannon)	London FIR/ UIR
UNITED STATES OF AMERICA/ ETATS-UNIS								
Anchorage/ International	MMO		H24				AF	
Baltimore/ Friendship	DMO*		H24				(New York)	
Boston/Logan	DMO*		H24			Boston ACC & New York RCC	(New York)	
Buffalo/Greater Buffalo International	SMO		H24				(New York)	
Burlington	SMO		H0				(New York)	
Chicago/O'Hare	DMO*		H24				(New York)	
Cleveland/Hopkins	SMO		H24				(New York)	

* Certain charts, forecasts and analyses obtained from the MMO.
Certaines cartes, prévisions et analyses sont obtenues du MMO.

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
UNITED STATES OF AMERICA/ ETATS-UNIS (Cont'd/suite)	DMO*		H24				(New York)	
Detroit/Detroit Metropolitan								
Fairbanks/International	SMO		H24					
Indianapolis	SMO		H24				(New York)	
Los Angeles/ International	DMO*		H24					
Miami/International	DMO*		H24				(New York)	
Milwaukee/ General Mitchell	SMO		H24				(New York)	
Newark	SMO		H24				(New York)	
New York/International	MMO MMO		H24			New York ACC & RCC	AF	New York Oceanic FIR
New York/ La Guardia	SMO		H24				(New York)	
Philadelphia/ International	DMO*		H24				(New York)	
Pittsburgh/Greater Pittsburgh	SMO		H24				(New York)	
Portland/International	DMO*		H24					
San Francisco/ International	DMO*		H24					

* Certain charts, forecasts and analyses obtained from the MMO./
Certaines cartes, prévisions et analyses sont obtenues du MMO.

MET OFFICE CENTRE MET	CLASS CLASSE	ASSOCIATED MMO ASSOCIE	HOURS HEURES	LANGUAGES USED LANGUES UTILISEES	CHARTS AVAILABLE CARTES DISPONIBLES	FIC/ACC AND RCC SERVED FIC/ACC ET RCC DESSERVIS	RESPONSI- BILITIES FONCTIONS	AREA SERVED BY MMO ZONE DESSERVIE PAR LE MMO
1	2	3	4	5	6	7	8	9
UNITED STATES OF AMERICA/ ETATS-UNIS (Cont'd/suite)	SMO		H24					
St. Louis								
Seattle/Seattle-Tocoma International								
Washington/National	DMO*		H24			Washington ACC & New York RCC	(New York)	
VENEZUELA	MMO MWO		H24			Maiquetia FIC & RCC	(San Juan)	Maiquetia FIR
Caracas/Maiquetia								
WEST INDIES FEDERATION/ FEDERATION DES ANTILLES	MMO MWO		H24			Piarco FIC & RCC	AF	Piarco FIR
Port of Spain/ Piarco, (Trinidad)								

* Certain charts, forecasts and analyses obtained from the MMO.
 Certaines cartes, prévisions et analyses sont obtenues du MMO.

TABLE MET 2 : Required availability of operational meteorological information at meteorological offices and flight information centres.

The complexity of the exchange pattern indicated in Table MET 2 is such that the contents of this table will be liable to frequent modification as a result of the changes in the frequency and pattern of air operations. Consequently, the non-inclusion of exchange requirements should not be regarded as precluding the exchange of information by bilateral or multilateral agreement between States if it becomes operationally required. Similarly, the inclusion of an exchange in Table MET 2 should not be regarded as calling for the exchange to be carried out if there is no current requirement for it. In cases where modifications are likely to be of a permanent nature, appropriate proposals for the amendment of the Regional Plan should be presented in accordance with established procedures.

Tableau MET 2 : Renseignements météorologiques intéressant l'exploitation qui doivent être disponibles dans les centres météorologiques et les centres d'information de vol.

Etant donné la complexité des échanges indiqués au tableau MET 2, les indications de ce tableau sont sujettes à des amendements fréquents par suite des modifications dans la fréquence et la répartition des services aéronautiques. En conséquence, l'absence de spécification concernant un échange de renseignements ne devrait pas être considéré comme un empêchement à un tel échange par accord bilatéral ou multilatéral entre les Etats lorsque celui-ci devient nécessaire à l'exploitation. De même, l'indication d'un échange dans le tableau MET 2 n'oblige pas à effectuer cet échange lorsque le besoin n'existe plus. Dans les cas où il s'agit de modifications de caractère permanent, les propositions d'amendement du plan régional doivent être présentées conformément aux procédures établies.

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>BAHAMAS / I. BAHAMA</u>							
NASSAU	BALTIMORE			X			
	BOSTON			X			
	BUFFALO			X			
	CLEVELAND			X			
	KINDLEY						
	FIELD	X	X	X			
	MIAMI	X	X	X			
	MONTREAL			X			
	NEW YORK/INTER.*			X			
	NEWARK			X			
	OTTAWA			X			
	PHILADELPHIA			X			
	PITTSBURGH			X			
	TORONTO			X			
	WASHINGTON			X			
<u>BELGIUM / BELGIQUE</u>							
<u>BRUXELLES/</u>							
NATIONAL*	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA*	X		X	X	X	
	BORDEAUX*	X		X	X	X	
	BOSTON			X			
	BOURNEMOUTH	X		X			
	BRUXELLES*	X		X	X	X	
	CHICAGO/						
	O'HARE			X			
	DUBLIN	X		X			
	DUSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
	GENEVE	X		X			
	GOOSE			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
/ Hourly reports (H) if selected special reports specified in column 4. Half-hourly reports (h) is no entry in column 4.							
Observations horaires (H) si des observations spéciales sélectionnées sont spécifiées dans la colonne 4.							
Observations semi-horaires (h) si rien n'est spécifié dans la colonne 4.							

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>BELGIUM / BELGIQUE</u>							
<u>BRUXELLES/</u>							
NATIONAL*	KEFLAVIK*			X			
(cont'd/ suite)	KØBENHAVN*	X		X	X	X	
	LAJES	X		X			
	LISBOA*	X		X			
	LONDON/ HEATHROW	X		X			
	MADRID*	X		X	X	X	
	MALMO	X		X			
	MANCHESTER	X		X			
	MARSEILLE*	X		X	X	X	
	MILANO/LINATE*X	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN	X		X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	OTTAWA			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORY*	X		X			
	PHILADELPHIA			X			
	PRESTWICK*	X		X			
	ROMA/LEONARDO da VINCI	X		X			
	REYKJAVIK*			X			
	SANTA MARIA	X		X			
	SEVILLA	X		X			
	SHANNON*	X		X			
	STAVANGER*	X		X			
	STEPHENVILLE			X			
	STOCKHOLM/ ARLANDA*	X		X	X	X	
	SYDNEY			X			
	UXBRIDGE*				X	X	
	WASHINGTON			X			
	ZÜRICH*	X		X	X	X	

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>BERMUDA / BERMUDES</u>							
KINDLEY FIELD* (KINDLEY FIELD ACC)							
	BALTIMORE	X	X	X			
(1)	BARBADOS	X	X	X			
	BOSTON	X	X	X			
	BUFFALO	X	X	X			
(1)	CIUDAD TRUJILLO*				X	X	
	CLEVELAND	X	X	X			
	FORT DE FRANCE				X	X	
	HABANA*			X	X	X	
	LAJES			X			
	LONDON/ HEATHROW			X			
	MADRID			X			
	MONTREAL	X	X	X			
	MIAMI/INTER.*	X	X	X			
	NEW YORK/ INTER.*	X	X	X	X	X	
	NASSAU	X	X	X			
	NEWARK	X	X	X			
	OTTAWA	X	X	X			
	PHILADELPHIA	X	X	X			
	PITTSBURGH	X	X	X			
	PORT OF SPAIN			X			
	SANTA MARIA			X			
	TORONTO			X			
	WASHINGTON	X	X	X			
<u>CANADA</u>							
	PROBISHER			X			
	AMSTERDAM*			X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO			X			
	BOURNEMOUTH			X			
(1)	CALGARY			X			
	CHICAGO/O'HARE			X			
(1)	CHURCHILL	X	X	X			
	DUBLIN			X			
	DUSSELDORF			X			
	FRANKFURT*			X			
(1)	FRESNO			X			
	GANDER*			X			

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
CANADA							
FROBISHER (cont'd/suite)							
(1) GATWICK				X			
GENÈVE				X			
GOOSE	X		X	X			
(1) GREAT FALLS				X			
HAMBURG				X			
HANNOVER*				X			
KEFLAVIK*				X			
KØBENHAVN*				X			
KÖLN				X			
(1) LAS VEGAS				X			
LONDON/ HEATHROW				X			
(1) LOS ANGELES				X			
MARSEILLE*				X			
MILWAUKEE				X			
MONTREAL				X			
MÜNCHEN				X			
NICE				X			
(1) PALMDALE				X			
PARIS/ LE BOURGET				X			
PARIS/ORY*				X			
(1) PORTLAND				X			
PRESTWICK*				X			
REIMS				X			
(1) RENO				X			
(1) SACRAMENTO				X			
(1) SAN FRANCISCO				X			
(1) SEATTLE				X			
SHANNON*				X			
SØNDRE STRØMFJORD*	X		X	X			
(1) SPOKANE				X			
STAVANGER				X			
(1) STUTTGART				X			
TOURS				X			
VANCOUVER				X			
WINNIPEG				X			
GANDER/ INTER.*	AMSTERDAM*			X			
	BALTIMORE			X			
	BOSTON	X	X	X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
GANDER							
INTER.*	BREMEN			X			
(cont'd/ suite)	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE	X	X	X			
(1)	CHURCHILL			X			
	CLEVELAND			X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
(1)	FRESNO			X			
	PROBISHER	X	X	X			
	GANDER*	X	X	X	X	X	
(1)	CATWICK			X			
	GENEVA			X			
	GOOSE	X	X	X			
	GÖTEBURG*			X			
(1)	GREAT FALLS			X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X	X	X	
	KINDLEY FIELD			X			
	KØBENHAVN*			X			
	KOLN			X			
	LAJES			X			
(1)	LAS VEGAS			X			
	LISBOA*			X	X	X	
	LONDON/ HEATHROW			X			
(1)	LOS ANGELES			X			
	MADRID*			X			
	MALMÖ			X			
	MARSEILLE*			X			
	MILANO/ MALPENSA			X			
	MILWAUKEE			X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			
(1)	NAPLES			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
GANDER							
INTER.*	NEW YORK/						
(cont'd/ suite)	INTER.*	X	X	X	X	X	
	NEWARK	X	X	X			
	NICE			X			
	OSLO/						
	GARDERMOEN			X			
	OTTAWA	X	X	X			
(1)	PALMDALE			X			
	PARIS/						
	LE BOURGET			X			
	PARIS/ORLY*			X			
	PHILADELPHIA	X	X	X			
(1)	PITTSBURG			X			
	PORTLAND			X			
	PRESTWICK*			X	X	X	
	REIMS			X			
(1)	RENO			X			
	REYKJAVIK			X			
	ROMA/LEONARDO						
	da VINCI			X			
(1)	SACRAMENTO			X			
	SAUDARKROKUR			X			
	ST. LOUIS			X			
(1)	SAN FRANCISCO			X			
	SANTA MARIA			X			
(1)	SEATTLE			X			
	SEVILLA			X			
	SHANNON*			X	X	X	
	SONDRE						
	STROMFJORD*			X	X	X	
(1)	SPOKANE			X			
	STEPHENVILLE	X	X	X			
	STAVANGER*			X			
	STOCKHOLM/						
	ARLANDO*			X			
(1)	STUTTGART			X			
	SYDNEY	X	X	X			
	TOURS			X			
	TORONTO	X	X	X			
	THULE*				X	X	
(1)	TURIN			X			
	VANCOUVER			X			
	WASHINGTON	X	X	X			
	WINNIPEG			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
CANADA (cont'd/suite)							
GOOSE	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BOSTON	X	X	X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE	X	X	X			
(1)	CHURCHILL			X			
	CLEVELAND	X	X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DUSSELDORF			X			
	FRANKFURT*			X			
(1)	FRESNO			X			
	FROBISHER	X	X	X			
	GANDER*	X	X	X	X	X	
(1)	GATWICK			X			
	GENEVE			X			
	GOOSE	X	X	X			
	GOTEBURG*			X			
(1)	GREAT FALLS			X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KØBENHAVN*			X			
	KÖLN			X			
	LAJES			X			
(1)	LAS VEGAS			X			
	LISBOA*			X			
	LONDON/ HEATHROW			X			
(1)	LOS ANGELES			X			
	MADRID*			X			
	MALMÖ			X			
	MARSEILLE*			X			
	MILANO/ MALPENSA			X			
	MILWAUKEE	X	X	X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
GOOSE (cont'd/suite)							
(1) NAPLES				X			
NEW YORK/ INTER.*			X	X	X	X	
NEWARK			X	X			
NICE				X			
OSLO/ GARDERMOEN				X			
OTTAWA			X	X			
(1) PALMDALE				X			
PARIS/ LE BOURGET				X			
PARIS/ORLY*				X			
PHILADELPHIA			X	X			
(1) PITTSBURGH			X	X			
(1) PORTLAND				X			
PRESTWICK*				X			
REIMS				X			
(1) RENO				X			
REYKJAVIK				X			
ROMA/LEONARDO da VINCI				X			
(1) SACRAMENTO				X			
(1) ST. LOUIS				X			
(1) SAN FRANCISCO				X			
SANTA MARIA				X			
SAUDARKROKUR				X			
(1) SEATTLE				X			
SEVILLA				X			
SHANNON*				X			
Sjondre							
(1) STROMFJORD* X			X	X	X	X	
(1) SPOKANE				X			
STAVANGER*				X			
STEPHENVILLE			X	X			
STOCKHOLM/ ARLANDA*				X			
(1) STUTTGART				X			
SYDNEY			X	X			
TOURS				X			
TORONTO			X	X			
(1) TURIN				X			
VANCOUVER				X			
WASHINGTON			X	X			
WINNIPEG				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
CANADA							
HALIFAX/INTER. (cont'd/suite)							
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BOSTON	X	X	X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE	X	X	X			
	CLEVELAND	X	X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANFURT*			X			
(1)	FRESNO			X			
	GANDER*	X	X	X			
(1)	GATWICK			X			
	GENEVE			X			
	GOOSE			X			
(1)	GREAT FALLS			X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KØBENHAVN*			X			
	KÖLN			X			
	LAJES			X			
(1)	LAS VEGAS			X			
	LISBOA*			X			
	LONDON/ HEATHROW			X			
(1)	LOS ANGELES			X			
	MADRID*			X			
	MARSEILLE*			X			
	MILANO/ MALPENSA *			X			
	MILWAUKEE	X	X	X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			
(1)	NAPLES			X			
	NEW YORK/ INTER.*	X	X	X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
HALIFAX/INTER. (cont'd/suite)							
	NEWARK	X	X	X			
	NICE			X			
	OSLO/ GARDERMOEN			X			
	OTTAWA	X	X	X			
(1)	PALMDALE			X			
	PARIS/ LE BOURGET			X			
	PARIS/ORYLY*			X			
	PHILADELPHIA	X	X	X			
	PITTSBURG	X	X	X			
(1)	PORTLAND			X			
	PRESTWICK*			X			
	REIMS			X			
(1)	RENO			X			
	ROMA/LEONARDO da VINCI			X			
(1)	SACRAMENTO			X			
(1)	ST. LOUIS			X			
(1)	SAN FRANCISCO			X			
	SANTA MARIA			X			
(1)	SEATTLE			X			
	SEVILLA			X			
	SHANNON*			X			
(1)	SPOKANE			X			
	STAVANGER*			X			
	STEPHENVILLE	X	X	X			
	STOCKHOLM/ ARLANDA*			X			
(1)	STUTTGART			X			
	SYDNEY	X	X	X			
	TORONTO	X	X	X			
	TOURS			X			
(1)	TURIN			X			
	VANCOUVER			X			
	WASHINGTON	X	X	X			
	WINNIPEG			X			
MONTREAL/ INTER.							
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BOSTON*	X	X	X			
	BOURNEMOUTH			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
CANADA							
MONTREAL/INTER. (cont'd/suite)							
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BURLINGTON	X	X	X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE	X	X	X			
(1)	CHURCHILL	X	X	X			
	CLEVELAND	X	X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
(1)	FRESNO			X			
	PROBISHER	X	X	X			
	GANDER*	X	X	X	X	X	
(1)	GATWICK			X			
	GENEVE			X			
	GOOSE	X	X	X			
	GÖTEBURG			X			
(1)	GREAT FALLS			X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	HABANA*			X			
	KEFLAVIK*			X			
	KINDLEY FIELD			X			
	KØBENHAVN*			X			
	KÖLN			X			
	LAJES			X			
(1)	LAS VEGAS *			X			
	LISBOA*			X			
	LONDON			X			
(1)	LOS ANGELES			X			
	MADRID*			X			
	MALMÖ			X			
	MANCHESTER			X			
	MARSEILLE*			X			
	MIAMI*			X	X	X	
	MILANO/ MALPENSA			X			
	MILWAUKEE			X			
	MONTREAL	X	X	X			

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Rapport - Réunion régionale NAT IV

AVAILABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMENDMENTS	SIGMET INFORMATION	SPECIAL AIR-REPORTS	REMARKS
DOIVENT ETRE DISPONIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSERVATIONS SPECIALES SELECTIONNEES	PREVISIONS D'AERODROME ET AMENDEMENTS	RENSEIGNEMENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
MONTREAL/INTER. (cont'd/suite)							
MÜNCHEN				X			
(1) NAPLES				X			
NEW YORK/							
INTER.*		X	X	X	X	X	
NEWARK		X	X	X			
NICE				X			
OSLO/							
GARDERMOEN				X			
OTTAWA		X	X	X			
(1) PALMDALE				X			
PARIS/							
LE BOURGET				X			
PARIS/ORLY*				X			
PHILADELPHIA		X	X	X			
PITTSBURGH		X	X	X			
(1) PORTLAND				X			
PRESTWICK*				X			
REIMS				X			
(1) RENO				X			
ROMA/LEONARDO							
da VINCI				X			
(1) SACRAMENTO				X			
ST. LOUIS				X			
(1) SAN FRANCISCO				X			
SANTA MARIA				X			
(1) SEATTLE				X			
SEVILLA*				X			
SHANNON*				X			
SØNDRE							
STRØMFJORD*				X			
(1) SPOKANE				X			
STAVANGER*				X			
STEPHENVILLE		X	X	X			
STOCKHOLM/							
ARLANDA*				X			
STUTTGART				X			
SYDNEY		X	X	X			
TORONTO		X	X	X			
TOURS				X			
(1) TURIN				X			
VANCOUVER				X			
WASHINGTON		X	X	X			
WINNIPEG				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8

CANADA

OTTAWA { Operational requirements to be met by Montreal*
QUEBEC { Montréal* répondra aux besoins de l'exploitation

STEPHEN- { Operational requirements to be met by Gander*
VILLE { Gander* répondra aux besoins de l'exploitation
SYDNEY

TORONTO/INTER.

GANDER	X	X	X
HALIFAX	X	X	X
KEFLAVIK			X
KINDLEY FIELD			X
LONDON/ HEATHROW			X
(1) MONTEGO BAY			X
MONTREAL	X	X	X
NASSAU			X
PARIS/ LE BOURGET			X
PARIS/ORY*			X
PRESTWICK*			X
SHANNON*			X
STEPHENVILLE	X	X	X
SYDNEY	X	X	X

WINNIPEG/INTER.

AMSTERDAM*			X
BRUXELLES*			X
BOURNEMOUTH			X
(1) CALGARY	X	X	X
(1) CHURCHILL	X	X	X
DUBLIN			X
(1) FRESNO			X
FROBISHER	X	X	X
GANDER*			X
(1) GATWICK			X
GOOSE			X
(1) GREAT FALLS	X	X	X
HALIFAX			X
KEFLAVIK*			X
KØBENHAVN*			X
(1) LAS VEGAS			X
LONDON/ HEATHROW			X

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>CANADA</u>							
WINNIPEG/INTER. (cont'd./suite)							
(1) LOS ANGELES				X			
MARSEILLE*				X			
MILWAUKEE		X	X	X			
MONTREAL				X			
OTTAWA		X	X	X			
(1) PALMDALE				X			
PARIS/ LE BOURGET				X			
PARIS/ORLY*				X			
(1) PORTLAND		X	X	X			
PRESTWICK*				X			
REIMS				X			
(1) RENO				X			
(1) SACRAMENTO				X			
(1) SAN FRANCISCO				X			
(1) SEATTLE		X	X	X			
SHANNON*				X			
SØNDRE STRØMFJORD*				X			
(1) SPOKANE		X	X	X			
STEPHENVILLE				X			
STAVANGER*				X			
TOURS				X			
VANCOUVER		X	X	X			
<u>CUBA</u>							
HABANA/JOSE MARTI*							
BOSTON		X	X	X			
BALTIMORE		X	X	X			
(1) CIUDAD TRUJILLO*					X	X	
HABANA*		X	X	X	X	X	
MIAMI*					X	X	
NASSAU				X			
NEW YORK/ INTER.*		X	X	X			
PHILADELPHIA		X	X	X			
KINDLEY FIELD		X	X	X			
MADRID*		X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8

DENMARK / DANEMARK

AALBORG { Operational requirements to be met by KØBENHAVN*
KØBENHAVN* répondra aux besoins de l'exploitation

KØBENHAVN*	AALBORG	X		X			
	ANCHORAGE*			X			
	BALTIMORE			X			
	BODØ*	X		X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FAIRBANKS			X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
	GOOSE			X			
	GÖTEBURG*	X		X	X	X	
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KEFLAVIK*			X			
	KØBENHAVN*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	MALMÖ*	X		X	X	X	
	MÜNCHEN			X			
	NEW YORK/ INTER.			X			
	OSLO/ FORNEBU*	X		X	X	X	
	OSLO/ GARDERMOEN	X		X			
	PHILADELPHIA			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORY*	X		X			
	PRESTWICK*	X		X	X	X	
	REYKJAVIK*			X			
	SAUDARKROKUR			X			
	SHANNON*	X		X			
	SØNDRE STRØMFJORD*			X			
	STAVANGER*	X		X	X	X	
	STOCKHOLM/ ARLANDA*	X		X	X	X	
	THULE*				X	X	
	UXBRIDGE*				X	X	
	ZÜRICH*	X		X	X	X	

SØNDRE

STRØMFJORD*

See Greenland

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGFS D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8

FINLAND / FINLANDE

HELSINKI /
HELSINKI* { Operational requirements identical to STOCKHOLM/A*
Besoins de l'exploitation identiques à ceux de
STOCKHOLM/A*

FRANCE

BORDEAUX /
MERIGNAC
(ACC) { Operational requirements to be met by PARIS/ONLY*
PARIS/ONLY* répondra aux besoins de l'exploitation

MARSEILLE /
MARIGNANE {

NICE/Côte d'Azur)
PARIS/Le Bourget)
REIMS/Champagne)
TOURS/St. Symphorien)

PARIS/ONLY*

AMSTERDAM*	X			X	X	X	
ANCHORAGE*				X			
BALTIMORE				X			
BORDEAUX*				X	X	X	
BOSTON				X			
BRUXELLES*	X			X	X	X	
BUFFALO				X			
BURLINGTON				X			
BOURNEMOUTH	X			X			
CALGARY				X			
CARACAS				X			
CHICAGO / O'HARE				X			
(1) CHURCHILL				X			
CURACAO				X			
DETROIT				X			
DUBLIN	X			X			
DÜSSELDORF	X			X			
EDMONTON				X			
FAIRBANKS				X			
PORT DE FRANCE				X			
(1) FRANKFURT*	X			X	X	X	
FRESNO				X			
FROBISHER				X			
GANDER*				X			
(1) GATWICK	X			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
FRANCE							
PARIS/ORLY* (cont'd/suite)							
	GENEVE	X		X			
	GOOSE			X			
(1)	GREAT FALLS			X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	INDIANAPOLIS			X			
	KETLAVIK*	X	(EXCEPTION)X	X			
	KINDLEY FIELD			X			
	KOLN	X		X			
	LAJES	X	(EXCEPTION)X	X			
(1)	LAS VEGAS			X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
(1)	LOS ANGELES			X			
	LUXEMBOURG	X		X			
	MADRID*	X		X	X	X	
	MARSEILLE*	X		X	X	X	
	MIAMI*			X			
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN	X		X			
(1)	NAPLES	X		X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	ONTARIO			X			
	OTTAWA			X			
(1)	PALMDALE			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PHILADELPHIA			X			
	PITTSBURGH			X			
	POINTE- À-PITRE*			X			
(1)	PORTLAND			X			
(1)	PORT OF SPAIN*			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>FRANCE</u>							
PARIS/ORY* (cont'd/suite)							
	PRESTWICK*	X		X	X	X	
	QUEBEC			X			
	REIMS	X		X			
	RENO			X			
	ROMA/ CIAMPINO*	X		X	X	X	
	ROMA/LEONARDO da VINCI	X		X			
	SACRAMENTO			X			
	SEVILLA			X			
	ST. LOUIS			X			
(1)	SAN FRANCISCO			X			
	SAN JUAN			X			
	SANTA MARIA	X	(EXCEPTION)X	X			
	SHANNON*	X		X	X	X	
	SONDRE						
	STROMFJORD*			X			
(1)	SPOKANE			X			
	STEPHENVILLE			X			
(1)	STUTTGART	X		X			
	SYDNEY			X			
	TORONTO			X			
	TOURS	X		X			
(1)	TURIN	X		X			
	UXBRIDGE*				X	X	
	VALENCIA			X			
	VANCOUVER			X			
	WASHINGTON			X			
	WINNIPEG			X			
	ZÜRICH*	X		X	X	X	
<u>FRENCH ANTILLES/ANTILLES FRANCAISES</u>							
FORT DE FRANCE LAMENTIN (MARTINIQUE)			{ Operational requirements to be met by POINTE-À-PITRE* POINTE-À-PITRE* répondra aux besoins de l'exploitation				
POINTE-À- PITRE,* Le RAIZET (GUADELOUPE)	BARCELONA BORDEAUX*	X	X	X X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>FRENCH ANTILLES/ ANTILLES FRANCAISES</u>							
POINTE-A- (1)	BARBADOS	X	X	X			
PITRE,* (1)	CIUDAD/						
Le RAIZET	TRUJILLO*	X	X	X			
(GUADE- LOUPE)	CURAÇAO	X	X	X			
(cont'd/ suite)	FORT DE FRANCE	X	X	X			
	KINDLEY FIELD	X	X	X			
	LAJES			X			
	LISBOA*			X			
	MADRID*			X			
(1)	MAIQUETIA*	X		X	X	X	
	MARSEILLE*			X			
	MIAMI*	X	X	X	X	X	
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
	POINTE- A-PITRE*	X	X	X	X	X	
	PORT OF SPAIN	X	X	X	X	X	
	REIMS			X			
	SAN JUAN	X	X	X			
	SANTA MARIA			X			
	SEVILLA			X			
	TOURS			X			
<u>GERMANY / ALLEMAGNE</u>							
BREMEN/BREMEN	{ Same requirements as HANNOVER*						
DÜSSELDORF/	{ Besoins de l'exploitation identiques à ceux de HANNOVER*						
DÜSSELDORF							
FRANKFURT/	AMSTERDAM*	X		X	X	X	
MAIN/	ANCHORAGE*			X			
FRANKFURT/	BALTIMORE			X			
MAIN*	BARCELONA*	X		X	X	X	
	BERGEN	X		X			
	BODØ*			X	X	X	
	BOSTON			X			
	BORDEAUX*	X		X	X	X	
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	BUFFALO			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>GERMANY / ALLEMAGNE</u>							
FRANKFURT/	BURLINGTON			X			
MAIN/	BOURNEMOUTH	X		X			
FRANKFURT/	CHICAGO/						
MAIN*	O'HARE			X			
(cont'd/ suite)	CLEVELAND			X			
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FAIRBANKS			X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
(1)	GATWICK	X		X			
	GENEVE	X		X			
	GOOSE			X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KEFLAVIK*	X	X	X	X	X	
	KINDLEY FIELD			X			
	KØBENHAVN*	X		X	X	X	
	KÖLN	X		X			
	LAJES			X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MADRID*	X		X	X	X	
(1)	MAIQUETIA			X			
	MANCHESTER	X		X			
	MARSEILLE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL*			X			
	MÜNCHEN	X		X			
(1)	NAPLES	X		X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	OSLO/ FORNEBU				X	X	
	OTTAWA			X			
	PARIS/ LE BOURGET	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h <i>f</i>	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR - REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h <i>f</i>	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>GERMANY / ALLEMAGNE</u>							
FRANKFURT/ MAIN/ FRANKFURT/ MAIN*	PARIS/ORLY* PHILADELPHIA PITTSBRUGH PRESTWICK*	X X		X X X X	X X	X X	
(cont'd/ suite)	REIMS REYKJAVIK* ROMA/ CIAMPINO* ROMA/LEONARDO da VINCI SANTA MARIA ST. LOUIS	X X X X X X	X	X X X X X	 X X	 	
(1) SAN FRANCISCO	SEVILLE	X		X			
	SHANNON*	X		X	X	X	
	SONDRE STRUMFJORD*			X			
	STAVANGER*	X		X	X	X	
	STEPHENVILLE			X			
	STOCKHOLM/ ARLANDA*	X		X	X	X	
(1) STUTTGART		X		X			
	SYDNEY			X			
	THULE*			X			
TORONTO				X			
(1) TURIN		X		X			
	WASHINGTON			X			
	WINNIPEG			X			
	ZURICH*	X		X	X	X	
Same requirements as FRANKFURT/MAIN* for routine reports, selected special reports and aerodrome forecasts and amendments plus the following:							
HAMBURG/HAMBURG	{ Mêmes indications que pour FRANKFORT/MAIN* en ce qui concerne les observations régulières, les observations spéciales sélectionnées et les prévisions d'aérodrome et amendements, plus les données suivantes:						
HANNOVER/ HANNOVER*	AMSTERDAM*	X		X	X	X	
	BARCELONA*	X		X	X	X	
	BERGEN	X		X			

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DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
GERMANY / ALLEMAGNE							
HANNOVER/	BORDEAUX*	X		X	X	X	
HANNOVER*	BOURNEMOUTH	X		X			
(cont'd/ suite)	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	DUBLIN	X		X			
	DUSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	GENEVE	X		X			
	HAMBURG	X		X			
	HANNOVER*	X		X			
	KOEBENHAVN*	X		X	X	X	
	KOLN	X		X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MADRID	X		X	X	X	
	MANCHESTER	X		X			
	MARSEILLE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MUNCHEN	X		X			
	NICE	X		X			
	OSLO/ FORNEBU				X	X	
	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PRESTWICK*	X		X	X	X	
	ROMA/ CIAMPINO*	X		X	X	X	
	ROMA/LEONARDO da VINCI	X		X			
	SEVILLA	X		X			
	SHANNON*	X		X	X	X	
	STAVANGER	X		X			
	STOCKHOLM/ ARLANDA*	X		X	X	X	
(1)	STUTTGART	X		X			
	ZURICH*	X		X	X	X	

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>GERMANY / ALLEMAGNE</u> (cont'd/suite)							
KÖLN/KÖLN-BONN	<div> <div>Same requirements as FRANKFURT* for routine reports, selected special reports and aerodrome forecasts and amendments</div> <div>Mêmes indications que pour FRANKFURT* en ce qui concerne les observations régulières, les observations spéciales sélectionnées et les prévisions* d'aérodrome et amendements</div> </div>						
MÜNCHEN/ MÜNCHEN	<div> <div>Same requirements as HANNOVER* for routine reports, selected special reports and aerodrome forecasts and amendments</div> <div>Mêmes indications que pour HANNOVER* en ce qui concerne les observations régulières, les observations spéciales sélectionnées, les prévisions* d'aérodrome et amendements</div> </div>						
STUTTGART/ STUTTGART							
<u>GREENLAND / GROENLAND</u>							
SØNDRE STRØMFJORD*							
AALBORG				X			
AMSTERDAM*				X			
BØDO*				X	X	X	
BREMEN				X			
BRUXELLES*				X			
(1) CALGARY				X			
EDMONTON				X			
FROBISHER	X		X	X			
GANDER*	X		X	X	X	X	
GÖTEBURG				X			
GOOSE	X		X	X			
HAMBURG				X			
HANNOVER*				X			
KEFLAVIK*	X		X	X	X	X	
KØBENHAVN*				X			
(1) LAS VEGAS				X			
(1) LOS ANGELES				X			
MALMÖ				X			
MONTREAL				X			
OSLO/ GARDERMOEN				X			
(1) PALMDALE				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>GREENLAND / GROENLAND</u>							
SØNDRE STRØMFJORD* (cont'd/suite)							
PARIS/							
LE BOURGET				X			
PARIS/ORY*				X			
PRESTWICK*				X	X	X	
REIMS				X			
SAN FRANCISCO				X			
SAUDARKROKUR				X			
SHANNON*					X	X	
STAVANGER*				X			
STOCKHOLM/							
ARLANDA*				X			
THULE*					X	X	
WINNIPEG				X			
THULE*			{ Requirements identical to those of SØNDRE STRØMFJORD* Indications identiques à celles de SØNDRE STRØMFJORD*				
<u>ICELAND / ISLANDE</u>							
KEFLAVIK* ANCHORAGE*				X			
AMSTERDAM*				X	X	X	
BALTIMORE				X			
BODØ*				X	X	X	
BOSTON				X			
BOURNEMOUTH X				X			
BREMEN				X			
BRUXELLES*				X			
BUFFALO				X			
BURLINGTON				X			
(1) CALGARY				X			
CHICAGO/							
O'HARE				X			
(1) CHURCHILL				X			
CLEVELAND				X			
DETROIT				X			
DUBLIN X				X			
DUSSELDORF				X			
FAIRBANKS				X			
FRANKFURT*				X			
(1) FRESNO				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>ICELAND / ISLANDE</u>							
KEFLAVIK*	FROBISHER			X			
(cont'd/ suite) (1)	GANDER*			X	X	X	
	GATWICK	X		X			
	GENEVE			X			
	GOOSE			X			
	GÖTEBORG			X			
(1)	GREAT FALLS			X			
	HALIFAX			X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*	X		X	X	X	
	KØBENHAVN*	X		X			
	KÖLN			X			
(1)	LAS VEGAS			X			
	LONDON/ HEATHROW	X		X			
(1)	LOS ANGELES			X			
	LUXEMBOURG			X			
	MALMÖ			X			
	MARSEILLE*			X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN			X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE			X			
	OSLO/ GARDERMOEN	X		X			
	OTTAWA			X			
(1)	PALMDALE			X			
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
	PHILADELPHIA			X			
	PITTSBURGH			X			
(1)	PORTLAND			X			
	PRESTWICK*	X		X	X	X	
	REIMS			X			
(1)	RENO			X			
(1)	SACRAMENTO			X			
	SAUDARKROKUR			X			
	ST. LOUIS			X			
(1)	SAN FRANCISCO			X			
(1)	SEATTLE			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>ICELAND / ISLANDE</u>							
KEFLAVIK* (cont'd/suite)							
	SHANNON*	X		X	X	X	
	SONDRE						
	STROMPJORD*	X	X	X	X	X	
(1)	SPOKANE			X			
	STEPHENVILLE			X			
	STAVANGER			X			
	STOCKHOLM/ ARLANDA*			X	X	X	
(1)	STUTTGART			X			
	SYDNEY			X			
	TEULE*			X	X	X	
	TORONTO			X			
	TOURS			X			
	VANCOUVER			X			
	WASHINGTON			X			
	WINNIPEG			X			
REYKJAVIK			Same requirements as KEFLAVIK* for routine reports, selected special reports, aerodrome forecasts and amendments Mêmes indications que pour KEFLAVIK* en ce qui concerne les observations régulières, les obser- vations spéciales sélectionnées et les prévisions d'aérodrome et amendements				
SAUDARKROKUR			Operational requirements to be met by KEFLAVIK*				
SAUDARKROKUR			KEFLAVIK* répondra aux besoins de l'exploitation				
<u>IRELAND / IRLANDE</u>							
DUBLIN			Operational requirements to be met by SHANNON*				
SHANNON*			SHANNON* répondra aux besoins de l'exploitation				
	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA	X		X			
	BOD/*				X	X	
	BORDEAUX*	X		X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	BUFFALO			X			
	BURLINGTON			X			
	BOURNEMOUTH	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>IRELAND / IRLANDE</u>							
SHANNON* (cont'd/suite)							
	CHICAGO/ O'HARE			X			
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	FROBISHER			X			
	GANDER*			X	X	X	
(1)	GATWICK	X		X			
	GENÈVE	X		X			
	GOOSE			X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	HELSINKI	X		X			
	KEFLAVIK*	X	X	X	X	X	
	KINDLEY FIELD			X			
	KØBENHAVN*	X		X	X	X	
	KÖLN	X		X			
	LAJES	X	(EXCEPTION)	X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
(1)	LOS ANGELES			X			
	LUXEMBOURG	X		X			
	MALMÖ	X		X			
	MARSEILLE*	X		X	X	X	
(1)	MILANO/LINATE	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN	X		X			
(1)	NAPLES			X			
	NEW YORK/ INTER.*			X	X	X	
	NEWARK			X			
	NICE	X		X			
	OTTAWA			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORYLY*	X		X	X	X	

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>ICELAND / ISLANDE</u>							
KEFLAVIK* (cont'd/suite)							
	SHANNON*	X		X	X	X	
	SONDRE						
	STROMJORD*	X	X	X	X	X	
(1)	SPOKANE			X			
	STEPHENVILLE			X			
	STAVANGER			X			
	STOCKHOLM/ ARLANDA*			X	X	X	
(1)	STUTTGART			X			
	SYDNEY			X			
	THULE*			X	X	X	
	TORONTO			X			
	TOURS			X			
	VANCOUVER			X			
	WASHINGTON			X			
	WINNIPEG			X			
REYKJAVIK			Same requirements as KEFLAVIK* for routine reports, selected special reports, aerodrome forecasts and amendments Mêmes indications que pour KEFLAVIK* en ce qui concerne les observations régulières, les obser- vations spéciales sélectionnées et les prévisions d'aérodrome et amendements				
SAUDARKROKUR			Operational requirements to be met by KEFLAVIK*				
SAUDARKROKUR			KEFLAVIK* répondra aux besoins de l'exploitation				
<u>IRELAND / IRLANDE</u>							
DUBLIN			Operational requirements to be met by SHANNON*				
SHANNON*			SHANNON* répondra aux besoins de l'exploitation				
	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA	X		X			
	BODØ*				X	X	
	BORDEAUX*	X		X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	BUFFALO			X			
	BURLINGTON			X			
	BOURNEMOUTH	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>IRELAND / IRLANDE</u>							
SHANNON* (cont'd/suite)							
	CHICAGO/ O'HARE			X			
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	FROBISHER			X			
	GANDER*			X	X	X	
(1)	GATWICK	X		X			
	GENÈVE	X		X			
	GOOSE			X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	HELSINKI	X		X			
	KEFLAVIK*	X	X	X	X	X	
	KINDLEY FIELD			X			
	KØBENHAVN*	X		X	X	X	
	KÖLN	X		X			
	LAJES	X	(EXCEPTION)	X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
(1)	LOS ANGELES			X			
	LUXEMBOURG	X		X			
	MALMÖ	X		X			
	MARSEILLE*	X		X	X	X	
(1)	MILANO/LINATE	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN	X		X			
(1)	NAPLES			X			
	NEW YORK/ INTER.*			X	X	X	
	NEWARK			X			
	NICE	X		X			
	OTTAWA			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORYLY*	X		X	X	X	

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>IRELAND / IRLANDE</u>							
SHANNON* (cont'd/suite)							
(1) PALMDALE				X			
PHILADELPHIA				X			
PITTSBURGH				X			
(1) PORTLAND				X			
PRESTWICK*	X			X	X	X	
REIMS	X			X			
(1) RENO				X			
ROMA/LEONARDO da VINCI				X			
(1) SACRAMENTO				X			
(1) SAN FRANCISCO				X			
SANTA MARIA	X		(EXCEPTION)	X			
(1) SEATTLE				X			
SEVILLA	X			X			
SHANNON*	X			X	X	X	
STAVANGER*	X			X			
STEPHENVILLE				X			
STOCKHOLM/ ARLANDA*	X			X	X	X	
STUTTGART	X			X			
SYDNEY				X			
TORONTO				X			
TOURS	X			X			
(1) TURIN	X			X			
(1) VALENCIA	X			X			
WASHINGTON				X			
WINNIPEG				X			
ZÜRICH*	X			X	X	X	
<u>ITALY / ITALIE</u>							
MILANO/ MALPENSA	Operational requirements identical to those of ROMA/ LEONARDO da VINCI Besoins de l'exploitation identiques à ceux de ROMA/ LEONARDO da VINCI						
MILANO/ LINATE							
ROMA/LEONARDO DA VINCI*							
ROMA/CIAMPINO*							
AMSTERDAM*	X			X	X	X	
BALTIMORE				X			
BARCELONA*	X			X	X	X	
BOSTON				X			
BOURNEMOUTH	X			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
ITALY / ITALIE							
	ROMA/LEONARDO DA VINCI*						
	ROMA/CIAMPINO*						
(cont'd/ suite)	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	BUFFALO			X			
	CLEVELAND			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
(1)	GATWICK	X		X			
	GENEVE	X		X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KINDLEY FIELD			X			
	KÖLN	X		X			
	LAJES			X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MADRID*	X		X	X	X	
	MARSEILLE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILANO/LINATE*	X		X	X	X	
	MONTREAL			X			
	MÜNCHEN	X		X			
(1)	NAPLES	X		X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORYLY*	X		X	X	X	
	PHILADELPHIA			X			
	PITTSBURGH			X			
	FRESTWICK*	X		X			
	REIMS	X		X			

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>ITALY / ITALIE</u>							
ROMA/LEONARDO							
DA VINCI*							
ROMA/CIAMPINO*							
(cont'd/suite)							
ROMA/							
CIAMPINO*		X		X	X	X	
ROMA/LEONARDO							
da VINCI		X		X			
SANTA MARIA				X			
SEVILLA		X		X			
SHANNON*		X		X	X	X	
STEPHENVILLE				X			
(1) STUTTGART		X		X			
(1) TURIN		X		X			
(1) VALENCIA		X		X			
WASHINGTON				X			
ZÜRICH*		X		X	X	X	
<u>LUXEMBOURG</u>							
LUXEMBOURG KEFLAVIK*				X			
REYKJAVIK				X			
<u>NETHERLANDS / PAYS-BAS</u>							
AMSTERDAM/							
SCHIPHOL*		X		X	X	X	
ANCHORAGE*				X			
BALTIMORE				X			
BOSTON				X			
BRUXELLES*		X		X	X	X	
BODØ*		X		X	X	X	
BURLINGTON				X			
CALGARY				X			
CHICAGO/							
O'HARE				X			
CHURCHILL				X			
DUBLIN		X		X			
DÜSSELDORF		X		X			
EDMONTON				X			
FRANKFURT*		X		X	X	X	
FAIRBANKS				X			
FROBISHER				X			
GANDER*				X			
GOOSE				X			
HALIFAX				X			
HAMBURG		X		X			

[illegible]

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>NORWAY / NORVEGE</u>							
BODø*	ANCHORAGE*			X			
(cont'd/ suite)	AMSTERDAM*	X		X	X	X	
	BREMEN			X			
	BRUXELLES*	X		X	X	X	
	DUBLIN			X			
	FAIRBANKS			X			
	FROBISHER			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KEFLAVIK*	X	X	X	X	X	
	KØBENHAVN*	X		X	X	X	
	MALMÖ*	X		X	X	X	
	MARSEILLE*			X			
	OSLO/ FORNEBU*	X		X	X	X	
	PARIS/ LE BOURGET			X			
	PARIS/ORY*	X		X	X	X	
	OSLO/ GARDERMOEN	X		X			
	PRESTWICK*			X	X	X	
	REIMS			X			
	REYKJAVIK			X			
	SHANNON*	X		X	X	X	
	SØNDRE STRØMFJORD*			X	X	X	
	STAVANGER*	X		X	X	X	
	STOCKHOLM/ ARLANDA*	X		X	X	X	
	THULE*				X	X	
	ZÜRICH*	X		X	X	X	
OSLO/ GARDERMOEN*							
OSLO/FORNEBU*							
	AALBORG	X		X			
	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BODø*	X		X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	BUFFALO			X			
	BOURNEMOUTH	X		X			
	CHICAGO/ O'HARE			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>NORWAY / NORVEGE</u>							
OSLO/ GARDERMOEN*							
OSLO/FORNEBU*							
(cont'd/suite)							
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	FROBISHER			X			
	GANDER*			X			
(1)	GATWICK	X		X			
	GENEVE	X		X			
	GOOSE			X			
	HALIFAX			X			
	HELSINKI*	X		X	X	X	
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KEFLAVIK*	X	X	X	X	X	
	KØBENHAVN*	X		X	X	X	
	KÖLN	X		X			
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MALMÖ*	X		X	X	X	
	MÜNCHEN	X		X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	OSLO/ GARDERMOEN	X		X			
	OSLO/FORNEBU*				X	X	
	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PHILADELPHIA			X			
	PITTSBURG			X			
	PRESTON*				X	X	
	PRESTWICK*	X		X	X	X	
	REIMS	X		X			
	REYKJAVIK	X	X	X			
	SAUDARKROKUR			X			
	SHANNON*	X		X	X	X	
	SØNDRE STRØMFJORD*	X		X			
	STAVANGER	X		X			

FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS	
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
NORWAY / NORVEGE							
OSLO/ GARDERMOEN*							
OSLO/FORNEBU*							
(cont'd/suite)							
STEPHENVILLE				X			
STOCKHOLM/ ARLANDA*	X			X	X	X	
(1) STUTTGART	X			X			
TOURS	X			X			
WASHINGTON				X			
ZÜRICH*	X			X	X	X	
STAVANGER/ SOLA*	Operational requirements to be met by OSLO/GARDERMOEN OSLO/GARDERMOEN répondra aux besoins de l'exploitation						
PORTUGAL							
FUNCHAL	LISBOA*	X		X			
LAJES	AMSTERDAM*			X			
	BALTIMORE			X			
	BARCELONA*			X			
	BORDEAUX*			X			
	BOSTON*			X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO			X			
	BOURNEMOUTH			X			
	CLEVELAND			X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FORT						
	DE FRANCE			X			
	FRANKFURT*			X			
	GANDER*			X			
(1) GATWICK				X			
GENÈVE				X			
GOOSE				X			
HALIFAX				X			
HAMBURG				X			
HANNOVER*				X			
KINDLEY							
FIELD				X			
KÖLN				X			
LAJES	X		X	X			
LISBOA*	X			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>PORTUGAL</u>							
LAJES (cont'd/ suite)	LONDON/ HEATHROW			X			
	LUXEMBOURG			X			
	MADRID*	X		X			
	MAIQUETIA			X			
	MARSEILLE*			X			
(1)	MILANO/LINATE*			X			
	MILANO/ MALPENSA			X			
	MONTREAL			X			
	MÜNCHEN			X			
(1)	NAPLES			X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE			X			
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
	PHILADELPHIA			X			
	PITTSBURGH			X			
	PORT OF SPAIN*			X			
	PRESTWICK*			X			
	REIMS			X			
	ROMA/LEONARDO da VINCI			X			
	SAN JUAN			X			
	SANTA MARIA	X	X	X			
	SEVILLA	X		X			
	SHANNON*			X			
	STEPHENVILLE			X			
(1)	STUTTGART			X			
	TOURS			X			
(1)	TURIN			X			
	WASHINGTON			X			
LISBOA/ LISBOA*	AMSTERDAM*	X		X			
	BALTIMORE			X			
	BARCELONA	X		X			
	BORDEAUX*	X		X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>PORTUGAL</u>							
LISBOA/	BUFFALO			X			
LISBOA*	BOURNEMOUTH	X		X			
(cont'd/ suite)	CLEVELAND			X			
	CURACAO			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FORT DE FRANCE*			X			
	FRANKFURT*	X		X	X	X	
	FUNCHAL	X	X	X			
	GANDER*			X	X	X	
(1)	GATWICK	X		X			
	GENEVE	X		X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KINDLEY FIELD			X			
	KÖLN	X		X			
	LAJES	X	X	X			
	LISBOA*	X	X	X	X	X	
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MADRID*	X		X	X	X	
(1)	MAIQUETIA*			X			
	MARSEILLE*	X		X	X	X	
(1)	MILANO/LINATE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MONTREAL			X			
	MÜNCHEN*			X			
	NAPLES	X		X			
	NEW YORK/ INTER.*			X	X	X	
	NEWARK			X			
	NICE	X		X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PITTSBURG			X			
	PHILADELPHIA			X			
	POINTE- A-PITRE*			X			
	PORTO SANTO	X	X	X			
(1)	PORT OF SPAIN*			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
PORTUGAL							
LISBOA/	PRESTWICK*	X		X			
LISBOA*	REIMS	X		X			
(cont'd/ suite)	ROMA/						
	CIAMPINO*	X		X	X	X	
	ROMA/LEONARDO da VINCI	X		X			
	SAN JUAN*			X	X	X	
	SANTA MARIA	X	X	X			
	SEVILLA*	X		X	X	X	
	SHANNON*	X		X	X	X	
	STEPHENVILLE			X			
	STOCKHOLM/ ARLANDA*			X	X	X	
(1)	STUTTGART	X		X			
	TOURS	X		X			
(1)	TURIN	X		X			
(1)	VALENCIA	X		X			
	WASHINGTON			X			
	SYDNEY			X			
	ZÜRICH*	X		X	X	X	
PORTO SANTO							
	LISBOA*	X		X			
SANTA MARIA/ SANTA MARIA (AÇORES)							
	AMSTERDAM*			X			
	BALTIMORE			X			
	BARCELONA*			X			
	BORDEAUX*			X			
	BOSTON*			X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO			X			
	BOURNEMOUTH			X			
	CLEVELAND			X			
(1)	CURAÇAO*			X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FORT DE FRANCE*			X			
	FRANKFURT*			X			
	GANDER*			X			
(1)	GATWICK*			X			
	GENÈVE			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>PORTUGAL</u>							
SANTA MARIA/ SANTA MARIA (ACORES) GOOSE				X			
(cont'd/ suite) HALIFAX				X			
HAMBURG				X			
HANNOVER*				X			
KINDLEY FIELD*				X			
KÖLN				X			
LAJES	X		X	X			
LISBOA*	X			X			
LONDON/ HEATHROW				X			
LUXEMBOURG				X			
MADRID*	X			X			
(1) MAIQUETIA				X			
MARSEILLE*				X			
(1) MILANO/LINATE*				X			
MILANO/ MALPENSA				X			
MONTREAL				X			
MUNCHEN*				X			
(1) NAPLES				X			
NEW YORK/ INTER.*				X			
NEWARK				X			
NICE				X			
PARIS/ LE BOURGET				X			
PARIS/ORLY*				X			
PHILADELPHIA				X			
PITTSBURG				X			
POINTE- A-PITRE*				X			
PORT OF SPAIN*				X			
PRESTWICK*				X			
REIMS				X			
ROMA/LEONARDO da VINCI				X			
SAN JUAN				X			
SANTA MARIA	X		X	X			
SEVILLA*	X			X			
SHANNON*				X			
STEPHENVILLE				X			
(1) STUTTGART				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>PORTUGAL</u>							
SANTA MARIA/ SANTA MARIA (AÇORES) TOURS (cont'd/(1) TURIN suite) WASHINGTON				X X X			
<u>PUERTO RICO / PORTO RICO</u>							
SAN JUAN/ INTER.*	BALTIMORE BARCELONA*	X	(EXCEPTION)X	X X			
	BOSTON	X	(EXCEPTION)X	X			
	BUFFALO	X	X	X			
(1) CIUDAD TRUJILLO*		X	X	X	X	X	
	CLEVELAND	X		X			
	FORT DE FRANCE*	X	X	X	X	X	
	KINDLEY FIELD*	X	X	X			
	LAJES			X			
	LISBOA*			X			
	MADRID*			X			
(1) MAIQUETIA				X			
	MONTREAL			X			
	NEW YORK/ INTER.*	X	(EXCEPTION)X	X			
	NEWARK	X	(EXCEPTION)X	X			
	OTTAWA			X			
	PHILADELPHIA	X	(EXCEPTION)X	X			
	PITTSBURGH	X	(EXCEPTION)X	X			
	POINTE- A-PITRE*	X	X	X			
	SANTA MARIA			X			
	TRINIDAD	X	X	X			
	WASHINGTON	X	(EXCEPTION)X	X			
<u>SPAIN / ESPAGNE</u>							
BARCELONA* {Operational requirements identical to MADRID/BARAJAS* MADRID/BARAJAS* répondra aux besoins de l'exploitation							
MADRID/ BARAJAS*	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA*	X		X	X	X	
	BORDEAUX*	X		X	X	X	
	BOSTON			X			

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AVAIL- ABLE AT	FROM OR. RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>SPAIN / ESPAGNE</u>							
MADRID/	BREMEN	X		X			
BARAJAS*	BRUXELLES*	X		X	X	X	
(cont'd/ suite)	BUFFALO			X			
	BOURNEMOUTH	X		X			
	CLEVELAND			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
(1)	GATWICK	X		X			
	GENÈVE	X		X			
	HALIFAX			X			
	HABANA			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	KINDLEY FIELD			X			
	KÖLN	X		X			
	LAJES	X	X	X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MAIQUETIA			X			
	MARSEILLE*	X		X	X	X	
(1)	MILANO/LINATE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MONTREAL			X			
	MÜNCHEN	X		X			
(1)	NAPLES	X		X			
	NEW YORK/ INTER.*			X			
(1)	NEWARK			X			
	NICE	X		X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORYLY*	X		X	X	X	
	PHILADELPHIA			X			
	PITTSBURG			X			
	POINTE- A-PITRE*			X			
	PRESTWICK*				X	X	
	REIMS	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>SPAIN / ESPAGNE</u>							
MADRID/ (1)RIO DE BARAJAS* JANEIRO				X			
(cont'd/ suite)	ROMA/LEONARDO da VINCI	X		X			
	SAN JUAN			X			
	SANTA MARIA	X	X	X			
	SEVILLA*	X		X	X	X	
	SHANNON*	X		X			
	STEPHENVILLE			X			
(1)	STUTTGART	X		X			
	TOURS	X		X			
(1)	TURIN	X		X			
(1)	VALENCIA	X		X	X	X	
	WASHINGTON			X			
(1)	ZARAGOZA	X		X			
	ZÜRICH*	X		X	X	X	
SEVILLA/ SAN PABLO*	{ Operational requirements identical to MADRID/BARAJAS* MADRID/BARAJAS* répondra aux besoins de l'exploitation						
<u>SWEDEN / SUÈDE</u>							
GÖTEBORG/	{						
TORSLANDA*	{						
MALMÖ/ BULLTOFTA*	{ Operation requirements to be met by STOCKHOLM/ARLANDA* STOCKHOLM/ARLANDA* répondra aux besoins de l'exploitation						
STOCKHOLM/	AALBORG	X		X			
ARLANDA*	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA*			X			
	BERGEN	X		X			
	BODØ*	X		X	X	X	
	BORDEAUX*			X	X	X	
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X	X	X	
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	FROBISHER			X			
	GANDER*			X			
	GENÈVE	X		X			
	GÖTEBORG*	X		X	X	X	

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>SWEDEN / SUÈDE</u>							
	STOCKHOLM/ GOOSE			X			
	ARLANDA* HAMBURG	X		X			
(cont'd/ suite)	HANNOVER*	X		X	X	X	
	KEFLAVIK*			X			
	KØBENHAVN*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	MADRID			X			
	MALMÖ*	X		X	X	X	
	MARSEILLE*			X	X	X	
	MÜNCHEN	X		X			
	NEW YORK/ INTER.*			X			
	OSLO/ FORNEBU*				X	X	
	OSLO/ GARDERMOEN	X		X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORY*	X		X	X	X	
	PRESTWICK*	X		X	X	X	
	REYKJAVIK			X			
	STANDRE						
	STROMFJORD*			X			
	STOCKHOLM/ ARLANDA*	X		X	X	X	
	ZÜRICH*	X		X	X	X	
<u>SWITZERLAND / SUISSE</u>							
GENÈVE/ COINTRIN	Operational requirements identical to ZÜRICH* for routine reports, selected special reports, aerodrome forecasts and amendments.						
	Besoins de l'exploitation identiques à ceux de ZÜRICH* en ce qui concerne les observations régulières, les observations spéciales sélectionnées et les prévisions d'aérodrome et amendements.						
ZÜRICH*	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA*	X		X	X	X	
	BORDEAUX*	X		X	X	X	
	BOSTON			X			
	BRUXELLES*	X		X	X	X	

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>SWITZERLAND / SUISSE</u>							
ZÜRICH* (cont'd/ suite)	CHICAGO/ O'HARE			X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X			
	GENEVE	X		X			
	GOOSE			X			
	HALIFAX			X			
	KEFLAVIK*			X			
	LAJES			X			
	LISBOA*	X		X	X	X	
	LONDON/ HEATHROW	X		X			
	MADRID*	X		X	X	X	
	MANCHESTER	X		X			
	MARSEILLE*	X		X	X	X	
	MILANO/LINATE*X			X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	OTTAWA			X			
	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PHILADELPHIA			X			
	PRESTWICK*	X		X	X	X	
	ROMA/ CIAMPINO*	X		X	X	X	
	ROMA/LEONARDO da VINCI	X		X			
	SANTA MARIA			X			
	SEVILLA*	X		X			
	SHANNON*	X		X	X	X	
	STEPHENVILLE			X			
	SYDNEY			X			
	TORONTO			X			
	WASHINGTON			X			
	ZÜRICH*	X		X	X	X	

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTE RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED KINGDOM / ROYAUME-UNI							
BOURNEMOUTH / HURN			{ Operational requirements to be met by LONDON/HEATHROW LONDON/HEATHROW répondra aux besoins de l'exploitation				
LONDON/ HEATHROW	AMSTERDAM*	X		X			
	BALTIMORE			X			
	BARBADOS/ BRIDGETOWN			X			
	BARCELONA*	X		X			
	BOSTON			X			
	BREMEN	X		X			
	BRUXELLES*	X		X			
	BUFFALO			X			
	BOURNEMOUTH	X		X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE			X			
(1)	CHURCHILL			X			
	CLEVELAND			X			
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X			
(1)	FRESNO			X			
	FROBISHER			X			
	GANDER*			X			
(1)	GATWICK	X		X			
	GENÈVE	X		X			
	GOOSE			X			
	GÖTEBORG*	X		X			
(1)	GREAT FALLS			X			
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X			
	HELSINKI*	X		X			
	KEFLAVIK*	X	X	X			
	KINDLEY FIELD			X			
	KØBENHAVN	X		X			
	KÖLN	X		X			
	LAJES			X			
(1)	LAS VEGAS			X			
	LISBOA*	X		X			
	LONDON/ HEATHROW	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED KINGDOM / ROYAUME-UNI							
LONDON/ (1) LOS							
HEATHROW ANGELES				X			
(cont'd/ LUXEMBOURG			X	X			
suite) MADRID*			X	X			
MALMO*			X	X			
MARSEILLE*			X	X			
MILANO/LINATE*X				X			
MILANO/							
MALPENSA		X		X			
MILWAUKEE				X			
MONTEGO BAY				X			
MONTREAL				X			
MÜNCHEN		X		X			
(1) NAPLES		X	X	X			
NEW YORK/							
INTER.*				X			
(1) NEWARK				X			
NICE		X		X			
OSLO/							
GARDERMOEN		X		X			
OTTAWA				X			
(1) PALMDALE				X			
PARIS/							
LE BOURGET		X		X			
PARIS/ORLY*		X		X			
PHILADELPHIA				X			
PITTSBURGH				X			
(1) PORTLAND				X			
PRESTWICK*		X		X			
REIMS		X		X			
REYJAVIK				X			
(1) RENO				X			
ROMA/							
CIAMPINO*		X		X			
ROMA/LEONARDO							
da VINCI		X		X			
(1) SACRAMENTO				X			
ST. LOUIS				X			
(1) SAN FRANCISCO				X			
SANTA MARIA				X			
SAUDARKROKUR				X			
(1) SEATTLE				X			
SEVILLA		X		X			
SHANNON*		X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED KINGDOM / ROYAUME-UNI							
LONDON /	SØNDRE						
HEATHROW	STRØMFJORD*			X			
(cont'd/(1)	SPOKANE			X			
suite)	STAVANGER*	X		X			
	STEPHENVILLE			X			
	STOCKHOLM/						
	ARLANDA*	X		X			
(1)	STUTTGART	X		X			
	TORONTO			X			
	TOURS			X			
(1)	TURIN	X		X			
	VANCOUVER			X			
	WASHINGTON			X			
	WINNIPEG			X			
	ZÜRICH*	X		X			
MANCHESTER	AMSTERDAM*	X		X			
	BRUXELLES*	X		X			
	BOSTON			X			
	GOOSE			X			
	GANDER*			X			
	KEFLAVIK*	X		X			
	MARSEILLE*	X		X			
	MONTREAL			X			
	NEW YORK/						
	INTER.*			X			
	PARIS/						
	LE BOURGET	X		X			
	PARIS/ORLY*	X		X			
	PHILADELPHIA			X			
	PITTSBURG			X			
	REIMS	X		X			
	SHANNON*	X		X			
	TORONTO			X			
	TOURS	X		X			
	WASHINGTON			X			
PRESTWICK*	AMSTERDAM*	X		X	X	X	
	BALTIMORE			X			
	BARCELONA*	X		X	X	X	
	BOSTON			X			
	BOURNEMOUTH	X		X			
	BREMEN	X		X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED KINGDOM / ROYAUME-UNI							
PRESTWICK*	BRUXELLES*	X		X	X	X	
(cont'd/ suite)	BUFFALO			X			
	CHICAGO/ O'HARE			X			
	CLEVELAND			X			
	DETROIT			X			
	DUBLIN	X		X			
	DÜSSELDORF	X		X			
	FRANKFURT*	X		X	X	X	
	GANDER*			X	X	X	
	GATWICK	X		X			
	GENEVE			X			
	GOOSE			X			
	GÖTEBURG*	X		X	X	X	
	HALIFAX			X			
	HAMBURG	X		X			
	HANNOVER*	X		X	X	X	
	HELSINKI	X		X			
	KEFLAVIK*	X	X	X	X	X	
	KINDLEY						
	FIELD*			X			
	KØBENHAVN	X		X			
	KÖLN	X		X			
	LAJES			X			
	LONDON/ HEATHROW	X		X			
	LUXEMBOURG	X		X			
	MALMÖ*	X		X	X	X	
	MARSEILLE*	X		X	X	X	
	MILANO/LINATE*	X		X	X	X	
	MILANO/ MALPENSA	X		X			
	MILWAUKEE			X			
	MONTREAL			X			
	MÜNCHEN	X		X			
	NAPLES			X			
	NEW YORK/ INTER.*			X			
	NEWARK			X			
	NICE	X		X			
	OSLO/ GARDERMOEN			X			
	OSLO/ FORNEBU*				X	X	
	OTTAWA			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED KINGDOM / ROYAUME-UNI							
PRESTWICK* (cont'd/ suite)	PARIS/ LE BOURGET	X		X			
	PARIS/ORLY*	X		X	X	X	
	PHILADELPHIA			X			
	PITTSBURG			X			
	REYKJAVIK	X	X	X			
	REIMS	X		X			
	ROMA/LEONARDO da VINCI			X			
	SANTA MARIA			X			
	SHANNON*	X		X	X	X	
	SAUDARKROKUR			X			
	STAVANGER*	X		X			
	STEPHENVILLE			X			
	STOCKHOLM/ ARLANDA*	X		X	X	X	
(1)	STUTTGART	X		X			
	TORONTO			X			
	TOURS	X		X			
(1)	TURIN	X		X			
	VANCOUVER			X			
	WASHINGTON			X			
	WINNIPEG			X			
UXBRIDGE* { Operational requirements identical to PRESTWICK* Besoins de l'exploitation identiques à ceux de PRESTWICK*							
UNITED STATES OF AMERICA / ETATS-UNIS							
ANCHORAGE*	AALBORG			X			
	AMSTERDAM*			X			
	BERGEN			X			
	BRUXELLES*			X			
	BODø*			X			
	BREMEN			X			
	FAIRBANKS	X	X	X			
	FROBISHER			X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KØBENHAVN*			X			
	MARSEILLE*			X			
	OSLO/ GARDERMOEN			X			

[illegible]

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u>							
BOSTON (cont'd/ suite)	KEFLAVIK*			X			
	KINDLEY						
	FILED			X			
	KÖLN			X			
	LAJES			X			
	LISBOA*			X			
	LONDON/ HEATHROW			X			
	MADRID*			X			
	MARSEILLE*			X			
	MALMÖ			X			
	MILANO/ MALPENSA			X			
	MILWAUKEE	X	X	X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			
	NEW YORK/ INTER.*	X	X	X			
(1)	NAPLES			X			
	NEWARK	X	X	X			
	NICE			X			
	OTTAWA	X	X	X			
	OSLO/ GARDERMOEN			X			
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
	PHILADELPHIA	X	X	X			
	PITTSBURTH	X	X	X			
	PRESTWICK*			X			
	REIMS			X			
	ROMA/LEONARDO da VINCI			X			
	SANTA MARIA			X			
	SAN JUAN			X			
	SEVILLA			X			
	SHANNON*			X			
	STEPHENVILLE	X	X	X			
	STAVANGER*			X			
	STOCKHOLM/ ARLANDA*			X			
(1)	STUTTGART			X			
(1)	TURIN			X			
	WASHINGTON	X	X	X			

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES OF AMERICA / ETATS-UNIS							
BUFFALO/GREATER BURLINGTON/BURLINGTON			Operational requirements to be met by NEW YORK/INTER.* NEW YORK/INTER.* répondra aux besoins de l'exploitation				
CHICAGO/O'HARE							
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BRUXELLES*			X			
	BOSTON	X	X	X			
	BREMEN			X			
	BOURNEMOUTH			X			
	BUFFALO	X	X	X			
	CLEVELAND	X	X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
	GANDER*	X	X	X			
	GOOSE	X	X	X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KØBENHAVN*			X			
	KÖLN			X			
	LAJES			X			
	LONDON/ HEATHROW			X			
	MARSEILLE*			X			
	MILWAUKEE	X	X	X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			
	NEWARK	X	X	X			
	NEW YORK/ INTER.*	X	X	X	X	X	
	NICE			X			
	OTTAWA	X	X	X			
	PARIS/ LE BOURGET			X			
	PARIS/ORY*			X			
	PHILADELPHIA	X	X	X			
	PITTSBURTH	X	X	X			
	PRESTWICK*			X			
	REIMS			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES. OF AMERICA / ETATS-UNIS							
CHICAGO/O'HARE (cont'd/suite)							
	ST. LOUIS	X	X	X			
	SANTA MARIA			X			
	SHANNON*			X			
	STEPHENVILLE	X	X	X			
(1)	STUTTGART			X			
	TOURS			X			
	WASHINGTON	X	X	X			
CLEVELAND / { Operational requirements to be met by CHICAGO/O'HARE HOPKINS { CHICAGO/O'HARE répondra aux besoins de l'exploitation							
DETROIT/ METROPOLITAN							
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BRUXELLES*			X			
	BOSTON	X	X	X			
	BREMEN			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
	CHICAGO/ O'HARE	X	X	X			
	CLEVELAND	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
	GANDER*	X	X	X			
	GOOSE	X	X	X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK			X			
	KINDLEY						
	FIELD			X			
	KØBENHAVN			X			
	KÖLN			X			
	LAJES			X			
	LONDON/ HEATHROW			X			
	MARSEILLE*			X			
	MILWAUKEE	X	X	X			
	MONTREAL	X	X	X			

[illegible]

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u> LOS ANGELES (cont'd/suite)							
	BOSTON			X			
	BREMEN			X			
	BOURNEMOUTH			X			
	BUFFALO			X			
(1)	CALGARY	X	X	X			
	CHICAGO/ O'HARE			X			
(1)	CHURCHILL			X			
	CLEVELAND			X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
(1)	FRESNO	X	X	X			
	PROBISHER			X			
	GANDER*			X			
	GOOSE			X			
(1)	GATWICK			X			
(1)	GREAT FALLS	X	X	X			
	GENEVA			X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KØBENHAVN			X			
	KOLN			X			
	LONDON/ HEATHROW			X			
(1)	LAS VEGAS	X	X	X			
	MARSEILLE*			X			
	MILWAUKEE	X	X	X			
	MÜNCHEN			X			
	NICE			X			
	NEW YORK/ INTER.*	X	X	X			
	OTTAWA	X	X	X			
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
(1)	PALMDALE	X	X	X			
	PRESTWICK*			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u>							
LOS ANGELES (cont'd/suite)							
	REIMS			X			
(1)	SACRAMENTO	X	X	X			
(1)	SAN FRANCISCO	X	X	X			
(1)	SEATTLE	X	X	X			
	STEPHENVILLE			X			
	SHANNON*			X			
	SQNDRE						
	STRUMFJORD*			X			
(1)	SPOKANE	X	X	X			
	STOCKHOLM/ ARLANDA*			X			
(1)	STUTTGART			X			
	TOURS			X			
	VANCOUVER	X	X	X			
	WINNIPEG	X	X	X			
	WASHINGTON	X	X	X			
MIAMI/INTER*							
	BALTIMORE	X	X	X			
	BOSTON	X	X	X			
	HABANA*	X	X	X	X	X	
	MARSEILLE*			X			
	KINDLEY						
	FIELD	X	X	X			
	MIAMI/INTER.*	X	X	X			
	NASSAU	X	X	X			
	NEW YORK/ INTER.*	X	X	X	X	X	
	PARIS/ LE BOURGET			X			
	PARIS/ORLY*			X			
	PHILADELPHIA	X	X	X			
	REIMS			X			
	TOURS			X			
MILWAUKEE/ GENERAL { Operational requirements to be met by CHICAGO/O'HARE CHICAGO/O'HARE répondra aux besoins de l'exploitation							
NEWARK/ NEWARK { Operational requirements to be met by NEW YORK/INTER.* NEW YORK/INTER.* répondra aux besoins de l'exploitation							

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES OF AMERICA / ETATS-UNIS (cont'd/suite) NEW YORK/INTER.*							
	AALBORG			X			
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
(1)	BARBADOS (BRIDGETOWN)	X	(EXCEPTION)X	X			
	BARCELONA*			X			
(1)	BOSTON*	X	X	X			
	BRASILIA			X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CIUDAD TRUJILLO*	X	(EXCEPTION)X	X			
	CHICAGO/ O'HARE	X	X	X			
	CLEVELAND	X	X	X			
(1)	CURACAO*	X	(EXCEPTION)X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT			X			
	FROBISHER	X	(EXCEPTION)X	X			
(1)	GANDER*	X	X	X	X	X	
	GATWICK			X			
	GENÈVE			X			
	GOOSE	X	X	X			
	GÖTEBORG*			X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	HELSINKI*			X			
(1)	KEFLAVIK*	X	(EXCEPTION)X	X	X	X	
	KINGSTON*	X	(EXCEPTION)X	X			
	KINDLEY FIELD*	X	X	X			
	KØBENHAVN*			X			
	KOLN			X			
	LAJES			X			
	LISBOA*			X	X	X	
	LONDON/ HEATHROW			X			
(1)	MAIQUETIA	X	(EXCEPTION)X	X			

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u> NEW YORK/INTER* (cont'd/suite)							
	MADRID*				X		
	MARSEILLE*				X		
	MALMO*				X		
	MIAMI*	X	(EXCEPTION)X	(EXCEPTION)X	X	X	
	MILANO/ MALPENSA				X		
	MILWAUKEE	X	X		X		
	MONTREAL	X	X		X		
	MUNCHEN				X		
(1)	NAPLES				X		
	NASSAU*	X	X		X	X	
	NEW YORK/ INTER*	X	X		X	X	
	NEWARK	X	X		X		
	NICE				X		
	OTTAWA	X	X		X		
	OSLO/ GARDERMOEN				X		
	PARIS/ LE BOURGET				X		
	PARIS/ORLY*				X		
	PHILADELPHIA	X	X		X		
	PISA				X		
	PITTSBURGH	X	X		X		
	POINTE- A-PITRE*				X		
	PORT OF SPAIN*				X	X	
	PRESTWICK*				X		
	REIMS				X		
	REYKJAVIK				X		
	ROMA/LEONARDO da VINCI				X		
(1)	RIO DE JANEIRO				X		
	SAN JUAN/ INTER*	X	(EXCEPTION)X		X		
	SANTA MARIA				X		
	SAUDARKROKUR				X		
	SEVILLA*				X		
	SHANNON*				X		

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES OF AMERICA / ETATS-UNIS							
NEW YORK/INTER* (cont'd/suite)							
SONDRE							
STROMFJORD* X			X	X			
STEPHENVILLE X			X	X			
STAVANGER				X			
STOCKHOLM/ ARLANDA*				X			
(1) STUTTGART				X			
TOURS				X			
(1) TURIN				X			
(1) VALENCIA				X			
WASHINGTON X			X	X			
WINNIPEG				X			
ZURICH*				X			
NEW YORK/ { Operational requirements to be met by NEW YORK/INTER* LA GUARDIA { NEW YORK/INTER* répondra aux besoins de l'exploitation							
PHILADELPHIA							
AMSTERDAM*				X			
BALTIMORE X			X	X			
BRUXELLES*				X			
BOSTON X			X	X			
BUFFALO X			X	X			
BREMEN				X			
BOURNEMOUTH				X			
CHICAGO/ O'HARE X			X	X			
CLEVELAND X			X	X			
DETROIT X			X	X			
DUBLIN				X			
DUSSELDORF				X			
FRANKFURT*				X			
GANDER* X			X	X			
GOOSE X			X	X			
HALIFAX X			X	X			
HAMBURG				X			
HANNOVER				X			
KEFLAVIK				X			
KINDY FIELD				X			
LAJES				X			
LISBOA				X			
LONDON				X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u>							
SAN FRANCISCO (+) (cont'd/suite)							
	BOSTON			X			
	BREMEN			X			
	BRUXELLES*			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CALGARY			X			
	CHICAGO/ O'HARE			X			
(1)	CHURCHILL			X			
	CLEVELAND			X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT			X			
(1)	FRESNO	X	X	X			
	FROBISHER			X			
	GANDER			X			
	GOOSE			X			
(1)	GATWICK			X			
	GREAT FALLS	X	X	X			
	GENÈVE			X			
	HALIFAX			X			
	HAMBURG			X			
	HANNOVER*			X			
	KØBENHAVN			X			
	KÖLN			X			
	LOS ANGELES	X	X	X			
	LONDON/ HEATHROW			X			
(1)	LAS VEGAS	X	X	X			
	MARSEILLE*			X			
	MILWAUKEE	X	X	X			
	MÜNICH			X			
	NICE			X			
	NEW YORK/ INTER.*	X	X	X			
	OTTAWA	X	X				
	PARIS/ LE BOURGET			X			
	PARIS/ORYLY*			X			
	PALMDALE	X	X	X			
	PRESTWICK*			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4°	5	6	7	8
UNITED STATES OF AMERICA / ETATS-UNIS							
SAN FRANCISCO (+) (cont'd/suite)							
	REIMS			X			
(1)	RENO	X	X	X			
(1)	SACRAMENTO	X	X	X			
	SEATTLE	X	X	X			
	STEPHENVILLE			X			
	SHANNON*			X			
	SQNDRE						
	STROMFJORD*			X			
	SPOKANE	X	X	X			
	STOCKHOLM/ ARLANDA*			X			
(1)	STUTTGART			X			
	VANCOUVER	X	X	X			
	WASHINGTON	X	X	X			
	WINNIPEG	X	X	X			
SEATTLE (+)							
	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BOSTON	X	X	X			
	BREMEN			X			
	BRUXELLES			X			
	BUFFALO	X	X	X			
	BOURNEMOUTH			X			
(1)	CALGARY	X	X	X			
	CHICAGO/ O'HARE	X	X	X			
(1)	CHURCHILL			X			
	CLEVELAND	X	X	X			
	DETROIT			X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			

(+) Note: This aerodrome is listed in this Table so as to indicate clearly the source (or availability) of meteorological information required for flights to and from the NAT Region. The primary listing of this aerodrome is with respect to another ICAO Region; its inclusion herein does not imply any commitment beyond that stated in the Table.

(+) Note: Cet aéroport figure dans le tableau pour indiquer clairement la source (ou la disponibilité) des renseignements météorologiques nécessaires pour les vols en provenance de la Région NAT et à destination de cette Région. Cet aéroport dessert principalement une autre Région de l'OACI. Son inclusion dans ce tableau n'implique aucun engagement autre que ceux qui sont indiqués ici.

AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES OF AMERICA / ETATS-UNIS							
SEATTLE (+) (cont'd/suite)							
(1) FRESNO	X		X	X			
PROBISHER				X			
GANDER*				X			
GOOSE				X			
(1) GATWICK				X			
(1) GREAT FALLS	X		X	X			
GENEVE				X			
HALIFAX				X			
HAMBURG				X			
HANNOVER				X			
KØBENHAVN*				X			
KOLN				X			
(1) LAS VEGAS	X		X	X			
(1) LOS ANGELES	X		X	X			
LONDON/ HEATHROW				X			
MARSEILLE*				X			
MILWAUKEE	X		X	X			
MÜNCHEN				X			
NICE				X			
NEW YORK/ INTER.*	X		X	X			
OTTAWA	X						
PARIS/ LE BOURGET				X			
PARIS/ORLY*				X			
(1) PALMDALE	X		X	X			
PRESTWICK*				X			
REIMS				X			
(1) RENO	X		X	X			
REYKJAVIK				X			
(1) SACRAMENTO	X		X	X			
(1) SAN FRANCISCO	X		X	X			
STEPHENVILLE				X			
SAN DIEGO	X		X	X			
SHANNON*				X			
SØNDRE STRØMFJORD*				X			
(1) SPOKANE	X		X	X			
STOCKHOLM/ ARLANDA*				X			
(1) STUTTGART				X			
VANCOUVER	X		X	X			
WASHINGTON	X		X	X			
WINNIPEG	X		X	X			

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AVAIL- ABLE AT	FROM OR RELATED TO	H or h /	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h /	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
<u>UNITED STATES</u> <u>OF AMERICA / ETATS-UNIS</u>							
ST. LOUIS	{ Operational requirements to be met by CHICAGO/ O'HARE CHICAGO/O'HARE répondra aux besoins de l'exploitation						
WASHINGTON	AMSTERDAM*			X			
	BALTIMORE	X	X	X			
	BRUXELLES*			X			
	BOSTON	X	X	X			
	BUFFALO	X	X	X			
	BREMEN			X			
	BOURNEMOUTH			X			
(1)	CIUDAD						
	TRUJILLO			X			
	CHICAGO/ O'HARE	X	X	X			
	CLEVELAND	X	X	X			
	DETROIT	X	X	X			
	DUBLIN			X			
	DÜSSELDORF			X			
	FRANKFURT*			X			
	GANDER*	X	X	X			
	GOOSE	X	X	X			
	HALIFAX	X	X	X			
	HAMBURG			X			
	HANNOVER*			X			
	KEFLAVIK*			X			
	KINDLEY						
	FIELD			X			
	LAJES			X			
	LONDON/ HEATHROW			X			
	MILWAUKEE	X	X	X			
	MARSEILLE*			X			
	MONTREAL	X	X	X			
	MÜNCHEN			X			
	NEWARK	X	X	X			
	NEW YORK/ INTER.*	X	X	X			
	NICE			X			
	OTTAWA	X	X	X			
	PARIS/ LE BOURGET			X			

AVAIL- ABLE AT	FROM OR RELATED TO	H or h f	SELECTED SPECIAL REPORTS	AERODROME FORECASTS AND AMEND- MENTS	SIGMET INFOR- MATION	SPECIAL AIR- REPORTS	REMARKS
DOIVENT ETRE DISPO- NIBLES A	PROVENANT DE OU CONCERNANT	H ou h f	MESSAGES D'OBSER- VATIONS SPECIALES SELECTION- NEES	PREVISIONS D'AERODROME ET AMENDE- MENTS	REN- SEIGNE- MENTS SIGMET	COMPTES RENDUS SPECIAUX EN VOL	REMARQUES
1	2	3	4	5	6	7	8
UNITED STATES <u>OF AMERICA / ETATS-UNIS</u> WASHINGTON (cont'd/suite) PARIS/ORLY* PHILADELPHIA X PITTSBURGH X PRESTWICK* REIMS SANTA MARIA X SAN JUAN X SHANNON* STEPHENVILLE X (1) STUTTGART TOURS				X X X X X X X X X X X			

~~Report~~ NAT IV - RAN Meeting
~~Rapport~~ Réunion régionale NAT IV

~~DISSEMINATION OF WARNINGS OF SEVERE STORMS OF
TROPICAL OR SUB-TROPICAL ORIGIN~~

APPENDICE MET B - DIFFUSION DES AVERTISSEMENTS RELATIFS AUX
PORTES TEMPETES D'ORIGINE TROPICALE OU SUBTROPICALE

STORM WARNING CENTRE CENTRE D'AVERTISSEMENT	AREA SERVED REGION DESSERVIE	WARNINGS DISSEMINATED TO AVERTISSEMENTS COMMUNIQUEES A
1	2	3
BOSTON	Atlantic: Coast and coastal waters north of Block Island (41°10'N). Atlantique: Zone cotière au nord de Block Island (41°10'N)	Gander, Halifax, Kindley Field, London/ London, Madrid, Montreal, New York/ Inter., Paris/Orly, Prestwick, Santa Maria, Shannon, Toronto.
MIAMI	Atlantic south of 35°N and areas in Gulf of Mexico and Caribbean Sea not assigned to San Juan and New Orleans. Atlantique au sud de 35°N et régions du Golfe du Mexique et de la Mer des Caraïbes qui n'ont pas été attribuées à San Juan ou à New Orleans.	Gander, Halifax, Kindley Field, London/ London, Madrid, Montreal, Prestwick, Santa Maria, Shannon, Toronto.
SAN JUAN (PUERTO RICO/ PORTO RICO)	Caribbean Sea and Islands East of 75°W and south of 20°N. Mer des Caraïbes et îles à l'est de 75°W et au sud de 20°N	Boston, Gander, Halifax, Kindley Field, Madrid, Miami, Montreal, New York/ Inter., Santa Maria, Toronto, Washington.
WASHINGTON	Atlantic: North of 35°N and west of 35°W, not to include area assigned to Boston. Atlantique: au nord de 35°N et à l'ouest 35°W, non compris la zone attribuée à Boston.	Gander, Halifax, Kindley Field, London/ London, Madrid, Montreal, New York/ Inter., Paris/Orly, Prestwick, Santa Maria, Shannon, Toronto.

EXPLANATORY NOTES OF APPENDIX MET B
NOTES EXPLICATIVES SUR L'APPENDICE MET B

- Notes:
- 1) The dissemination of storm warnings should be made to a selection of the meteorological offices listed as addressees in accordance with the air routes likely to be affected by the storms to which the warnings refer.
 - 2) Storm warning messages disseminated as in 1) should be originated either by the storm warning centre or by its associated aeronautical meteorological office.
 - 3) A meteorological office designated as an addressee shall distribute storm warnings to the meteorological offices in its associated FIR when routes served by these offices are likely to be affected.

- Notes:
- 1) Les avertissements de tempête devraient être diffusés à une sélection de centres météorologiques, la liste des centres destinataires devant être établie en fonction des routes aériennes pouvant être intéressées par la tempête qui fait l'objet de l'avertissement.
 - 2) Les messages d'avertissements de tempête diffusés conformément à l'alinéa 1) ci-dessus devraient provenir soit du centre d'avertissement, soit du centre météorologique aéronautique qui lui est associé.
 - 3) Un centre météorologique désigné comme centre destinataire diffusera les avertissements aux centres météorologiques de sa FIR lorsque les routes desservies par ces centres risquent d'être intéressées par la tempête.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1
ON THE ACTION TAKEN ON AGENDA ITEM 11

11.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 11 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION
TAKEN ON AGENDA ITEM 11

11.3.1 The General Committee reviewed the material presented to it under Agenda Item 11 and made no comment.

Agenda Item 12: Exchange of basic and operational meteorological data between ground stations

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 12:

The plan of aircraft operations, together with the statement of regionally agreed operational requirements, established by Sub-Committee 1, as reported in the Report on Agenda Item 1 and in paragraph 2.1.1.4 of the Report on Agenda Item 2 governed the consideration of Agenda Item 12.

SECTION 1: ACTION BY THE MET COMMITTEE ON AGENDA ITEM 12

Exchange of basic meteorological information

General

12.1.1 The MET Committee examined the existing arrangements for the collection and dissemination of basic meteorological data, including exchange of analysis and forecasts, whatever their form, in the light of the WMO plans for Regions IV and VI and adjacent parts of Regions I and III. The purpose of the Committee was to recommend means to overcome existing deficiencies.

12.1.2 As far as WMO broadcasts (territorial, sub-continental and continental) are concerned, it was agreed that the contents of these broadcasts are in general satisfactory and no special action was necessary. It was noted, however, that difficulties of reception of some of these broadcasts continued to exist due to propagation conditions.

Exchanges with Iceland

12.1.3 The MET Committee examined MET Recommendation 18 of the Third NAT-RAN Meeting, concerning the need for improvements in arrangements for the reception of North American and European basic data in Iceland and of Icelandic data in North America and Europe.

12.1.3.1 The following points were noted:

- (a) North American data are being received in Iceland by intercepting the WSY broadcasts. From 1959 to 1961 the reliability of reception of this broadcast was 67%. As a consequence of diurnal variation in radio propagation conditions, reception of this broadcast between about 0400 and 0800 GMT was approximately 35%, which seriously affects receipt of the 0000 GMT upper air data and the 0600 GMT surface data. By using several European back-up sources the maximum reliability of reception obtained was 85%.
- (b) European data are being reliably received on the average more than 95% of the time by intercepting continental and/or subcontinental broadcasts. During a five-month test period, however, the reliability of reception for the poorest month was only 75%, due largely to poor radio propagation conditions.
- (c) In Europe, the reception of data from Iceland was found to be unsatisfactory during periods of poor radio propagation conditions, despite the use of the AFTN as a back-up.

12.1.3.2 The MET Committee thus concluded that the present situation as regards the exchanges of meteorological information to and from Iceland is not altogether satisfactory. It agreed that use of the planned trans-Atlantic cable teletypewriter channel (Channel No. 2) could alleviate the situation. (See the report of the Committee on this subject, beginning with paragraph 12.1.9).

Exchanges with Greenland

12.1.4 The MET Committee noted that existing WMO broadcasts could not be regularly intercepted at Thule and Søndre Strømfjord and, also, that, because of lack of adequate internal communication facilities within Greenland, the SCOTICE ICECAN Cable could not be used for the supply of the necessary meteorological data.

12.1.4.1 However, the Committee was aware that at present the requirements of the Greenland aeronautical meteorological services were provided for by special RTT circuitry - operated for other purposes - serving Søndre Strømfjord and Thule. The Committee expressed the wish that present arrangements should continue.

12.1.4.2 The MET Committee, furthermore, noted that, in order to provide for the inclusion in the exchange over the SCOTICE ICECAN Cable of the meteorological data originating in Greenland, a suitable communication facility would have to be established

12.1.4.2 (Contd)

between the collecting centre in Greenland - Angmagssalik - and Prins Christians Sund. This matter has been considered by the COM Committee during its work under Agenda Item 6.

New York - Santa Maria - Paris RTT Circuit

12.1.5 The MET Committee considered it necessary to examine the procedure governing the priority of transmission of meteorological messages following circuit outages. It noted that, although the RTT circuit was located entirely in the NAT Region, different transmission priority procedures were applied at the two terminals. As it was believed that uniform procedures would be preferable on both sides of the Atlantic, the MET Committee agreed that guidance should be given to States concerned with the relays of weather bulletins on the New York - Santa Maria - Paris RTT circuit. The MET Committee thus made the following recommendation:

RECOMMENDATION 12/1 - OUTAGES ON THE NEW YORK - SANTA MARIA - PARIS RTT CIRCUIT

That the following guidance be forwarded to appropriate States concerned with the transmission of weather bulletins on the New York - Santa Maria - Paris RTT circuit:

- a) should a backlog of data accrue due to circuit outage or other circumstances, certain bulletins be given priority when normal operations are resumed. These bulletins should be:
 1. TAFORs
 2. MESRANs
- b) as soon as the above backlog priority bulletins are cleared, transmissions be resumed in accordance with normal schedules;
- c) non-priority backlog bulletins be transmitted as time becomes available between scheduled transmissions;
- d) the order of transmission of these non-priority bulletins should be as follows as far as practicable:
 1. MESRANs
 2. OSV reports (surface and upper air)
 3. Analyses and forecast charts
 4. PILOTs
 5. TEMPs
 6. RECCOs
 7. AIREPs
 8. Other SHIPS
 9. SYNOPs at main standard times
 10. Other information;

RECOMMENDATION 12/1 (Contd)

- e) when a priority bulletin, mentioned in a), is superseded by more recent data, the superseded bulletin become a non-priority bulletin and should be transmitted accordingly except bulletins of TAFORS which should be cancelled;
- f) when a circuit outage of 30 minutes or more occurs, the AFTN be used whenever possible to transmit the accrued data.

12.1.5.1 The MET Committee considered MET Recommendation 17 of the Third NAT RAN Meeting which called for checks on the meteorological traffic carried between a number of key points on the New York - Santa Maria - Paris circuit. The Committee agreed that the arrangements called for by Recommendation 17 should continue. This Recommendation is re-stated in the report on Agenda Item 23.

Point-to-point exchanges between North America and Europe - Surface and upper air data

12.1.6 With regard to the transmission of basic data from Europe to North America, the MET Committee recognized that the contents of the meteorological information received was satisfactory.

12.1.6.1 As regards the transmission of basic data from North America to Europe, the MET Committee noted Res. 14 (III-RAVI) concerning additional information to be included in the transmission of data from North America to Europe and that action by WMO was under way. It was agreed that speedy implementation of paragraphs 1 and 2 of the operational part of Resolution 14 was of great importance. The Committee noted that the States concerned envisaged interim measures to meet, in so far as practicable, the requirements in Europe for reception of maximum wind and tropopause level data from North America, and for earlier reception of upper air data from Canada.

RECOMMENDATION 12/2 - IMPLEMENTATION OF RESOLUTION 14 (III-RAVI)
ADDITIONAL NORTH AMERICAN DATA REQUIRED IN
EUROPE

That ICAO inform WMO that speedy implementation of the exchange of data indicated in paragraphs 1 and 2 of the operative part of Resolution 14 (III-RAVI), which refers to the reception of additional North American data required in Europe, is of great importance for air operations in the NAT Region.

12.1.6.2 During a review of the programme for the exchange of basic meteorological information between North America and Europe, the MET Committee considered the aeronautical requirement for continuing the exchange of SYNOP reports for intermediate standard times. It was agreed that it would be premature to present a final view on the matter. The Meeting noted, however, that a reduction in the number of SYNOP reports exchanged across the Atlantic and relating to intermediate standard times would be acceptable.

Ship reports

12.1.7 The Committee also considered the exchanges of ship reports and noted that the distribution of these reports was very irregular. This irregularity was believed to be caused not only by the irregularity in the distribution of ships in respect of time and area but also by the criteria employed by some stations re-broadcasting ship reports. It was felt that these criteria should be improved so as to provide for a more balanced geographical distribution of the reports transmitted. As the Committee was informed that WMO was presently studying this subject it was agreed not to make a specific recommendation. The Committee noted that ship reports from the Caribbean area were received in European States located in the NAT Region with considerable delay. It appeared that, although adequate circuitry existed between Fort-de-France, San Juan and Washington, there was a shortcoming in relaying the reports to the United States. However, the MET Committee noted with appreciation the willingness of the United States to investigate this matter so as to overcome this deficiency and decided that no specific recommendation was necessary.

12.1.7.1 The Committee noted that reports of surface and upper air observations from ocean weather stations A, B, C, D and E were, at times, subject to considerable delay as regards the reception of those reports in Europe.

RECOMMENDATION 12/3 - DELAY OF RECEPTION OF REPORTS FROM OCEAN STATION VESSELS A, B, C, D and E

That ICAO and WMO draw the attention of States concerned to the serious delay which occurs at times in the reception in Europe of reports of surface and upper air observations from NAT ocean weather stations A, B, C, D and E and request that States take appropriate action towards improving matters.

Meteorological reconnaissance flights

12.1.8 The MET Committee recognized that the meteorological information obtained by meteorological reconnaissance flights carried out in the Region is extremely valuable to international aviation, but noted that the data obtained by means of these flights were not being disseminated in the Region on a regular basis. It therefore made the following recommendation:

RECOMMENDATION 12/4 - METEOROLOGICAL RECONNAISSANCE FLIGHTS

That ICAO inform WMO that the complete meteorological data obtained by meteorological reconnaissance flights, particularly those related to the 500 mb surface and above, be disseminated throughout the Region.

Exchange of operational and basic meteorological data via Channel 2 of the new trans-Atlantic cable

12.1.9 The MET Committee was made aware by the COM Committee that one teletypewriter channel (Channel No. 2) of the new trans-Atlantic cable expected to be in operation in 1963, was likely to be made available for meteorological traffic. It was understood that the circuit would accommodate all the operational meteorological traffic required to be exchanged between North America, Greenland, Iceland and Europe. Some space would be available on the circuit for other meteorological traffic. Therefore, it was agreed that the problems related to the exchange of operational meteorological data would be considered together with the problem concerning the use of the trans-Atlantic cable. Noting Res. 13 (EC XIII) of WMO, the Committee considered that basic meteorological information could be exchanged in addition to the operational meteorological traffic, to the extent that the occupancy of the channel permitted.

12.1.10 In the absence of definite information about the total capacity of the channel and the facilities which would be available to re-distribute and assemble traffic at the ends of the channel the MET Committee limited its treatment of the meteorological exchange on Channel No. 2 of the SCOTICE ICECAN Cable system to providing the COM Committee with an estimate of the volume of operational meteorological traffic and of the basic meteorological traffic in order of priority which should be passed on Channel No. 2 of the cable. This information is contained in the Appendix to this Agenda Item.

12.1.11 The estimates were based on the following principles:

- (a) that the primary use of Channel No. 2 of the cable is for the exchange of meteorological operational traffic;
- (b) that the secondary use of Channel No. 2 is, as far as occupancy permits, for the exchange of basic meteorological data.

12.1.12 Most categories of the meteorological traffic recommended for this exchange originate at fixed times, each category being repeated in almost all cases at regular 6-hour intervals. The volume of traffic, however, varies considerably from interval to interval. It was therefore decided to present the estimates of volume of traffic as a maximum value of loading for each category of message in a 6-hour period. The result of these estimates is

12.1.12 (Contd)

given in the Appendix. In converting numbers of groups into estimates of time taken to transmit the bulletins, the figure of 55 groups per minute, which is normally used on MET circuits was used. As the loading for 6-hour periods is expressed as a maximum for any one period, it may be assumed that the loading for a full 24 hours would be somewhat less.

12.1.13 The meteorological information for inclusion in the cable may be classified as follows:

1. Purely operational meteorological information comprising:
 - a) TAFORs
 - b) Amended TAFORs
 - c) Routine reports
 - d) SIGMET information messages
 - e) Special AIREPs
 - f) Route and area forecasts; and
2. Basic meteorological information comprising:
 - a) AIREPs
 - b) Reports from meteorological reconnaissance flights
 - c) Synoptic surface and upper air reports

Note: The estimates on this account are largely based on a possible requirement for basic meteorological data originated in Iceland and Greenland to be collected and disseminated, and to facilitate the dissemination of basic meteorological data to Iceland more reliably than at present.

- d) A selection of analyses, actual and prognostic, in coded form.

12.1.14 The MET Committee drew the attention of the COM Committee to the fact that Paris and New York are the designated centres for the inter-regional exchange of basic meteorological data for Europe and America, respectively. Therefore both centres should have an adequate access to Channel No. 2 of the cable as far as reception and transmission of basic meteorological data are concerned. Also for collection and distribution in Canada, Montreal should have access to this channel.

12.1.15 In the estimates presented in the Appendix the amount of traffic due to headings was not taken into consideration. It was also agreed that the format of the messages exchanged on Channel No. 2 should be such as to avoid reducing the channel capacity due to the size of headings and the repetition of messages.

12.1.16 Basic meteorological traffic and some operational meteorological traffic originate and are re-disseminated on meteorological circuits that do not use AFTN procedures. If it is found desirable to use AFTN procedures on the cable circuit, the problem of transfer to and from meteorological circuits must therefore be taken into account. This will increase the in-station handling time, but could increase the flexibility of use of the system.

MET traffic handling checks on the SCOTICE ICECAN cable (Channel No. 2)

12.1.17 The MET Committee also felt that traffic handling checks should be made on MET traffic exchanged via the new cable (Channel No. 2). The Committee thus made the following recommendation:

RECOMMENDATION 12/5 - MET TRAFFIC HANDLING CHECKS ON THE SCOTICE ICECAN CABLE (CHANNEL No. 2)

That traffic handling checks be made on meteorological traffic exchanged via the SCOTICE ICECAN cable (Channel No. 2) and that reports of such checks be made available to all NAT States concerned and ICAO.

Facsimile Transmissions

12.1.18 It was noted that some States in the NAT Region transmit meteorological charts by facsimile. The MET Committee considered the need for increased use of facsimile for this purpose and came to the conclusion that further studies were necessary. The outcome of such studies would be of considerable importance in the development of any area forecast system for the Region (paragraphs 13.1.8 and 13.1.9). In this connection the MET Committee noted that present radio facsimile broadcasts could not be received throughout the Region with sufficient reliability. It was further felt unlikely that by means of radio broadcasts a sufficiently reliable exchange across the Atlantic could be effected in the future and, therefore, the opinion was expressed that a facsimile channel in a cable system would greatly facilitate the implementation of a Regional area forecast system in so far as exchanges of forecast charts across the Atlantic would be concerned.

A P P E N D I X

EXCHANGE OF OPERATIONAL MET INFORMATION (PERIOD OF 6 HOURS WITH MAXIMUM TRAFFIC)

Type of information	Groups from				Groups from			
	Europe	Iceland	Greenland	North America	North America	Greenland	Iceland	Europe
TAFOR	1625	¹⁾ (75)	¹⁾ 1700 (60)	1750	1750	¹⁾ (50)	¹⁾ 1800 (75)	1875
Amended TAFOR	200	(120)	220	220	200		200 (20)	220
Routine Report	600	(120)	120 (60)	180	-	(60)	60 (120)	180
SIGMET	60	(30)	90	90	60	(30)	90	90
Special AIREP	30	(15)	45	45	30	(15)	45	45
ROFOR	300		300	300	300		300	300
ARFOR	500		500	500	500		500	500
Sub-total	3315		2975	3085	2840		2995	3210
Minutes	61		55	57	52		55	59

¹⁾ Number of Groups to be injected in Greenland and/or Iceland. If data do not add up certain other information is not required for onward transmission in Iceland and/or Greenland.

APPENDIX

EXCHANGE OF BASIC MET INFORMATION (PERIOD OF 6 HOURS WITH MAXIMUM TRAFFIC)

Type of information	Groups from				Groups from			
	Europe	Iceland	Greenland	North America	North America	Greenland	Iceland	Europe
A) AIREP	1725	(375)	2100	2100	3750	3750	(375)	4125
B) Reconnaissance flight report	500		500	500	500		500	500
Sub-total	2225		2600	2600	4250		4625	
Minutes	41		48	48	78		85	
C) SYNOP and upper air data from Greenland and Iceland	-	(280)	280	(975)	1255	-	(975)	975
Minutes			6	23			17	23
D) OSV data:								
Hourly report	200	-	-	-	-	-	-	-
3-hourly SYNOP	120	120	120	120	150	150	150	150
Upper air data	320	320	320	320	400	400	400	400
Sub-total	640		440	440	550		550	550
Minutes	12		8	8	10		10	10
E) Europe and North America 2) SYNOP and upper air data	3960	3800	3800		3720	3720	3720	
Minutes	72	70	70		68	68	68	
F) Analyses and Prognostic charts	2) From Europe to North America: 125 SYNOP. (8 groups/report) 1000 100 Ship reports 1100 2 Full TEMP 160 50 MESRAN 1700 (PILOT at 06/18) (1250)				From North America to Europe: 150 SYNOP (6 groups/report) 900 100 Ship reports 1100 80 MESRAN 2720 (PILOT at 06/18) (2000)			
	2200	2200	2200		2200	2200	2200	
Minutes	40	40	40		40	40	40	
G) Satellite information	-	-	-		480	480	480	
Minutes					9	9	9	
Summary (Minutes)								
Operational data	61	55	57		52	55	59	
Basic data A	41	48	48		78	78	85	
B	-	6	23		-	17	23	
C	12	8	8		10	10	10	
D	72	70	70		68	68	68	
E	40	40	40		40	40	40	
F	-	-	-		9	9	9	
G								
Grand total	226	227	246		257	279	294	
% of time available	63%	63%	69%		72%	77%	82%	

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1
ON THE ACTION TAKEN ON AGENDA ITEM 12

12.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 12 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION
TAKEN ON AGENDA ITEM 12

12.3.1 The General Committee reviewed the material presented to it under Agenda Item 12 and made no comment.

Agenda Item 13: Meteorological supplementary proceduresSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO
AGENDA ITEM 13:

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Subcommittee 1, as reported in the Report on Agenda Item 1 and in paragraph 2.1.1 of the Report on Agenda Item 2 governed the consideration of Agenda Item 13.

SECTION 1: ACTION BY THE MET COMMITTEE ON AGENDA ITEM 13General

13.1.1 The MET Committee reviewed the existing supplementary procedures for the Region and brought them up to date. New procedures were developed, where necessary, to cater for changed operational requirements or to comply with the recent revisions of Annex 3 and the PANS-MET. In principle the Committee considered that the supplementary procedures for the Region should be kept to a minimum and as far as possible consistent with the procedures applicable to other regions, thereby reflecting the need to make provision for inter-regional operations. The Committee also had in mind the desirability of promoting the provision of meteorological services for flight planning from as few meteorological centres as possible and the desirability of avoiding duplication of effort by different meteorological offices.

Routine observations and reports

13.1.2 The question arose about the need for routine observations to be made at all international aerodromes throughout the 24 hours. It was agreed that though a 24-hour observational service would be required at most international aerodromes, only a restricted service, in the light of current operations, may be necessary at a few aerodromes. The intent of the procedure which now applies in all regions except NAT, whereby exceptions to the 24-hour service are permissive subject to agreement between the competent authorities was agreed. It was felt, however, that the text of this procedure was somewhat ambiguous in respect of the required indication in the Regional Plan and an alternative

text was adopted. Further, it was agreed there was no need to call for an amendment to the Regional Plan in the event of a departure from the general requirement for a 24-hour service but that notification of the current position in respect of the Meteorological Tables for International Air Navigation, Doc 7155, would be sufficient.

Runway visual range observations

13.1.3 The MET Committee discussed at some length matters concerning the making of runway visual range measurements, where they should be carried out, and how they should be disseminated.

13.1.3.1 It was concluded that it would be sufficient to require that reports of runway visual range measurements be made at regular international aerodromes.

13.1.3.2 It was agreed that the frequency of dissemination of reports of runway visual range should logically follow that of dissemination of routine reports. It was felt however that dissemination as appendices to routine reports as, in other regions, need not necessarily be the best method for all parts of the NAT Region.

13.1.3.3 As regards the manner of making measurements of runway visual range, the Committee noted that ICAO was engaged, in accordance with Recommendation 22/6 of the 5th Session, MET Division/2nd Session, CAEII, in the preparation of a comprehensive report on the methods used by different States, and that the study was expected to be available to all States in the near future. It was considered that a recommendation favouring the use of any particular method would be premature.

Reports for take-off

13.1.4 The need for stating an accuracy criterion in regard to reports for take-off of atmospheric pressure at the elevation of an aerodrome was discussed, and it was agreed that this was not necessary.

Aircraft observations and reports

13.1.5 The present position as regards the making and reporting of air-reports in the Region was examined. In the course of the general discussion several Delegates gave figures and samples relating to the number of air-reports received in a day, and on the distribution of these reports in time and space.

13.1.5.1. It was noted that special air-reports were rarely made; a fact which did not, it was felt, reflect the incidence of meteorological conditions which would warrant such reports. The Committee expressed concern on this apparent deficiency since special air-reports are primarily concerned with safety and form an intrinsic part of area meteorological watch and the issue of SIGMET information. No specific recommendation however was made in view of the relatively recent action on the matter by the 5th Session, MET Division/2nd Session, CAEM.

13.1.5.2. The need for a regional procedure calling for additional air-reports to be made in cases of moderate icing and/or marked wind shear was considered. It was recalled that the 5th Session, MET Division/2nd Session, CAEM in Recommendations 7/7 and 3/1 had expressed a need for guidance on the use of such terms as "marked" in connection with the reporting of wind shear by aircraft and, by implication, on such terms as "moderate" in the reporting of icing, and it was noted that such guidance had not yet been given. Further, since a regional procedure in respect of Additional Air-Reports would add to the overall instructions to pilots-in-command on the making of air-reports, such addition, it was felt, could work against, rather than for the making of such reports. On balance, bearing in mind the provisions whereby meteorological offices can request air-reports to supplement Routine Air-Reports, it was agreed not to develop any regional procedure in this respect.

13.1.5.3. In the general discussion it was stressed that any regional procedures in respect of routine air-reports must be simple and practicable if full implementation was to be achieved. The Committee studied the distribution of routine aircraft observations throughout the Region, assuming, as a basis for the study, implementation of PANS-MET 2.3.1.2 only. It also related its study to the networks of surface observations and ground/ship based upper air observations. It was agreed that south of 40°N, routine aircraft observations based on position reporting points at intervals of 10° longitude were insufficient and that routine aircraft observations at intervals of the order of 5° longitude were desirable for the provision of adequate service for aviation. Bearing in mind, however, that such a requirement would in many cases involve routine reporting at approximately half-hourly intervals, it was the view of the majority that it would not be realistic to lay down a rigid regional procedure in this direction, but to rely on the obtaining of additional air-reports by Meteorological Offices.* Between 40°N and 60°N, because of concentration of reports during some periods of the day and in some areas, it was considered that some rationalization of the reporting pattern would be desirable if a practical procedure could be found. No exemption or designation procedures were recommended since past experience had shown them to be either unworkable or ineffective.

* See statements by the Delegations of Portugal and France at Part 13, Section 4.

However, a recommendation was made for study of a suggested procedure that appeared to offer a possible solution if it could produce an acceptable pattern of reports (Recommendation 13/1). As regards north of 60°N, the Committee considered that the best way by which the urgent need for more air-reports from this area could be met would also be by the fullest use of the provisions of Annex 3, paragraph 2.3.3 (a), in accordance with which additional air-reports could be requested by the meteorological offices concerned with operations over Polar routes..

13.1.5.4 In discussing air-reporting procedures it was noted that the 5th Session, MET Division/2nd Session, CAEm, in Recommendation 7/22, had called for studies and trial applications to promote development of simpler and preferably world-wide air-reporting procedures. The Committee felt that the studies should be pressed forward and that air-reporting on a synoptic basis should not be overlooked in making such studies. The Committee made the following recommendation:

RECOMMENDATION 13/1 - STUDIES OF AIR-REPORTING PROCEDURES

That in pursuance of Recommendation 7/22 of the 5th Session, MET Division/2nd Session, CAEm, NAT States and appropriate International Organizations should be requested to carry out studies of the feasibility and desirability of air-reporting procedures in accordance with which routine aircraft reports would be made at the standard synoptic hours at 6-hourly or 3-hourly intervals.

13.1.5.5 When developing supplementary procedures dealing with aircraft operations, some Delegates expressed a preference for a change in the lay-out of paragraph 2.3 of the SUPPS-MET. This change would have brought the lay-out of this paragraph of the SUPPS-MET more closely into alignment with the relevant paragraphs of Annex 3 and the FAMS-MET. As opinions on this matter varied considerably and as the Committee noted that an amendment proposal to paragraph 2.3.4 of the SUPPS-MET was at present being considered by all Contracting States, it agreed not to make a recommendation on this matter. In view of the amendment proposal under consideration, the Committee also refrained from specifying sub-headings for the recommended paragraph 2.3.4 of the SUPPS-MET for the NAT Region.

13.1.5.6 The IATA observer drew the attention of the MET Committee to the instructions for recording and reporting of "spot" winds. These instructions, contained on the reverse of the AIREP form, specified that a "spot" wind when reported should be given between fixes and that the location of the mid-point of the sector over which the "spot" wind was calculated should be stated. The Committee agreed that these instructions which were designed primarily for reporting

mean winds, did not reflect present practices of measuring "spot" winds and should therefore be amended at the next suitable opportunity. It was also agreed that in the instructions contained on the AIREP form there is a lack of clarity concerning the use of the indicator SPOT, when "spot" wind data are reported. The MET Committee made the following recommendation:

RECOMMENDATION 13/2 - RECORDING AND REPORTING OF "SPOT" WINDS

That instructions for recording and reporting of "spot" wind in the AIREP form of message be amended so as to reflect existing practices of measuring and reporting these winds.

13.1.5.7 The Committee noted with satisfaction that the WMO work on producing a "Guide on the Utilization of Air-Reports in Meteorological Offices" was well advanced.

En-route forecast service

13.1.6 It was agreed that the provision of en-route forecast service in accordance with PANS-MET paragraph 2.5.3.7.2 should be by agreement between the Meteorological Authorities and the operators concerned. A regional procedure to reflect this decision was not necessary in view of the wording of PANS-MET 2.5.3.7.2.

Flight information service

13.1.7 The extent to which a meteorological office serving a Flight Information Centre should be prepared within its own resources of charting and analysis to meet **in-flight requests** for winds and temperatures was discussed. It was agreed that normally there should be no need for such requests to be made, in view of the provisions of PANS-MET paragraph 2.5.3.7, and no procedure on this point was developed.

Exchange of area forecasts

13.1.8 The Committee considered the problem of providing forecasts required for the pre-flight planning of long flights over routes extending well beyond the boundary of the Region. A small number of such flights were already in operation and exchanges of forecasts for remote portions of routes have been found advantageous. With an expected increase in the number of such flights over different routes the question arose as to how to cater best for the needs of the meteorological offices at departure aerodromes. It was evident that as the number and diversity of the flights increased, exchanges of such forecasts relating specifically to each flight would become impracticable. The Committee was informed that the United States and Canada were developing a

system of area forecasts in which responsibility for the preparation of these forecasts was allocated to designated centres. The Committee, while recognizing that this system had proved valuable in North America, agreed that it would be premature to recommend at this time adoption of the system for Regional use, in view of the fact that:

- (a) the meteorological aspects and implications of developing a system of area and/or route forecasts by designated centres are under active study by WMO in consultation with ICAO;
- (b) the action proposed in Recommendation 2/2 of the present Meeting might be expected to give guidance on the operational aspects involved.

13.1.9 Recognizing, however, that an exchange of area forecasts could reduce duplication of effort, it was felt that, at least for the time being, such exchanges could be carried out by agreement between meteorological offices as provided for by paragraph 2.5.2.5.1.1 of the PANS-MET. Bi-lateral or multi-lateral agreements of this kind were believed to be a practical alternative at present to an organized regional exchange of area forecasts.

Proposed new supplementary procedures

13.1.10 The Committee proposed the supplementary procedures contained in the following recommendation:

RECOMMENDATION 13/3 - PROPOSED NEW SUPPLEMENTARY PROCEDURES - METEOROLOGY

That the following procedures replace the current Supplementary Procedures - Meteorology for the NAT Region.

		<u>Ind.</u> <u>Req.</u>
2.	<u>METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION</u>	
2.1	<u>Meteorological offices</u>	
1)	<u>Designation and service provided</u>	
	Service shall be provided by meteorological offices as indicated in the Regional Plan.	T1
2.2	<u>Aeronautical meteorological stations</u>	
2.2.1	<u>Routine observations and reports</u>	
1)	<u>Designation of stations</u>	
	Routine observations shall be made at the stations indicated in the Regional Plan.	T2
2)	<u>Frequency of observations</u>	
a)	Observations shall be made hourly, except as otherwise provided under 2.2.1 2) b).	
b)	Observations shall be made half-hourly at those stations indicated in the Regional Plan.	T2
3)	<u>Period of day</u>	
	Routine observations at an international aerodrome shall be made throughout the 24 hours each day, except, as otherwise agreed between the operators, air traffic services units and the Meteorological Authority concerned with the aerodrome.	
	Routine observations at stations not at international aerodromes shall be made during the periods of the day indicated for these stations in the Regional Plan.	T2
4)	<u>Dissemination</u>	
a)	<u>Reports of routine observations</u>	
	Dissemination of reports of routine observations shall be as indicated in the Regional Plan.	T2

2.2.3 Selected special reports

1) Criteria for dissemination

Selected special reports relating to a deterioration in weather conditions shall be disseminated immediately after the observation.

2) Dissemination

Selected special reports shall be disseminated beyond the aerodrome of origin as indicated in the Regional Plan. T2

2.2.4 Runway visual range observations

1) Designation of aerodromes

Runway visual range shall be observed and reports made available at all regular international aerodromes. Such observations shall be made whenever the visibility is equal to or less than one kilometre (1,100 yards) or a higher figure as agreed locally.

2) Dissemination of reports of runway visual range observations

Reports of runway visual range observations shall be disseminated to appropriate air traffic services units to which routine reports are disseminated. The appropriate air traffic services units are those which will make it possible for the reports to be available for aircraft in flight up to a distance corresponding to one hour's flying time from the aerodrome to which the reports refer.

2.2.5 Reports to aircraft for take-off or approach-to-land

1) Reports for take-off

Reports of humidity shall be provided as required for take-off purposes and as agreed between the Meteorological Authority and the operator concerned.

2.3.4 Distribution of air-reports among meteorological offices

A meteorological office receiving air-reports shall transmit them to the collecting centre indicated in the Regional Plan unless the meteorological office is aware that the report has already been received by a collecting centre. T1

The collecting centres shall disseminate reports received as necessary to other meteorological offices in accordance with agreement between the Meteorological Authorities concerned.

Each collecting centre shall transmit the reports it receives to the appropriate regional collecting centres.*

The collecting centres shall transmit air-reports to regional collecting centres by means of hourly consolidated bulletins.

* Regional collecting centres are designated by WMO.

1
2.4 Forecasts

2.4.1 Aerodrome forecasts and amendments

1) Arrangements for obtaining

Specified aerodrome forecasts and amendments thereto shall be obtained by meteorological offices as indicated in the Regional Plan. T2

Aerodrome forecasts shall be obtained on aeronautical fixed service channels and/or meteorological teletypewriter channels.

2) Dissemination of aerodrome forecasts

Aerodrome forecasts shall be disseminated on AFS channels and/or meteorological teletypewriter channels. AFS channels shall be used when necessary to ensure rapid distribution of aerodrome forecasts.

3) Dissemination of amendments to aerodrome forecasts

Amendments to aerodrome forecasts shall be disseminated on AFS channels and/or meteorological teletypewriter channels. AFS channels shall be used when necessary to ensure rapid distribution of amendments to aerodrome forecasts.

4) Filing of aerodrome forecasts for transmission

Aerodrome forecasts shall be filed for transmission at least 1 hour before the commencement of the period of validity.

5) Periods of validity of aerodrome forecasts disseminated by radio broadcast

The period of validity of aerodrome forecasts disseminated by VOLMET broadcast shall be 9 hours.

6) Periods of validity of aerodrome forecasts disseminated by means other than radio broadcast

The validity period of routine issues of aerodrome forecasts which are valid for more than 9 hours shall begin at one of the main synoptic hours (00, 06, 12 or 18 GMT).

7) Forecasts for take-off

For pre-flight planning for turbine-engined aircraft, forecasts of air temperature representative of the average surface air temperature over the runway to be

used, surface wind, atmospheric pressure at the elevation of the aerodrome and humidity for the expected time of departure shall be made available at least two hours before that time, as required.

2.4.2 Landing forecasts

1) Type

Landing forecasts issued shall be of the trend type.

2) Validity period

Landing forecasts shall have a validity period of two hours.

3) Dissemination

Landing forecasts shall be disseminated to flight information centres, area control centres and communications stations, as required, to make it possible for them to be available for aircraft in flight up to a distance corresponding to one hour's flying time from the aerodrome to which the landing forecasts refer.

2.5 Dissemination of information

2.5.1 Information for operators' local representatives

1) Advance operational planning

Advance operational planning service shall be provided locally by main meteorological offices, by agreement between operator(s) and the Meteorological Authorities concerned.

2.5.3 Information for pilots-in-command during flight

1) Distribution of meteorological reports, aerodrome and landing forecasts

b) Radiotelephony broadcasts

Current meteorological reports including TRENDS, when available in accordance with SUPPS-MET 2.4.2.3), and aerodrome forecasts shall be broadcast to aircraft in flight as indicated in the Regional Plan. T5

c) Observations to be included in broadcasts

Where broadcasts are made at half-hourly intervals, routine meteorological observations included in such broadcasts shall be the latest available observations.

2) Designation of meteorological watch offices and determination of area

The meteorological offices designated to serve as meteorological watch offices and the areas over which they are to maintain area meteorological watch shall be as indicated in the Regional Plan.

T1

4) Dissemination of meteorological messages issued for use in area meteorological watch

Meteorological watch offices shall disseminate SIGMET information in respect of their assigned areas to other meteorological watch offices as indicated in the Regional Plan.

T2

2.5.4 Information for air traffic services

1) Designation of meteorological offices providing service

Meteorological services for flight information centres and area control centres shall be provided by meteorological offices as indicated in the Regional Plan.

T1

2) Meteorological information available

Meteorological information available for flight information centres/area control centres shall be as indicated in the Regional Plan.

T2

3) Distribution of warnings of severe storms of tropical or sub-tropical origin

Warnings of severe storms of tropical or sub-tropical origin shall be issued and disseminated as indicated in the Regional Plan.

Appendix B

2.5.5 Information for Search and Rescue

Designated offices

Meteorological services for rescue co-ordination centres shall be provided by meteorological offices as indicated in the Regional Plan.

T1

2.5.8. Information for the application of altimeter setting procedures

- 4) The choice between actual, forecast or climatological pressure and temperature information, or suitable combination thereof, for the determination of the lowest flight level en route which will ensure adequate terrain

clearance, shall be made by the Meteorological Authorities in consultation with other competent authorities concerned.

2.6 Forms of aeronautical meteorological messages

2.6.1 Routine reports

- 1) As an alternative to the AERO form, routine reports of meteorological observations from stations not at international aerodromes may, when not intended for inclusion in VOLMET broadcasts, be coded in the SYNOP form, if desired by the Meteorological Authority responsible for their preparation.

2.6.3 Aerodrome forecasts and amendments to aerodrome forecasts

The TAF code form may be used instead of the TAFOR code form for exchanges to meet requirements for short and medium range operations.

2.7 Contents of aeronautical meteorological messages

2.7.1. Aeronautical meteorological messages in figure codes

1) Routine observations and reports

a) At international aerodromes

- i) QNH data shall be included with AERO reports as required.
- ii) The group OTTT T shall be included with AERO reports at hourly intervals for VOLMET broadcasts if required for certain stations.

2.7.2 Aeronautical meteorological messages in plain language

1) Landing forecasts (trend type)

The criteria governing the inclusion of indications regarding significant changes in visibility and cloud in accordance with PANS-MET paragraphs 2.7.2.2 c) and d) are:

<u>Visibility</u>	<u>Height of base of cloud</u>
5 Km (3 miles)	500 metres (1500 ft)

13. Application of NAT SUPPS-MET in overlap areas

13.1.11 The MET Committee agreed that it would be appropriate to specify the parts of the overlap areas with adjacent regions in which only the NAT procedures were to apply. It also agreed that this aim could best be achieved by specifying the FIRs in which only the NAT procedures should apply. The Committee made the following recommendation:

RECOMMENDATION 13/4 - APPLICATION OF NAT SUPPS-MET

That only the Regional Supplementary Procedures - Meteorology for the NAT Region should apply in the NAT FIRs.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 13

13.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 13 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 13

13.3.1 The General Committee reviewed the material presented to it under Agenda Item 13 and made no comment.

SECTION 4: STATEMENTS BY DELEGATES ON AGENDA ITEM 13

13.4.1 STATEMENT BY THE DELEGATION OF PORTUGAL

ROUTINE AIRCRAFT OBSERVATIONS SOUTH OF 40°N

The Portugese Delegation considers that the decisions adopted relating to routine meteorological aircraft observations in the part of the Region South of 40°N are not satisfactory since it was agreed during the Meeting that there is an insufficiency of information from that part of the Region but no use was made of the provisions foreseen in paragraph 2.3.1.3 of PANS-MET with a view to reducing the insufficiency.

13.4.2 STATEMENT BY THE DELEGATION OF FRANCE

The French Delegation noted with interest the statement of the Portuguese Delegation concerning a need for more numerous observations South of 40°N, and shares the views expressed in that statement.

Agenda Item 14: Organization of the airspace for the provision of air traffic services and designation of the related air traffic services units

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 14

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraphs 2.1.1.1 and 2.1.1.2 of the Report on Agenda Item 2, governed the consideration of Agenda Item 14.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 14

14.1.1 Plan for Flight Information Regions (FIRs) and Air Traffic Services units in charge

14.1.1.1 The RAC/SAR Committee examined proposals made by States for revision of the existing structure of FIRs in the North Atlantic Region, using as basic reference material the NAT Regional Plan Publication DOC 7674/2.

14.1.1.2 In determining those changes necessary to the FIR structure to best meet the needs of present and future air traffic within the Region and to ensure its integration with current ATS plans for adjacent ICAO Regions and appropriate parts of the North American continent, the Committee complied with the directive of Sub-Committee 1, expressed in paragraph 2.1.7.1.3 of its Report on Agenda Item 2, which reads:

"The aim in consolidating certain of the North Atlantic services should be to provide a safer, more efficient or more economical service. For initial application at this Meeting the technical committees should propose such changes in the NAT ATS, COM, MET or SAR plans as are technically and operationally justified, in accordance with the principles normally followed in ICAO RAN Meetings, with particular emphasis upon those changes which

will progressively serve to attain the long-term goals, including for example, 1) consolidation of areas, 2) realignment of FIR boundaries and 3) modifications of procedures."

14.1.1.3 The detailed record of the action of the RAC/SAR Committee is presented in Recommendations 14/1, 14/2 14/3 and 14/4; however, the more important modifications considered and made to the existing plan are outlined in the following paragraphs.

14.1.1.4 To obviate the unsatisfactory situation presently encountered in the northern part of the Region, resulting from the fact that the boundaries of the Thule, Nord and Tromsø Oceanic FIRs merged at the North Pole, the Committee amalgamated the existing Thule, Nord and northern portion of the Tromsø Oceanic FIRs into one new FIR with centre at Thule.

14.1.1.5 The remaining portion of the Tromsø Oceanic FIR and the northern portion of the existing Stavanger Oceanic FIR were incorporated into one new oceanic FIR with centre at Bodø to better meet the needs of the north/south flow of traffic to and from the Arctic. The southern portion of the Stavanger Oceanic FIR was incorporated in the Stavanger domestic FIR to obviate the need for east/west NAT traffic to traverse both. In effecting these changes which resulted in the elimination of the Stavanger Oceanic FIR, the Committee noted that consequential adjustments to the common boundary between Stavanger and Trondheim FIRs and to the north eastern boundary of the Scottish FIR were also desirable and that its action entailed amendment of the European Mediterranean Regional Plan. The Committee therefore framed Recommendation 14/2 on the EUM aspect of the subject.

14.1.1.6 To facilitate the provision of air traffic services over the central portion of Greenland, the Sondre Stromfjord FIR was extended northwards to encompass the southern portion of the Thule FIR and eastwards to encompass the north west corner of the Reykjavik FIR. For ease of reference, the Sondre Stromfjord FIR was also renamed as the SONDRESTROM FIR.

14.1.1.7 The southern portion of the Sondre Stromfjord FIR, Goose Oceanic and Gander Oceanic FIRs were incorporated into one new oceanic FIR with centre at Gander. This action was taken to obviate the problem of inter-centre coordination now experienced due to the junction of the Sondre Stromfjord, Reykjavik, Goose Oceanic and Gander Oceanic FIR boundaries being located off the southern tip of Greenland where a considerable flow of traffic is encountered. Simplification of the FIR structure was also made possible by virtue of the improved communications facilities which would soon be available in the area.

14.1.1.8 The Committee considered the desirability of expanding the Shannon-Prestwick Oceanic FIR to encompass either in whole or in part the entire airspace or upper airspace of the Reykjavik FIR in order to further simplify the FIR structure and minimize the need for inter-centre coordination with its attendant problems. In view of the many factors involved however, it concluded that no such change should be effected at this time but that the matter merited further consideration (see Recommendation 14/3).

14.1.1.9 To better meet the needs of traffic and reduce to a minimum the need for inter-centre coordination, the boundary common to the Gander Oceanic, Shannon-Prestwick Oceanic, New York Oceanic and Santa Maria FIRs was moved further to the north and the boundary common to the New York Oceanic and Santa Maria FIRs was moved further to the east. In so doing the Committee noted the need for consequential amendments to be made to the Caribbean and European-Mediterranean Regional Air Navigation Plans (see Recommendation 14/2).

14.1.1.10 In addition to modifying the boundaries of the existing Santa Maria FIR, the Committee reconstituted it as a new Lisboa Oceanic FIR with centre at Lisboa, thereby eliminating the need for the present centre at Santa Maria. Elimination of the centre at Santa Maria and assumption of its responsibilities by the centre at Lisboa was deemed essential to the efficient functioning of ATS in the Region. The Committee noted in this respect that the inter-relationship between air traffic movements within the upper airspace of the new Lisboa Oceanic FIR and the existing UIR Lisboa was such that the provision of ATS to this traffic by one single ATS unit would materially facilitate operations.

14.1.1.11 For ease of reference, the present Shannon-Prestwick Oceanic FIR was renamed as the SHANWICK Oceanic FIR.

* RECOMMENDATION No. 14/1: FLIGHT INFORMATION REGIONS AND LOCATION OF CENTRES

That flight information regions be maintained, modified, or established as detailed hereunder (See also Chart ATS-1) and that flight information service be made available on a 24 hour basis, either by an area control centre (ACC) or by a flight information centre (FIC) specially established for the purpose as designated hereafter.

* See statement by the Delegation of Canada at Part 14, Section 4.

NAME (FIR/CENTRE)	DESCRIPTION (Points delineating the lateral limits)
NEW YORK OCEANIC	From 4600N 5100W, to 4500N 5000W, to 4500N 4000W, to 3000N 4000W, to 3000N 6000W, to 2700N 5000W, to 2700N 7030W, to 3000N 7300W, to 3000N 7700W, 3214N 7700W, to 3500N 7300W, to 3820N 7300W, to 3900N 7200W, to 3950N 7100W, to 3950N 6900W, to 4100N 6800W, to 4219N 6800W, to 4300N 6700W, to 4300N 6500W, to 4500N 5800W, to 4500N 5100W
GANDER OCEANIC	From 6530N 5839W, to 6300N 5500W, to 6300N 4000W, to 6100N 3000W, to 4500N 3000W, 4500N 5000W, to 4600N 5100W, 4900N 5100W, to 5300N 5400W, to 5700N 5900W, to 6100N 6300W, to 6400N 6300W, to 6530N 5839W
SONDRESTROM	From 7300N 6700W, to 7300N 2000W, to 7000N 2000W, to 6300N 4000W, to 6300N 5600W, to 6530N 5839W, to 7300N 6700W.
THULE	From NORTH POLE, to 8200N 3000E, to 8200N 0000, to 7300N 0000, to 7300N 6700W, to 7400N 6818W, to 7600N 7600W, to 7800N 7500W, to 8200N 6000W, to the NORTH POLE
BODØ OCEANIC	From 8200N 0000, to 8200N 3000E, to 7100N 3000E, to 7120N 2500E, to 7000N 1600E, to 6800N 1200E, to 6700N 1100E, to 6300N 0500E, to 6300N 0000, to 8200N 0000.
REYKJAVIK	From 7300N 2000W, to 7300N 0000, to 6100N 0000, to 6100N 3000W, to 6300N 4000W, to 7000N 2000W, to 7300N 2000W
SHANWICK OCEANIC	From 6100N 3000W, to 6100N 1000W, to 5434N 1000W, to 5400N 1300W, to 5100N 1300W, to 5100N 0800W, to 4500N 0800W, to 4500N 3000W, to 6100N 3000W
LISBOA OCEANIC	From 4500N 4000W, to 4500N 1300W, to 3620N 1300W, to 3558N 1200W, 3200N 1700W, 3000N 2000W, 3000N 2500W, 2500N 2500W, to 1700N 3730W, to 3000N 4000W, to 4500N 4000W

RECOMMENDATION No. 14/2: CONSEQUENTIAL AMENDMENTS TO THE BOUNDARIES OF FIRs IN ADJACENT ICAO REGIONS

That amendments be made to the boundaries of FIRs in adjacent ICAO Regions as indicated hereunder:

a) EUM Region -

- i) Amend the northern part of the common boundary of the Scottish/Stavanger FIRs and Scottish/Oslo UIRs by cancelling and replacing the line joining points 6100N 0100W and 6000N 0000 by a line joining points 6100N 0000 and 6000N 0000.
- ii) Amend the boundaries of FIR Stavanger and UIR Oslo to accord with the revised boundaries of FIR Reykjavik.
- iii) Amend the common boundary of FIRs Trondheim and Stavanger as follows: from 6200N 0730E to 6200N 0500E to 6300N 0500E.
- iv) Amend the common boundary of the Shannon-Prestwick Oceanic and Madrid FIRs to accord with the revised boundaries of the SHANWICK Oceanic FIR as detailed in Recommendation 14/1.

b) CAR Region -

Amend the common boundary of the San Juan FIR/UIR and Santa Maria FIR to accord with the revised boundaries of the Lisboa Oceanic FIR as detailed in Recommendation 14/1.

RECOMMENDATION No. 14/3: POSSIBLE EXPANSION OF THE SHANWICK OCEANIC FIR

That the question of the possible expansion of the SHANWICK Oceanic FIR to encompass all or part of the Reykjavik FIR be further developed through the normal ICAO consultative process.

14.1.1.12 When considering the decision of Sub-Committee 1 that the Meeting apply planning "Principle 2" for the polar routes between Northern Europe and Alaska, the Committee noted that a large portion of these routes extended beyond the established boundaries of the NAT Region.

14.1.1.13 A pre-requisite for planning of air traffic services is the establishment of FIR(s) to encompass the routes requiring services. In the case of the portions of the polar routes which are outside the established IC/O Regions, the Committee considered that one possible method of providing for the required FIR(s) would be to extend the boundary of the Thule FIR westward, with a similar eastward expansion of the Alaskan area of responsibility to form a common boundary. The southern boundary of the FIR(s) so created would be determined by agreement between the States concerned.

RECOMMENDATION No. 14/4: FIR(s) TO ENCOMPASS POLAR ROUTES BETWEEN NORTHERN EUROPE AND ALASKA

That Canada, Denmark and the United States of America establish a Flight Information Region or Regions to meet the needs of aircraft operations on the polar routes between Northern Europe and Alaska and that flight information service be made available therein on a 24 hour basis, either by an area control centre (ACC) or flight information centre (FIC) designated for the purpose.

14.1.2 Area Control Service

14.1.2.1 The Committee was agreed that area control service should be provided throughout each of the FIRs detailed in Recommendation 14/1. It noted however that attainment of the desired objective in certain areas in the northern part of the Region would not be realized for some time due to the lack of navigational aids and other facilities in these areas.

* RECOMMENDATION No. 14/5: CONTROL AREAS

That control areas (CTAs) be maintained modified or established with lateral limits coincident with those of the FIRs detailed in Recommendation 14/1 and that area control service be provided therein on a 24 hour basis by area control centres (ACCs) specially established at the locations signified in Recommendation 14/1 for the centres of the FIRs.

Note: This recommendation applies only to the provision of area control service for en route flights and does not concern terminal control areas which are dealt with under paragraph 14.1.2.6

* See statement by the Delegation of Canada at Part 14, Section 4.

14.1.2.2 The Committee noted that there had been no recorded instance during the last three years of flights by any civil aircraft below flight level 60 in the Goose or Gander Control areas and that, in view of the general tendency of modern civil aircraft to operate in the upper airspace, it was probable that this situation prevailed throughout the Region. It therefore agreed that over the high seas the lower limit of controlled airspace which is presently set at 600 metres (2000 feet) above mean sea level be raised to flight level 55. In this connection, the Committee was of the opinion that the vertical limits of controlled airspace over the high seas should be expressed in terms of flight levels rather than as a height to be consistent with the system of altimetry used in the Region. In establishing the lower limit at flight level 55, the Committee further agreed that the lowest usable flight level would be flight level 60.

14.1.2.3 Over land areas the Committee agreed that within controlled airspace the present lower limit of 600 metres (2000 feet) above ground should be maintained.

14.1.2.4 With regard to the establishment of an upper limit for the control areas, the Committee agreed that it should continue to be "unlimited" as presently prescribed in the Regional Plan.

RECOMMENDATION No. 14/6: LOWER AND UPPER LIMITS OF CONTROL AREAS

That the lower and upper limits of the control areas prescribed in Recommendation 14/5 be established as follows:

- i) Lower limit: Over the high seas - Flight Level 55;
Over land - 600 metres (2000 feet)
above ground.
- ii) Upper limit: Unlimited.

14.1.2.5 The Committee noted that certain difficulties associated with the integration of international and domestic air traffic in the eastern area of Canada and the north-eastern area of the United States were presently being experienced. The Committee agreed that this matter should be brought to the attention of the States concerned.

RECOMMENDATION No. 14/7: COORDINATION BETWEEN OCEANIC AND DOMESTIC CONTROL AREAS

That the attention of the States concerned be drawn to the need to effect improvements within their domestic traffic control organizations, to obviate the problems associated with the integration of international and domestic air traffic which are presently being experienced in the eastern area of Canada and the north-eastern area of the United States.

14.1.2.6 Approach Control Service

14.1.2.6.1 It was agreed that approach control service should be provided at all regular and alternate aerodromes.

14.1.2.6.2 It was not considered necessary to specify details for the establishment of control zones, to be supplemented by terminal control areas when this would be necessary to contain the holding, instrument let-down and departure paths, since it was understood that such controlled airspace should be established wherever approach control service was provided, in accordance with the specifications detailed in Annex 11.

RECOMMENDATION No. 14/8: APPROACH CONTROL SERVICE

That:

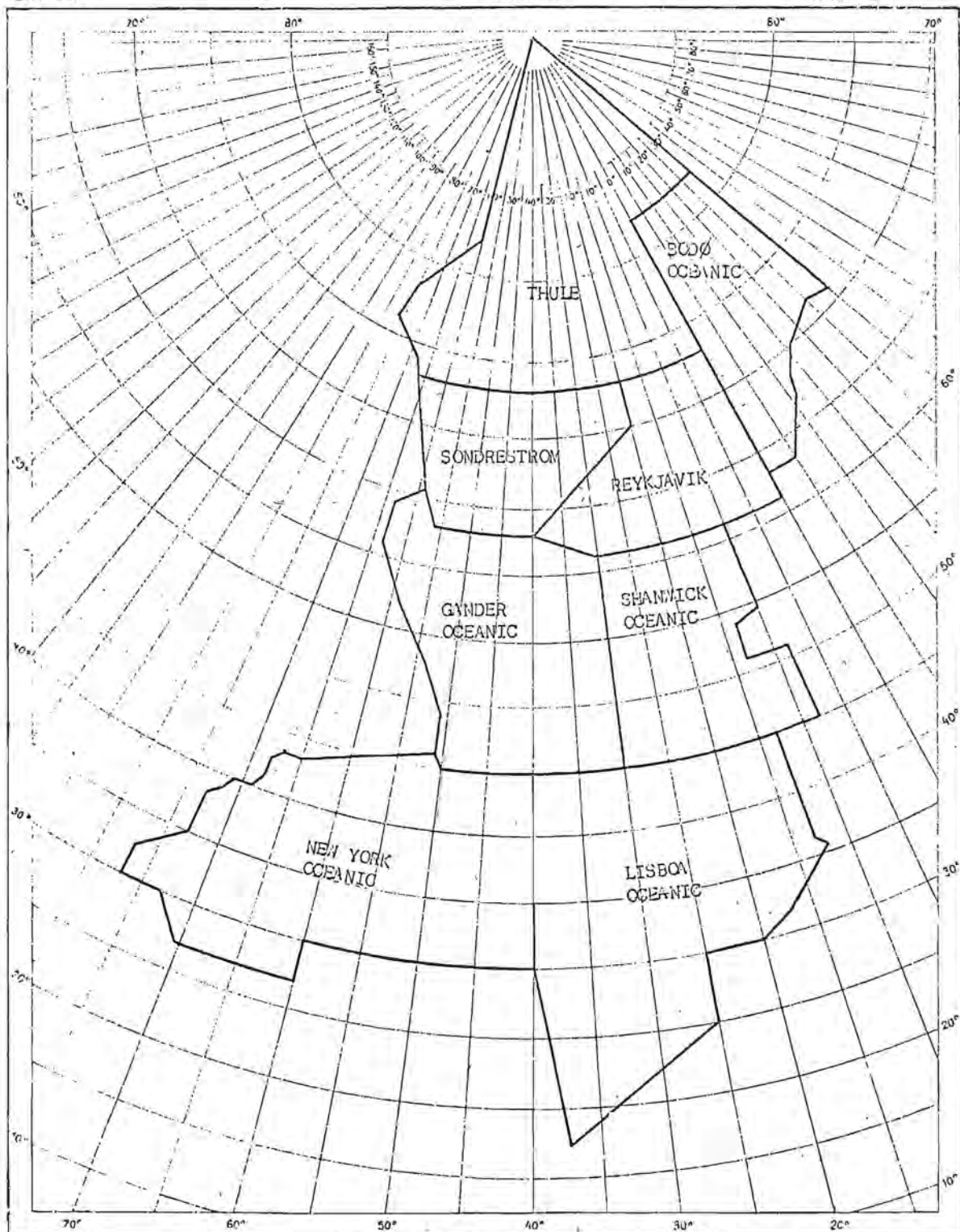
- a) States provide approach control service at all regular and alternate aerodromes;
- b) control zones and, when necessary, related terminal control areas be established, in accordance with Annex 11, when approach control service is provided;
- c) in planning a) and b) above, States should give particular attention to the characteristics of all aircraft expected to use the service provided, with particular attention to turbine-engined aircraft.

14.1.2.6.3 The Committee noted that it had not yet been found possible to control all traffic, VFR and IFR, in all terminal control areas of the NAT Region and that it was still necessary to resort to the undesirable practice of accepting a mixture of VFR and IFR traffic, often including aircraft cleared to climb or descend in VMC.

RECOMMENDATION No. 14/9: CONTROL OF AIR TRAFFIC IN TERMINAL CONTROL AREAS

- a) That, since plans for climbing, descending and holding procedures for turbine-engined aircraft in terminal control areas have not yet been made in all parts of the Region, action be taken by the States concerned as a matter of urgency to prepare and implement such plans and relevant procedures.
- b) That the necessary action be taken in consultation with operators, since this is a complex problem greatly influenced by local conditions.
- c) That, in preparing such plans, attention be given particularly to those cases where IFR and VFR traffic are permitted simultaneously.

14.1.2.6.4 The Committee noted the operational requirement stated by Sub-Committee 1 that "a requirement exists for the provision of surveillance radar for monitoring and control of air traffic, where either traffic density is high, or multiplicity of converging routes creates a difficult problem." (Part 2, paragraph 2.1.1.2.5 refers). While it was agreed that increased use of surveillance radar could materially improve ATS in the Region, the Committee found no areas where a difficult problem was being encountered due to the lack of surveillance radar.

REGIONS D'INFORMATION
DE VOLFLIGHT INFORMATION
REGIONSChart/Carte
ATS-1

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 14

14.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 14 and made the following comments:-

The Subcommittee interprets Recommendation 14/7 not as one calling for improvements in the domestic ATC system as such, but as one requiring a solution of the difficulties now being experienced where international traffic has to be integrated with the domestic system.

SECTION 3: COMMENTS BY THE ACTION TAKEN ON AGENDA ITEM 14

14.3.1 The General Committee reviewed the material presented to it under Agenda Item 14 and made no comment.

SECTION 4: STATEMENTS BY DELEGATES ON THE ACTION TAKEN ON AGENDA ITEM 14

14.4.1 STATEMENT BY THE DELEGATION OF CANADA

The Canadian Delegation accepts, in principle, the objectives of Recommendations Nos. 14/1 and 14/5 insofar as they relate to the expansion of the Gander Oceanic FIR. However, with regard to the extent to which or when these objectives may be met, Canada must, at present, reserve its position.

Agenda Item 15: Air Traffic Services requirements for communications

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 15

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in para 2.1.1.2 of the Report on Agenda Item 2 governed the consideration of Agenda Item 15.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 15

15.1.1 Inter-area communications

15.1.1.1 The table presented at Appendix A to this Section indicates the ATS requirements for inter-area communications between the centres of flight information regions and control areas as they were communicated to the Communications Committee.

15.1.1.2 The main objects of types "A" and "B" communications listed in Appendix A to this Section are respectively:

- a) "A" Communications: Principally for the exchange of flight plan data with adjacent centres and for necessary co-ordination between air traffic control officers.
- b) "B" Communications: For the transmission of basic air traffic control information, mainly PLN and DEP PLN, it being understood that the requirements for the transit time should be achieved on at least 95 per cent of occasions.

15.1.1.3 The requirements for point-to-point communications from centres in charge of FIRs or CTAs at the periphery of the NAT Region to the centres of adjacent FIRs or CTAs in neighbouring regions and elsewhere have also been included in the table.

15.1.1.4 The table also indicates some requirements in column 4 at variance with existing requirements from neighbouring regions. It should be noted that in such cases the Committee considered that its requirement as stated in column 4 should supersede those indicated at previous meetings.

15.1.2 Intra-area communications

15.1.2.1 It was considered that there was no need to detail such communications in the Regional Plan as they are more a matter for national or internal determination in accordance with the provision of Annex 11, paragraph 6.2.1.

15.1.3 Air/ground communications

15.1.3.1 Communications for flight information and area control services (en-route frequencies)

15.1.3.1.1 The Committee confirmed as an ATS requirement the operational requirement established in the report by Sub-Committee 1, i.e.

"Direct pilot-to-controller static-free voice communications should be provided where practicable, particularly in terminal areas and on high density routes."

15.1.3.1.2 In this connection, the Committee agreed that direct pilot-to-controller voice communications should be provided from Gander to cater for air traffic operating in the vicinity of the southern part of Greenland.

15.1.4 Compatibility of navigation systems

15.1.4.1 The Committee reaffirmed the operational requirement stated by Sub-Committee 1 in para. 2.1.1.2.4 to the effect that:

"Where aircraft are required to utilize different systems for navigation and position determination within the same controlled airspace, the ground facilities involved should, insofar as practicable, be so located and/or oriented as to enable a fully integrated air traffic control structure to be established."

APPENDIX A TO PART 15, SECTION 1
15ème PARTIE, SECTION 1, APPENDICE A

TABLE OF ATS INTER-AREA REQUIREMENTS FOR COMMUNICATIONS/
TABLEAU DES BESOINS ATS EN MATIERE DE TELECOMMUNICATIONS
INTERREGIONALES

In the following table/
Dans le tableau qui suit:

- "A" means "direct speech communications with automatic recording; the speed with which the communications can be established being such that area control centres may normally be contacted within approximately fifteen seconds."

La lettre A signifie "communications verbales directes avec enregistrement automatique, la vitesse à laquelle les communications peuvent être établies étant telle que les centres de contrôle régional puissent normalement être atteints en 15 secondes environ."

- "B" means "communications other than direct speech in which the messages are received in a form suitable for retention as a permanent record and in accordance with specified transit time requirements."

La lettre B signifie "moyens de communication autres que la phonie directe, permettant de recevoir les messages dans les délais d'acheminement spécifiés et sous une forme qui puisse être archivée."

- The transit time required for the "B" communications is 5 minutes from the time the message is handed to a communication station to the time it is delivered to the addressee, unless otherwise indicated when a longer time is acceptable. (For example, "B10" indicates a required overall transit time of 10 minutes where "B" indicates 5 minutes).

La durée d'acheminement à observer pour les communications du type B sera de 5 minutes, sauf s'il est spécifié qu'une durée supérieure est acceptable; la durée d'acheminement est comptée à partir du moment où le message est déposé à une station de communication jusqu'au moment où il est remis au destinataire (par exemple, B10 signifie qu'une durée totale d'acheminement de 10 minutes est nécessaire alors que B signifie qu'une durée totale de 5 minutes est nécessaire).

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FIC or ACC to be con- nected/ FIC ou ACC à relier		Requirements as per present RAN Plan/ Besoins indiqués dans le plan régional actuel	Revised requirements/ Besoins modifiés	Remarks/ Observations
1	2	3	4	5
BODø	Trondheim Thule Stavanger Reykjavik	B30 A A B30	A+B B A+B B	
GANDER	Goose Lisboa New York Reykjavik Shanwick Sondrestrom	A A A A A A	A+B Aø+B A+B A+B A+B A+B	
LISBOA	Canarias Casablanca Dakar Gander New York San Juan Shanwick	B15 A A A A	B20 A+B B15 Aø+B A+B Aø+B A+B	
NEW YORK	Boston Gander Jacksonville Lisboa Miami Moncton San Juan	A A A A A A A	A+B A+B A+B A+B A+B A+B A+B	
REYKJAVIK	Bodø Gander Shanwick Stavanger Sondrestrom Thule	B30 A A A A A	B A+B A+B Aø+B A+B A+B	
SHANWICK	Gander Lisboa London Madrid Paris Reykjavik	A*ø Aø A*ø B30 A*ø A*ø	A+B A+B A+B A+B A+B A+B	
SONDRESTROM	Gander Goose Reykjavik Thule	A A A A	A+B A+B A+B A+B	
THULE	Bodø Reykjavik Sondrestrom	A A A	B A+B A+B	

* Present plan shows connection to Prestwick/Liaison avec Prestwick
d'après le plan actuel

ø Present plan shows connection to Shannon/Liaison avec Shannon d'après
le plan actuel

ø Through-switching acceptable/Commutation directe acceptable

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE
ACTION TAKEN ON AGENDA ITEM 15

15.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 15 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 15

15.3.1 The General Committee reviewed the material presented to it under Agenda Item 15 and made no comment.

Agenda Item 16: Arrangements for ensuring the most efficient utilization of airspace, including the assignment of flight levels and the choice of Flight Plan routes

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 16

The plan of aircraft operations, together with statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraphs 2.1.1.1, 2.1.2 and 2.1.7 of the Report on Agenda Item 2, governed consideration of Agenda Item 16.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 16

16.1.1 The Committee took cognizance of the fact that over the North Atlantic, the weather situation, which dictates to a very large extent the route to be flown on any particular day, results in a definite tendency for the main traffic flow to canalize itself into narrow lanes or bands, thus causing considerable congestion at peak traffic periods. Within these narrow bands a considerable interweaving of flight plan tracks takes place, which, because of their random nature, results in an extremely complex traffic situation. The maintenance of a safe, orderly and expeditious flow of traffic in this situation presents the area control centres concerned with difficulties of a serious nature which are not easily surmounted.

16.1.2 The Committee was made aware of the fact that the requirement to provide more efficient use of the airspace over the North Atlantic has been under consideration for several years and that various proposals to ameliorate the situation had been put forward at previous ICAO Regional Air Navigation Meetings.

16.1.3 Discrete Track System

16.1.3.1 The Committee had before it a proposal presented jointly by Ireland and the United Kingdom for the establishment of a discrete track system wherein the tracks would be varied periodically to provide the most expeditious route for the main flow of oceanic traffic at that time. In essence the system proposed was as follows:

- a) provision of two parallel tracks one degree on either side of a reference line to be determined by the ACCs concerned, taking into consideration:
 - i) the minimum time track calculated to cater for the main traffic flow,
 - ii) overall weather structure,
 - iii) airspace reservations,
 - iv) other military operations;
- b) the tracks to extend normally from 10° West to 50° West but may be extended or reduced to allow a phased separation between oceanic and domestic standards;
- c) the tracks to be updated in accordance with the issue of current meteorological upper air information;
- d) the track structure to be notified to all concerned six hours prior to application of the system;
- e) the system to be applied only when traffic density demanded, normally during the peak traffic flow period. Outside this period the existing mode of operations to apply.

16.1.3.2 In support of their proposal, the States concerned contended that the introduction of such a system would have the following advantages:

- a) it would permit maximum use to be made of the airspace by eradicating interweaving tracks on the main traffic flow, thereby eliminating the need for major reclearances which adversely affected airline economy;
- b) permit full flexibility regarding joining, leaving and crossing in relation to the main traffic flow;
- c) enable operators to flight plan on the most favourable route within 60 nautical miles of the optimum at acceptable flight levels;

- d) reduce cockpit workload in that the track structure would be available to the operator before departure, thereby permitting information calculated on the ground to be made available to the aircraft regarding an alternative route, should a route re-clearance be issued by ATC;
- e) permit operators whose place of departure and destination dictated a route outside that of the main flow route structure, flexibility in deciding the most suitable track;
- f) permit ATC to provide a procedural presentation to controllers of traffic within the main route structure which would be easy to assimilate, thereby enabling more efficient use to be made of the separation standards;
- g) permit a smooth flow of traffic between oceanic and domestic control areas;
- h) it could be introduced without the need for additional facilities either in the aircraft or on the ground;
- i) it would not prejudice any future long term planning developments predicated on the availability of improved navigation aids, communications and automation in ATC.

16.1.3.3 The States concerned presented the Committee with the results of synthetic trials which had been carried out to evaluate the system proposed and drew attention to the statistical evidence contained therein which inter alia showed that, whereas some 36 aircraft out of a total of 102 could presently expect to be cleared as flight planned, under the system proposed some 63 aircraft out of the same total could expect to be so accommodated.

16.1.3.4 The Committee discussed in considerable detail the technical aspects and implications of the system proposed and, whilst support was expressed for introduction of a system such as that proposed, opposition was likewise expressed on the grounds that:

- a) before any change from current practices was warranted, it must first be proved conclusively that any new measures would have significant advantages to the overall operation;

- b) the procedures with which aircraft would be required to comply would preclude the planning of flights along the optimum route which could only result in increased flight plan fuel requirements together with possible reductions in payload. These economic penalties would be of significant magnitude and, once payload had been affected, subsequent improvements on the flight plan which might occur during flight could not recoup the loss;
- c) the system proposed was predicated on six hours prior notification of its application to all concerned. As a consequence, it lacked the necessary flexibility which is inherent in the present system whereby aircraft are enabled to take full advantage of the latest available information, in both the pre-flight and in-flight phases of operation, which might indicate that changes in the flight path were necessary for economic or operational reasons;
- d) as a consequence of its inflexibility, the system proposed would apply even on occasions when the traffic which presented itself at the oceanic boundaries required little or no ATC action to achieve the necessary separation;
- e) an aircraft whose route, as a result of geographical circumstances, did not readily fit the proposed route structure would be more heavily penalized than an aircraft whose route normally conformed with the main traffic flow. Likewise, an aircraft engaged on a critical operation would be penalized to a greater extent than an aircraft engaged on a less critical operation;
- f) specific application criteria as to the precise manner in which the route structure would be determined to accommodate the main traffic flow on any particular occasion was not provided;
- g) the difficulty of ATC, having assimilated the total meteorological information available, including reports from aircraft in flight in the total area concerned, in initiating necessary changes to the route structure in an efficient and orderly manner was recognized. Further, the manner in which such changes would be effected was not dealt with in the proposal other than by a statement that it would be necessary to revert to the existing area control concept;

- h) the required dissemination of information to the large number of departure points from which scheduled and non-scheduled North Atlantic flights originate would have a significant impact on existing communications and meteorological services which had not been assessed. Problems in these fields included the need to ensure without risk of delay or message mutilation that the aircraft receive the necessary information to undertake the functions associated with flight planning, fuel and payload determination;
- i) the proposal was intended solely as an interim measure pending the development of an ATC system specifically engineered to meet the needs of modern aircraft. As such, since the disadvantages which its introduction would impose on the users of the airspace far outweighed the advantages envisaged, improvements in other directions should be pursued.

16.1.3.5 In the light of the discussion which had ensued, the Committee was invited to express itself on the question as to whether it agreed in principle to the application of a discrete track system along the lines proposed, it being understood that, if the Committee's decision was in the affirmative, it would then consider in detail the technical specifications and application criteria of such a system. By a tie-vote of seven for, seven against with one abstention, the motion was lost.

16.1.3.6 The point was then made that the establishment of a discrete track system such as that which had been before the Committee was not significantly different from the concept of pre-determined routes applied within controlled airspace in many parts of the world; that it was intended for use by ATC as a tactical measure when necessary to ensure the expeditious flow of traffic and that the institution of such a system, which did not abrogate any of the provisions of Annex 11, fell within the prerogative of the ATS authorities concerned. On these grounds, the Committee was invited to recommend that, "a fully coordinated discrete track system be introduced in oceanic control areas by the appropriate ATC authorities for such periods and at such times as the ATC authorities concerned jointly consider necessary in order to establish and maintain the safe, orderly and expeditious flow of air traffic." By a tie-vote of seven for, seven against with one abstention, the motion was lost.

16.1.3.7 The Committee noted that tactical application of a form of discrete track system had been introduced for some months in the Gander Oceanic Control Area as a tactical measure employed by ACC Gander when necessary to ensure maximum utilization of the airspace during peak periods. Application of this system, it was observed, did not entail prior-notification to all concerned and maintained maximum flexibility in flight planning. Consequently, it could readily be put into effect amended or withdrawn by the ACC to meet the needs of the traffic situation.

16.1.3.8 The Committee decided to endorse, in principle, the concept of the track system instituted by Gander ACC as an example of the measures which might be taken by a centre to ensure the most flexible and efficient service. The Committee further decided that any procedures deemed necessary to cater for the application of such measures by ACCs should be prepared. To this end, it developed appropriate recommendations for Supplementary Procedures under Agenda Item 18.

RECOMMENDATION No. 16/1: PROCEDURES APPLIED DURING PEAK PERIODS
IN THE GANDER OCEANIC CONTROL AREA

That the procedure being applied by Canada during peak periods to ensure maximum utilization of the airspace in the Gander Oceanic Control Area be endorsed in principle as representing an example of measures which may be taken by a centre, in coordination with adjacent centres, to provide the most flexible and efficient service, consistent with the principles of Annex 11.

16.1.3.9 In taking the foregoing decisions, the Committee was fully conscious of the fact that there was indeed a real ATS problem and that measures were required to bring about its speedy resolution. However, due to several factors which proved to be too complex to be solved in the limited time available, the Committee was unable to recommend immediate remedial action to improve the air traffic control system. It was agreed, however, that, apart from the long term systems planning approach referred to in Recommendation 2/2, the problem called for continued attention and, to that end, it framed a recommendation inviting States to pursue the matter.

RECOMMENDATION No. 16/2: ATC PROBLEMS ENCOUNTERED AT PEAK PERIODS
IN CERTAIN PARTS OF THE NAT REGION

That States providing air traffic services in the North Atlantic Region continue and intensify their efforts, in coordination with ICAO, to find ways and means of alleviating the ATC problems experienced during peak traffic periods in certain parts of the Region, including the establishment of appropriate machinery if necessary.

16.1.4 Assignment of Cruising Levels to Flights Within Controlled Airspace

16.1.4.1 The Committee noted that the Air Navigation Commission of ICAO is presently examining a proposal for amendment of the Regional Supplementary Procedures (DOC 7030) to align the provisions contained in Part 2, paragraph 2.1.1 regarding the assignment of cruising levels for IFR flights within controlled airspace in the North Atlantic Region with the requirement for a 600 metres (2000 feet) minimum vertical separation at high levels set forth in PANS-R/C (DOC 4444-R/C/501/7, Part 3, paragraph 3).

16.1.4.2 In addition to the foregoing, the Committee agreed that there was a need to amend the existing SUPPs under paragraph 2.1.1 to cover the following points:

- i) to exclude from sub-paragraph c) those FIRs wherein the traffic is predominantly North/South and to reword the text in terms of flight levels;
- ii) to include a like provision to that in sub-paragraph c) to cater for those FIRs wherein the traffic is North/South;
- iii) to up-grade the Note associated with sub-paragraph c) to the status of a SUPP.

Appropriate recommendations on the subject were developed under Agenda Item 18.

16.1.5 Vertical Separation Minima

16.1.5.1 The Committee noted that the opinion which it had expressed, in reply to the specific question posed by Sub-Committee 1, as to whether or not it considered it extremely difficult or impossible to provide for expeditious movement of all NAT traffic without a decrease of vertical separation criteria, had been taken into account by Sub-Committee 1 (paragraph 2.1.2 refers) which had concluded that the status quo should be maintained.

16.1.6 Horizontal Separation Minima

16.1.6.1 The practicability of effecting some general reduction of the present longitudinal separation minimum of thirty minutes within oceanic control areas was next discussed. In support of a reduction, it was pointed out that many significant technical developments had taken place in the Region since the institution of the thirty minutes minimum.

16.1.6.2 In this regard attention was drawn to the improved navigational aids now in operation and to the still better self-contained airborne navigational aids with which aircraft are presently being equipped; to the improved navigation techniques and discipline now followed; to the improved communications both ground/ground and ground/air which now exist and to the further improvements expected to be realized in the near future; to the improvements in ATS procedures particularly with regard to such matters as the system of position reporting and notifying changes to flight plans.

16.1.6.3 It was further contended that, since the institution of the 30 minutes minimum, the speed of modern aircraft had doubled and that, as a consequence, the exposure time of jet aircraft to errors was very much less than that of the types of aircraft on which the 30 minutes longitudinal separation minimum had been premised, and that expressed as a distance, longitudinal separation was now approximately twice as great as hitherto.

16.1.6.4 Notwithstanding the foregoing, the Committee, taking into account the high density and complex traffic situation which now exists, together with the loss of air/ground communications contact frequently experienced over the North Atlantic, concluded that a general reduction of the 30 minutes minimum at the present time would not be in the best interests of safety.

16.1.6.5 The possibility of reducing the longitudinal minimum from 30 minutes to 20 minutes in the case of two jet aircraft when flying at the same speed, flight level and track was also considered. In this regard, the Committee was of the opinion that such a reduction might be possible in areas where special procedures, such as the discrete track system in the Gander Oceanic Control Area, were applied. Accordingly, it agreed to consider the matter further under Agenda Item 18 when developing appropriate recommendations for Supplementary Procedures regarding application of a discrete track system.

16.1.6.6 The Meeting noted that, on certain specific off-shore routes between the eastern coast of the United States and Bermuda and certain points in the Caribbean, the United States intended to evaluate a reduction of the longitudinal separation minimum to 20 minutes and a reduction in lateral separation minima of the order of 90 or 100 miles. If found satisfactory, the reduced horizontal separation will be retained and be applicable to all flight levels.

16.1.6.7 On the subject of lateral separation, the Committee was agreed that the present minimum of 120 nautical miles should be maintained.

16.1.7 Position Reports

16.1.7.1 The suggestion was advanced that a reduction in the contents of position reports could be effected by permitting aircraft which are on flight plans to so report, rather than give their position, time, flight level, next position, etc., since the current flight plan containing such information is already in the hands of the ATC unit concerned. It was noted that such a practice could not be followed in the case of an AIREP since the MET services did not receive flight plans. However, the suggestion was not pursued, it being considered inappropriate for regional determination in view of the world-wide provisions which treat the subject.

16.1.7.2 Whilst the existing system of reporting position within the Region was found satisfactory, it was noted that in some instances aircraft were being required to report on crossing a control area boundary notwithstanding the fact that they had already made a routine position report just prior thereto. It was also noted that, where position reports were required for purposes other than ATS, aircraft were frequently required to report twice within a short interval of time. The Committee agreed that these matters should be brought to the attention of States.

RECOMMENDATION No. 16/3: REQUIREMENTS FOR POSITION REPORTS

That States review their ATS and Military requirements for position reports with a view to reducing same as far as practicable.

16.1.8 VMC Clearances

16.1.8.1 In furtherance of the objective of Recommendation 3/1 of the R/C/SAR Divisions 1958 and in keeping with the permissive clause in PANS-R/C, Part 3, paragraph 17 a), the Committee agreed that the present practice of issuing clearances to fly maintaining visual meteorological conditions was not conducive to safety and should be eliminated. To this end, it developed an appropriate recommendation for a Supplementary Procedure under Agenda Item 18.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE
ACTION TAKEN ON AGENDA ITEM 16

16.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 16 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 16

16.3.1 The General Committee reviewed the material presented to it under Agenda Item 16 and made no comment.

Agenda Item 17: Arrangements for coordinating Flight Plans in advance of departure in order to minimize conflict of traffic

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 17

The statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in paragraph 2.1.1.2.1 of the Report on Agenda Item 2, governed the consideration of Agenda Item 17.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 17

17.1.1 The Committee was agreed that it would be of material benefit to all concerned, were it possible to realize a system of pre-flight coordination which would enable the day-to-day planning of all routes, etc., actually requested for NAT flights to be integrated, thereby minimizing potential traffic conflicts and otherwise promote optimum use of the airspace. It noted however that efforts made to resolve this problem had proven singularly unsuccessful due to the many contingencies frequently encountered by operators, subsequent to submission of their flight plans, which could not be anticipated with any degree of accuracy.

17.1.2 The Committee concluded that at the present time the many unpremeditated delays encountered by aircraft at the airports of departure and unpremeditated changes in the terminal areas and en route to the points of entry into the oceanic areas rendered difficult any truly effective system of pre-flight coordination based on flight plans submitted well in advance of departure, although the introduction of automation might materially affect this question.

17.1.3 It considered however that the present arrangements for the submission and transmission of flight plans in the Region would be materially improved by requiring operators to submit their flight plans as far in advance of departure as practicable and by ensuring that flight plan messages were transmitted to the appropriate ATS units immediately after the flight plan was filed; i.e. that the practice of transmitting a combined departure/flight plan message be discontinued for North Atlantic flights. To this end, it developed appropriate recommendations for Supplementary Procedures under Agenda Item 18.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 17

17.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 17 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 17

17.3.1 The General Committee reviewed the material presented to it under Agenda Item 17 and made no comment.

Agenda Item 18: Rules of the Air and Air Traffic Services
Supplementary Procedures

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO
AGENDA ITEM 18

None of the statements of operational requirements related specifically to Agenda Item 18.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 18

18.1.1 The Committee reviewed the existing Supplementary Procedures with a view to modifying them as necessary in order to reflect the latest operating practices applied in the NAT Region and not covered by the applicable Annexes or PANS of ICAO. In addition, it agreed to delete a number of Supplementary Procedures which had now become superfluous. It further agreed to add Supplementary Procedures in those cases where this had been found necessary in order to cater for new or changed requirements.

18.1.2 With regard to the question of the assignment of cruising levels within controlled airspace, the Committee agreed that this problem required review, especially in view of the fact that, for polar routes and for operations in the close vicinity of the magnetic north pole, the terms "eastbound" and "westbound" were not too significant. However, owing to the requirement that any procedure applied within the NAT Region be closely coordinated with the requirements of the adjacent regions and the domestic areas of Canada and the United States of America, the Committee was not in a position to provide an ultimate solution to this problem.

18.1.3 It was agreed therefore that this question should be studied as a matter of urgency by the States concerned and that, especially regarding the polar routes from Northern Europe to North America, it should be considered by the States concerned when reaching a decision in respect of the provision of air traffic services in the area specified in Recommendation 14/4.

RECOMMENDATION No. 18/1: AMENDMENT TO THE RAC SUPPLEMENTARY
PROCEDURES

That Part 2 of the Regional Supplementary Procedures be changed as follows:

- a) Replace Note 2 following paragraph 1.2 by the following:

"Note 2:- That NAT SUPPS RAC/SAR do not apply in the Kindley Field, Reykjavik and Santa Maria local control areas and in local control areas established in Greenland."

- b) Replace paragraph 2.1.1 c) and the note thereto by the following:

"2.1.1 c) Up to flight level 290, odd flight levels for eastbound flights and even flight levels for westbound flights. Above flight level 290, flight levels 330, 370, etc., for eastbound flights and flight levels 310, 350, 390, etc., for westbound flights."

Note 1.- This procedure does not apply within Bodø Oceanic Control Area.

Note 2.- The lowest usable flight level is flight level 60.

Note 3.- For the purpose of this procedure, aircraft flying on polar routes from Europe to North America are considered to be westbound and aircraft flying from North America to Europe are considered to be eastbound.

Note 4.- When necessary to expedite the flow of air traffic, area control centres may, subject to appropriate coordination, assign flight levels irrespective of the direction of flight (see also paragraph 6.6)."

- c) Amend the present paragraph 3.1.2 as follows:

"3.1.2 Thirty (30) minutes for flights operating within the New York Oceanic, Gander Oceanic, Lisboa Oceanic, Shanwick, Reykjavik, Sondrestrom, Thule and Bodø Oceanic control areas, except as provided in paragraph 3.1.3.1 or when States concerned agree that, by virtue of the navigation aids available, the reduced requirements of the PANS-RAC may apply."

- d) Rearrange and amend paragraphs 3 and 4 of DOC 7030 as follows:

Insert new heading "3. Horizontal separation"

Renumber present heading as "3.1 Special application of longitudinal separation"

Renumber present paragraph 3.1 as "3.1.1"

Renumber present paragraph 3.1.1 as "3.1.2"

Renumber present paragraph 3.1.2 as "3.1.3"

Renumber present heading of paragraph 4. as "3.2"

Renumber present paragraph 4.1 as "3.2.1"

Insert a new heading "3.3 Special arrangements for the reduction of separation minima by States"

Renumber present paragraph 3.1.2.1 as "3.3.1"

Amend the text of the new paragraph 3.3.1 as follows:
in the fourth line replace the reference "3.1.2" by "3.1 & 3.2"

e) Insert a new paragraph 3.1.3.1 as follows:

"3.1.3.1 For aircraft operating at or above flight level 290 twenty (20) minutes may be applied provided aircraft follow the same route and have reported over the same entry point into the oceanic control area. This separation may also be applied to aircraft which initially follow the same route and, at a later stage, continue on diverging routes provided these routes diverge to the extent that standard lateral separation is established."

f) Replace the present paragraph 5.1 a) as applicable to the NAT Region by a new paragraph as follows:

"5.1.1 All flights within

- i) the New York Oceanic, Gander Oceanic, SHANWICK Oceanic, Lisboa Oceanic, Thule, Sondrestrom and Reykjavik FIRS, and
- ii) the Bodø Oceanic FIR when operated more than 100 NM seaward from the shoreline

shall be conducted in accordance with the instrument flight rules irrespective of weather conditions when operated at or above FL 60 or 2000 feet above ground whichever is the higher."

g) Delete the present paragraph 6.1.1

- h) Insert a new paragraph 6.1.1 as follows:

"6.1.1 For flights departing from points within adjacent regions and entering the NAT Region without intermediate stops, the total elapsed time to the entry-fix into the control area of the NAT Region, as specified by the area control centre concerned, shall be included in Item I of the flight plan."

- i) Add "NAT" against paragraph 6.2.1

- j) Insert a new paragraph 6.2.2 as follows:

"6.2.2 Flight plans for flights departing from points within adjacent regions and entering the NAT Region without intermediate stops shall be submitted as early as possible and, in any event, not later than 30 minutes prior to departure."

- k) Amend paragraph 6.3 to read as follows:

"6.3 Adherence to ATC approved route

6.3.1 If an aircraft, notwithstanding all action taken to adhere to the route specified in the ATC clearance, inadvertently deviates from this route, action shall be taken to regain it as soon as is, in the circumstances, reasonable and not farther ahead than 200 nautical miles from the DR position at which the heading was altered to regain the route specified in the ATC clearance. Action to regain this route shall not be delayed in anticipation of obtaining a requested re-clearance."

- l) Insert a new paragraph 6.6 as follows:

"6.6 Special application of OAC procedures

6.6.1 When necessary to expedite the flow of air traffic so as to permit the optimum use of the **airspace**, area control centres may, subject to appropriate coordination with adjacent area control centres:

- a) assign flight levels irrespective of the direction of flight and
- b) if required, issue clearances to re-route aircraft.

6.6.2 Clearances involving re-routing should be based on available MET information, density of traffic, airspace reservations, individual flight plans and points of departure and destination of aircraft concerned.

6.6.3 Appropriate notification of intended reclearances involving flight levels and/or re-routing of aircraft should be made to the aircraft and/or the operator concerned as soon as practicable. The notification to the operator shall be: made in accordance with Annex 11, paragraph 2.9."

m) Insert a new paragraph 6.7 as follows:

"6.7 Clearances relating to on-top cruising levels and flight subject to maintaining VMC

6.7.1 Area control centres shall neither initiate nor grant to IFR flights clearances specifying on-top cruising levels or flight subject to maintaining visual meteorological conditions."

n) Delete paragraph 7.1.3.1

o) Delete the note against paragraphs 7.2.3 through 7.2.6

p) Delete the note following paragraph 7.2.3.2 and the table contained in Appendix A to Part 2 of the Regional Supplementary Procedures

q) Amend paragraph 9.1 so that it reads for the NAT Region the same as it does for the AFI, PAC, SAT and SEA Regions

r) Delete paragraph 10.1.1

s) Amend paragraph 10.1.2.1.1 a) to read:

"a) Specific flight level assignments;"

t) Delete paragraph 10.3 completely

u) Renumber the present paragraph 12.1.2 as "12.1.3" and insert a new paragraph 12.1.2 as follows:

"12.1.2 Flight plan messages for flights departing from points within adjacent regions and entering the NAT Region without intermediate stops shall be transmitted to the appropriate ATS units or communications stations immediately after the flight plan has been submitted."

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 18

18.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 18 and made the following comments and recommendation:

In reviewing the report of the RAC Committee, Subcommittee 1 noted that provision had been made concerning the assignment of cruising levels to IFR flights within controlled airspace on Polar routes between Europe and North America. In this connection it was further noted that, on these routes beyond the boundary of the NAT Region, the provisions of Annex 2 relating to the allocation of cruising levels for IFR flights outside controlled airspace appeared to be impractical due to the proximity of the North magnetic pole.

RECOMMENDATION 18/2 - IFR CRUISING LEVELS OUTSIDE CONTROLLED AIRSPACE

That urgent action be taken by ICAO in cooperation with the States concerned to resolve this problem.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 18

18.3.1 The General Committee reviewed the material presented to it under Agenda Item 18 and made no comment.

Agenda Item 19: Organization of search and rescue areas and designation of related centres

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 19

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraph 2.1.1.3 of the Report on Agenda Item 2, governed the consideration of Agenda Item 19.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 19

19.1.1 The Committee noted the plan for FIRs as established under Agenda Item 14 when considering the plan for search and rescue areas. It also took account of paragraphs 3.1.2 and 3.1.2.1 of Annex 12 regarding the delineation of boundaries of search and rescue areas and agreed therefore that, wherever possible, SRR boundaries should be coincident with the boundaries of associated flight information regions.

19.1.2 However, in two cases, the Committee was of the opinion that more efficient services could be rendered if the SRR boundaries were not aligned exactly with the boundaries of the associated FIRs. These concerned the area of Southern Greenland which was included in SRR Sondrestrom and the area East of the southern tip of Greenland which was included in Reykjavik SRR.

19.1.3 In the first case, it was believed that it would be advantageous if search and rescue services in the entire land area of Greenland were coordinated by one rescue coordination centre and, in the second case, it was believed that speedier and more efficient service could be rendered by the RCC Reykjavik than by RCC Torbay on account of the distance involved between the locations of rescue units under the direction of Torbay RCC in the area in question. The Committee therefore revised the NAT SAR Regional Plan and recommended that it be constituted by SRRs and associated rescue coordination centres as indicated hereafter:

RECOMMENDATION No. 19/1: SEARCH AND RESCUE AREAS AND RESCUE COORDINATION CENTRES

That the search and rescue areas below be established and that rescue coordination centres serving those SRRs be established as shown in Part 20, Table S&R-1

SRR	DESCRIPTION (points delineating the lateral limits)
NEW YORK	(The lateral boundaries correspond to those of the FIR New York Oceanic as specified in Recommendation 14/1 in Part 14 of this Report)
TORBAY	6530N 5839W to 5900N 5000W to 5900N 3000W to 4500N 3000W to 4500N 5000W to 4600N 5100W 4900N 5100W to 5300N 5400W to 5700N 5900W to 6100N 6300W to 6400N 6300W to 6530N 5839W
SONDRESTROM	7300N 6700W to 7300N 2000W to 7000N 2000W to 6300N 4000W to 5900N 4300W to 5900N 5000W to 6300N 5600W to 6530N 5839W to 7300N 6700W
THULE	(The lateral boundaries correspond to those of the FIR Thule as specified in Recommendation 14/1 in Part 14 of this Report)
BODØ	(The lateral boundaries correspond to those of the FIR Bodø Oceanic as specified in Recommendation 14/1 in Part 14 of this Report)
REYKJAVIK	7300N 2000W to 7300N 0000 to 6100N 0000 to 6100N 3000W to 5900N 3000W to 5900N 4300W to 6300N 4000W to 7000N 2000W to 7300N 2000W
EDINBURGH	6100N 3000W to 6100N 1000W to 5434N 1000W to 5400N 1300W to 5400N 3000W to 6100N 3000W
PLYMOUTH	5400N 3000W to 5400N 1300W to 5100N 1300W to 5100N 0800W to 4500N 0800W to 4500N 3000W to 5400N 3000W
LAJES	(The lateral boundaries correspond to those of the FIR Lisboa Oceanic as specified in Recommendation 14/1 in Part 14 of this Report)

19.1.4 Following the decision of Sub-Committee 1 that planning principle 2 should be applied to the polar routes between Northern Europe and Alaska, the RAC Committee had agreed in principle to provide for air traffic services in the area in question (see Part 14, paragraph 14.1.1.13). It therefore decided that, subsequent to this action, it would also be necessary to make provision for adequate search and rescue services in that area.

RECOMMENDATION No. 19/2: SRRS TO ENCOMPASS POLAR ROUTES BETWEEN NORTHERN EUROPE AND ALASKA

That Canada, Denmark and the United States of America establish a search and rescue area to meet the needs of aircraft operating on the polar routes between Northern Europe and Alaska and that search and rescue services be made available on a 24 hour basis by a rescue coordination centre designated for that purpose.

19.1.5 The Meeting, in the course of its work, found that the revision applied to the NAT SAR Regional Plan had also affected a number of SRRs located in adjacent regions. These were:

- a) SRR Stavanger
- b) SRR Madrid
- c) SRR San Juan

In addition, it decided to eliminate the existing overlap between the EUM and NAT SAR Regional Plans in the general area of Ireland and the United Kingdom. It further noted that, subsequent to the change made to SRR Stavanger and the new SRR Bodø/Oceanic, the boundary between SRR Trondheim and the new SRR Stavanger should be realigned. This change, although it affects the EUM SAR Plan only, is a direct result of the changes made to SRR Stavanger.

RECOMMENDATION No. 19/3: CONSEQUENTIAL AMENDMENTS TO BOUNDARIES OF SRRS IN ADJACENT REGIONS

That

- a) The western and northern boundaries of SRR Stavanger in the EUM Region be amended as follows:

From 6100N 0000 to 6300N 0000, to 6300N 0500E,
to 6200N 0500E, to 6200N 0730E

- b) The south-western boundary of SRR Trondheim be changed as follows:
From 6200N 0730E, to 6200N 0500E, to 6300N 0500E, to 6530N 0800E
- c) The north-western boundary of SRR Madrid be changed as follows:
From 4300N 1300W, to 4500N 1300W, to 4500N 0800W
- d) The western boundary of the SRR San Juan be changed as follows:
From 3000N 6000W, to 3000N 4000W, to 1700N 3730W
- e) That part of the SRR Edinburgh covering the area encompassed by FIRs Scottish and Northern be excluded from the NAT SAR Regional Plan.
- f) That part of the SRR Plymouth covering the area encompassed by FIR London be excluded from the NAT SAR Regional Plan.
- g) SRR Shannon which is presently included in both the NAT and EUM Regional Plans be shown in the EUM Regional Plan only.
- h) The common boundary between that part of SRR Edinburgh, covering the area encompassed by FIR Scottish and SRR Stavanger be changed as follows:
From 6000N 0000 to 6100N 0000.

19.1.6 The Committee also considered whether ocean station vessels should be given the status of rescue sub-centres. However, after careful consideration, it was decided that this was not feasible mainly because these vessels did not have sufficient communication facilities and were not equipped to assume efficiently the function of such centres. The Committee therefore agreed to confirm the provision contained in paragraph 1.3.2 of Section 3 of the Ocean Station Vessel Manual which specifies that the commanding officer of such a vessel may be delegated the authority to control search and rescue operations at the scene of the incident.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE
ACTION TAKEN ON AGENDA ITEM 19

19.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 19 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 19

19.3.1 The General Committee reviewed the material presented to it under Agenda Item 19 and made no comment.

Agenda Item 20: Search and rescue facilities and plans for coordinating their use

STATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 20

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraph 2.1.1.3 of the Report on Agenda Item 2, governed the consideration of Agenda Item 20.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 20

20.1.1 SAR Facilities Plan

20.1.1.1 In preparing the SAR Facilities Plan, the Committee consistently specified only minimum facilities required, taking into account as far as possible the present availability of facilities.

20.1.2 List of SAR Facilities

20.1.2.1 The list of facilities appearing in Table SAR-1 at Appendix A to this Section represents the minimum requirements to ensure SAR coverage for existing and proposed international air routes in the region.

RECOMMENDATION No. 20/1: SAR FACILITIES

That States within the Region ensure the provision of the facilities listed in Table SAR-1.

Comment: In regard to Table SAR-1, it should be noted that

- a) Locations shown are not intended to signify exactly where the facility should be but merely indicate from where the range has been estimated to ensure full coverage of the region.
- b) The facilities listed are the minimum requirements for search and rescue purposes and it is noted that in many cases States have facilities available additional to those listed.

- c) The facilities listed need not be provided exclusively for SAR operations but may be aircraft or ships used in other assignments which can be made available for SAR operations at short notice.
- d) The requirement is for the type of facility listed to be available on a 24-hour basis and be within such proximity to the stated location that one facility of the type required can be activated within a reasonable period for action in the area. Except that, in certain instances, where long-range searching facilities might be required, the availability of search aircraft on a "redeployment" basis has been accepted, the criterion being the ability of a State to provide search cover for the whole of its area of responsibility.

20.1.2.2 The Committee considered also the requirement for facilities in the area mentioned in paragraph 19.1.4 of Part 19 of this Report.

RECOMMENDATION No. 20/2: REQUIREMENT FOR ADDITIONAL SAR FACILITIES

That Canada, Denmark and the United States of America provide such SAR facilities in the SRR mentioned in Recommendation No. 19/2 of this Report as are required to meet the needs of aircraft operations on the polar routes between Northern Europe and Alaska.

20.1.2.3 The Committee noted that, due to its location and communication capabilities, especially with regard to alerting and communicating with ships at sea, Shannon ACC was able to render valuable assistance to the RCCs Edinburgh and Plymouth. It was also noted that procedures for such assistance were to be established and constantly reviewed by the States concerned.

20.1.2.4 The Committee further noted that certain States were providing a number of supplementary services. Amongst these was specifically noted the SAR escort service which has proved to be a valuable type of preventive SAR service. It was therefore agreed that it should be indicated in Table SAR-1 where such service is provided. In addition, it was agreed that the policy governing the provision of this service by two States should be included for information in the Report on this Item (see Appendices B and C to Section 1 of this Part).

20.1.2.5 The Committee also considered the question of assistance in Search and Rescue which could be rendered by ships to aircraft in distress, and particularly the ways and means by which the position of ships along certain air routes could be made available to the appropriate RCC. It noted that it was intended that this question be dealt with by ICAO in cooperation with IMCO and therefore did not take any specific action. However, it agreed that information material presented to the Meeting by one State on this subject should be included in the Report in view of the great interest this subject held for the Meeting (see Appendix D to Section 1 of this Part).

20.1.3 Use of helicopters for Search and Rescue

20.1.3.1 A certain number of helicopters has been included in Table SAR-1. The Meeting has utilized the following classification as indicated in Recommendation No. 19/2 of the RAC/SAR Division.

- Light Rotary Wing Aircraft (RWL) - A light rotary wing aircraft suitable for rescue purposes with, in normal circumstances, a radius of action of up to 50 nautical miles and a capacity for evacuating at least one person.
- Medium Rotary Wing Aircraft (RWM) - A medium rotary wing aircraft suitable for rescue purposes with, in normal circumstances, a radius of action in excess of 50 nautical miles and a capacity for evacuating more than one person.

20.1.3.2 When helicopters are used as rescue facilities, it has been noted that they need a specialized type of equipment.

RECOMMENDATION No. 20/3: USE OF HELICOPTERS FOR SEARCH AND RESCUE

That, where helicopters are used for Search and Rescue purposes, they be equipped with a hoist and equipment capable of lifting persons from the ground or water.

20.1.4 Mutual SAR Assistance

20.1.4.1 The Committee considered that the importance of cooperation between States was of great significance in the NAT Region. It therefore agreed that the attention of States should be drawn to the importance of agreements for mutual assistance. In particular, in view of the difficulty in providing full coverage of the area of responsibility of an RCC by aircraft of its own rescue units, it was considered that the States concerned should enter into arrangements with other provider States so as to facilitate the coverage of certain parts of their areas.

RECOMMENDATION No. 20/4: MUTUAL ASSISTANCE FOR SEARCH AND RESCUE OPERATIONS

That States should enter into arrangements with neighbouring States, to give mutual assistance in SAR operations when so requested, particularly where difficulties exist in meeting the minimum requirements as specified in Table SAR-1 or in providing full coverage of an SRR without the aid of rescue facilities of adjacent RCCs.

20.1.5 Means of locating survivors

20.1.5.1 The Committee noted that there were many routes in the NAT Region involving long flights over the open sea. In addition, there were also a number of routes requiring long flights over sparsely inhabited territories. In view of the topographic features of these territories and the prevailing meteorological conditions, the Committee found it necessary to call attention to the need for improving the means of location of survivors.

20.1.5.2 Survival Beacons

20.1.5.2.1 The Committee noted that Annex 6 specified that Regional Air Navigation Meetings should determine whether there was a requirement for the carriage of survival beacons. The Meeting agreed that such a requirement existed in the NAT Region. However, in view of the current inability to implement such a requirement because of the existing non-standardization of the frequencies on which such equipment operates, it refrained from formulating a recommendation in this respect.

20.1.5.2.2 The Committee noted further that ICAO was taking action to reach agreement on the frequencies to be employed and the operating characteristics of such beacons and expressed its hope that such agreement would be forthcoming in the near future.

20.1.5.2.3 During the discussion, one State indicated its intention of proposing that the present recommendation concerning carriage of a portable radio transmitter operating on VHF as contained in paragraph 6.3.3.2 of Annex 6 should be given the status of a standard, that the frequency 121.5 Mc/s should be specified as the standard frequency on which survival beacons should operate and that, after an adequate transition period, paragraph 6.3.3.1 b) of the Annex should be deleted. Another State indicated that it could not completely agree with this proposal and that it would request the retention of paragraph 6.3.3.1 b) of Annex 6 as it believed that the carriage of a portable MF/HF radio transmitter would continue to be a requirement, particularly in view of the fact that distant coast stations as well as ships in the close vicinity of scenes of accidents would be able to receive transmissions from survivors. In view of the preceding statements, another State wished it to be recorded that a number of States in the NAT Region have agreed on a standard equipment for a survival beacon operating on frequency 243.0 Mc/s on C/W which has been in existence for some years and that some States have such equipment already in quantity production.

20.1.5.2.4 The Committee further considered, however, that the attention of operators should be drawn to the fact that the SAR aircraft of some States were currently equipped with the means of location of certain types of survival beacon, and that they should be encouraged to equip their aircraft on these routes with beacons compatible with the existing SAR facilities.

20.1.5.2.5 The Committee also noted that it would assist operators in making the choice of survival beacons to be carried, if States were to promulgate in their AIPs details of the capability of SAR aircraft to home on to survival beacons.

20.1.5.3 Crash Locator Beacons

20.1.5.3.1 The Committee noted Recommendation 17/5 of the RAC/SAR Division and considered that great value would derive from the installation of Crash Locator Beacons in aircraft flying in the NAT Region.

20.1.5.4 Visual Aids to Location

20.1.5.4.1 The Committee agreed that, whilst the greatest improvement in means of location would probably come from further developments of radio aids to location and their carriage by aircraft, the importance of improvement in visual aids to location and the conspicuity of survival equipment should not be overlooked.

RECOMMENDATION No. 20/5: MEANS OF LOCATING SURVIVORS

That, in view of the great difficulties of locating survivors in the NAT Region, a requirement for survival beacons existed. To this end:

- a) Operators should be encouraged, having regard to the route flown, to carry survival beacons compatible with the equipment used by SAR aircraft along such routes;
- b) States should study and adopt a type of automatic or semi-automatic crash locator beacon, and encourage the use of this equipment in aircraft of their Registry;
- c) States should continue to encourage the improvement of visual location devices and conspicuity of survival equipment.

RECOMMENDATION No. 20/6: HOMING CAPABILITIES OF SAR AIRCRAFT

That States publish in their AIPs information on the capabilities of their SAR aircraft to home on to survival beacons.

20.1.6 Instructions for the use of collective rescue equipment

20.1.6.1 The Committee agreed that it was necessary to ensure that survivors can make full use of rescue equipment for collective use provided in aircraft.

RECOMMENDATION No. 20/7: INSTRUCTIONS FOR THE USE OF COLLECTIVE RESCUE EQUIPMENT

That the instructions concerning the operation of rescue equipment provided for collective use in aircraft, shown on or accompanying such equipment, should be in the language of the State of registry of the aircraft and in two other of the three official ICAO languages, one of which should be the English language.

20.1.7 Information on SAR Facilities

20.1.7.1 Although States are generally meeting the requirement of Annex 15 regarding the provision of information in their AIPs on SAR services and facilities, the Committee considered it advisable to restate this requirement in view of its importance for the safety of air navigation.

RECOMMENDATION No. 20/8: PUBLICATION OF INFORMATION ON SEARCH AND RESCUE FACILITIES

That States publish full particulars on Search and Rescue services and facilities in their AIPs as provided in Annex 15 in order to make possible the fulfilment by operators of the obligations imposed by paragraphs 3.6 of Annex 6 and 4.4.2 of Annex 12.

20.1.8 Coordination between SAR services and with operators

20.1.8.1 The Committee agreed that cooperation between Search and Rescue services of different States and between these and operators should be encouraged, particularly with regard to joint training and exercises.

RECOMMENDATION No. 20/9: JOINT SAR TRAINING AND/OR EXERCISES

That States make arrangements for joint training and/or exercises between their Search and Rescue units and those of other States and with operators in order to promote Search and Rescue efficiency.

20.1.9 Search and Rescue Training Aids

20.1.9.1 Noting that international air operations extended into the polar regions, the Committee agreed that it would be of assistance to States if ICAO were to produce a film, within its programme of training aids, dealing with survival and rescue operations in Arctic regions.

RECOMMENDATION No. 20/10: TRAINING FILM ON SEARCH AND RESCUE

That ICAO produce a training film on survival and rescue operations in Arctic regions.

APPENDIX A to SECTION 1, PART 20TABLE SAR-1 - FACILITIESEXPLANATION OF TABLEColumn

1. Name of the Rescue Co-ordination Centre (RCC) and Rescue Sub-Centre (RSC).
2. Location of each rescue unit.
3. Category of search and rescue aircraft, the category being indicated as follows

Very long range (VLR) - Those aircraft with a radius of action of 1 000 NM plus 2-1/2 hours search remaining.

Long range (LRG) - Those aircraft with a radius of action of 750 NM plus 2-1/2 hours search remaining.

Medium range (MRG) - Those aircraft with a radius of action of 400 NM plus 2-1/2 hours search remaining.

Short range (SRG) - Those aircraft with a radius of action of 150 NM plus 1/2 hour search remaining.

Light rotary wing (RLW) - A light rotary wing aircraft suitable for rescue purposes with, in normal circumstances, a radius of action of up to 50 NM and a capacity for evacuating one person.

Medium rotary wing (RWM) A medium rotary wing aircraft suitable for rescue purposes with, in normal circumstances, a radius of action in excess of 50 nautical miles and a capacity for evacuating more than one person

4. Category of search and rescue marine craft, the category being indicated as follows:

Rescue vessel	- RV
Rescue boat	- RB

Marine craft are categorised according to whether they are rescue boats (RB) or rescue vessels (RV). The former are short range coastal and river craft with speeds approaching 14 knots or better. The latter, by contrast, possess inherent seagoing qualities, long range and reasonable speeds. Craft of these types now in service for patrol, customs pilotage and other uses will fulfil the desired purpose if assigned a high priority for search and rescue operations.

5. Land rescue units at locations where due to the topography of the terrain a particular requirement exists.
6. Any information supplementary to the above.

20 - Report on Agenda Item 20
20 - Rapport sur la question 20 de l'ordre du jour

RESCUE COORDINATION CENTRE	RESCUE UNITS				REMARKS
	LOCATION	AIRCRAFT	MARINE CRAFT	LAND	
CENTRE DE COORDINATION DE SAUVETAGE	EQUIPES DE SAUVETAGE				REMARQUES
	EMPLACEMENT	AERONEFS	BATIMENTS DE SURFACE	GROUPE TERRESTRES	
1	2	3	4	5	6
<u>BERMUDA / BERMUDE</u>					Facilities provided by the U.S.A. / Moyens fournis par les Etats-Unis.
<u>CANADA</u> Torbay RCC	Dartmouth Goose Torbay	 MRG IRG	 RV RB		The coverage of the South Eastern part of the SRR is effected by either redeployment or by request for assis- tance from Lajes/ La couverture de la partie sud-est de la SRR est assurée soit par redéploiement, soit sur demande d'assistance par Lajes. Escort Service. Available/ Service d'escorte assuré
<u>DENMARK</u> <u>(GREENLAND)</u> / <u>DANEMARK</u> <u>(GROENLAND)</u> Søndrestrøm RCC *	Søndre Strøm fjord Grønødal	IRG MRG RWM	 RB ø		* Operated by U.S.A. / * Service assuré par les Etats-Unis ø Rescue cutters suitable for operations in the fjords and at sea available through CINC Greenland Command Grønødal Naval Base/ ø Cutters de sauvetage adaptés aux opérations dans les fjords et en mer, mis à disposition par "CINC Greenland Command", base navale de Grønødal Escort Service Available/ Service d'escorte assuré

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RESCUE COORDINATION CENTRE	RESCUE UNITS				REMARKS
	LOCATION	AIRCRAFT	MARINE CRAFT	LAND	
CENTRE DE COORDINATION DE SAUVETAGE	EQUIPES DE SAUVETAGE				REMARQUES
	EMPLACEMENT	AERONEFS	BATIMENTS DE SURFACE	GROUPE TERRESTRES	
1	2	3	4	5	6
Thule RCC *	Thule ø	LRG MRG RWM			* Operated by U.S.A. * Service assuré par les Etats-Unis Escort Service available Service d'escorte assuré ø Facility can be rede- ployed to cover the Northern and Eastern part of the SRR ø Le moyen peut être redéployé pour couvrir les parties nord et est de la SRR
<u>CELAND/ISLANDE</u> Reykjavik RCC	Keflavik Reykjavik	LRG RWM MRG SRG	RV RB	MRU	Escort Service Available Service d'escorte assuré
<u>IRELAND/IRLANDE</u>	Shannon	SRG	RB		
<u>PORTUGAL</u> Lajes RCC	Lajes Ponta Delgada	VIR * SRG	RV		* Facility can be rede- ployed to Sal Island to cover the southern part of the SRR. * Le moyen peut être redéployé à l'île de Sal pour couvrir la partie sud de la SRR
<u>NORWAY/NORVEGE</u> Bodø RCC	Bodø Stavanger	MRG * SRG RWM MRG	RV RB RV		* Facility can be rede- ployed to cover northern part of the SRR * Le moyen peut être redéployé pour couvrir la partie Nord de la SRR

RESCUE COORDINATION CENTRE	RESCUE UNITS				REMARKS
	LOCATION	AIRCRAFT	MARINE CRAFT	LAND	
CENTRE DE COORDINATION DE SAUVETAGE	EQUIPES DE SAUVETAGE				REMARQUES
	EMPLACEMENT	AERONEFS	BATIMENTS DE SURFACE	GROUPES TERRESTRES	
1	2	3	4	5	6
UNITED KINGDOM/ ROYAUME-UNI Edinburgh RCC*	N. Ireland Scotland	LRG*	RV RV		* Aircraft and marine craft will be made available as required Escort Service Available * Des aéronefs et des bâtiments de surface peuvent être fournis selon demande Service d'escorte assuré
Plymouth RCC*	S.W. England	LRG *	RV		* Coverage of the southwestern part of the SRR is effected by either redeployment or by request for assistance from Lajes. * La couverture de la partie sud-ouest de la SRR est assurée soit par redéploiement, soit sur demande d'assistance par Lajes Escort Service Available Service d'escorte assuré
U.S.A. New York RCC	Brooklyn	LRG RWM			The coverage of the easternmost part of the SRR is affected by either redeployment or by request for assistance from Lajes La couverture de la partie est de la SRR est assurée soit par redéploiement, soit sur demande d'assistance par Lajes.
	Elizabeth City	LRG RWM	RB		
	New York		RB		
	Salem	LRG RWM			Escort Service Available Service d'escorte assuré
	Bermuda	VLR LRG	RV RB		

APPENDIX B to SECTION 1, PART 20SAR ESCORT FACILITIES

(Presented by the United Kingdom)

1. SAR escort facilities are provided by the United Kingdom for aircraft flying over water or sparsely inhabited areas, whose operating efficiency has become impaired and is likely to deteriorate. Its purpose is to curtail delay in reaching aircraft in distress and to eliminate the possibility of lengthy or abortive searching. It is available in both the Edinburgh and Plymouth SRRs.

2. The request for an escort lies entirely with the aircraft commander and should only be made if he considers that there is a serious necessity for it; a simple case of feathering one engine is not normally considered sufficient cause.

3. Disparity in speed and normal altitudes between civil and SAR aircraft may not permit escort in the accepted sense; the SAR aircraft is positioned as close as possible to the civil aircraft and below it. It may well be that the SAR aircraft will turn back along the intended track of the civil aircraft sometime before the interception is made so the latter will be catching up the former. Radiotelephony communication on 121.5 Mc/s is established between the two aircraft as early as possible and maintained during the entire operation.

APPENDIX C to SECTION 1, PART 20SAR ESCORT FACILITIES

(Presented by the United States of America)

1. SAR escort facilities similar to those presented by the United Kingdom are provided by the United States of America for aircraft flying over water or sparsely inhabited areas, whose operating efficiency has become impaired and is likely to deteriorate.
 2. The provision of this service is governed by the following policy provided weather and other operational and mechanical conditions permit.
 - 2.1 An escort aircraft will be made available when the pilot of another aircraft requests such escort.
 - 2.2 An aircraft with 75% of the available engines operating normally and which is not over two hours flight time from the nearest shore will be considered as operating in the alert phase and SAR aircraft will be alerted on standby to proceed if needed.
 - 2.3 An escort will be made available for all aircraft which are considered to be in the distress phase.
- NOTE: For the purpose of providing this service, aircraft are generally considered to be in distress when the following conditions exist:
- a) When the aircraft is threatened by grave or imminent danger.
 - b) When the aircraft is unable to maintain altitude.
 - c) When the aircraft is on fire in flight or a fire is suspected on an aircraft in flight.
 - d) When an aircraft is operating on less than 75% of the installed engines, i.e. when two engines out of four are out of order or when one engine is feathered and a second is running rough out of a total of 4 available engines.
 - e) When an aircraft which is still far off-shore is required to operate on 75% of the installed engines and must operate these at excessive power for a long period of time. Normally two hours' flight time to reach the shore is used as a guide for such cases.

APPENDIX D to SECTION 1, PART 20THE ATLANTIC MERCHANT VESSEL REPORT SYSTEM (AMVER)

(Presented by the United States of America)

1. The purpose of this presentation is to provide information on the U.S. Coast Guard's automated ships plot system in the Western North Atlantic area.
2. From the earliest days of ICAO, participating nations have been encouraged to maintain plots of merchant ships' positions in order that RCC's might know immediately what ships were in the vicinity of a possible distress case. Original attempts to maintain these positions manually left much to be desired as to speed and accuracy. When an aircraft is forced to ditch or a ship at sea begins to sink, speed and accuracy is of the essence, speed in determining where the closest help is, and accuracy of the system providing the information.
3. In order to utilize more effectively the great SAR potential of merchant shipping in the North Atlantic, the United States has instituted the Atlantic Merchant Vessel Report System (AMVER).
4. The AMVER system plots ship positions from data voluntarily sent in by a large number of merchant vessels to provide, rapidly, at any time, a list of vessels currently located in a given area. Such lists are called "Surface Pictures" (SURPIC's); this information is important to ships and aircraft which need help, and to those who coordinate Search and Rescue. The AMVER System covers the Western North Atlantic Ocean including the Gulf of Mexico and the Caribbean Sea. Merchant vessels of any flag need send relatively few and simple reports, as described in AMVER instructions, to any of seventeen U.S. Government Radio Stations which pass them, without charge, to the AMVER Center located near the RCC in the Custom House, New York. The AMVER Center uses electronic data processing machinery to handle the heavy volume of information and to enter current ships' positions in the magnetic "memory" section of the data processing machine.

5. The SURPIC's mentioned above can cover any given area at any given time. Ship's positions are projected by the electronic computer at the given time, to an estimated position up to 24 hours in advance of the last position report received. The given area is automatically scanned and the results are prepared in the AMVER Center in the form of a teletype tape that is quickly transmitted to any RCC serving any portion of the area covered by the AMVER System. The whole process is performed in a matter of minutes and this service is available to any RCC 24 hours a day, 7 days a week. The following information is tabulated for each ship in the SURPIC. Name, radio call sign, position in latitude and longitude to the nearest tenth of a degree, track, speed, whether equipped with radar or not, whether a doctor is normally on board, whether 2182 kc/s voice capability is available, what radio watches are maintained, destination and ETA. If only ships carrying doctors are required, only these ships are processed and listed.

6. AMVER is used in all aspects of search and rescue but the one which is of most interest to aviation is the speed with which a pilot in distress can obtain the positions of vessels along his projected track. In such an incident, Air Traffic Control Center would alert the RCC. The RCC would obtain the surface picture along the track by direct teletype and pass it back to the pilot via Air Traffic Control Center. In the meantime, the RCC, besides dispatching rescue units, would be issuing an emergency broadcast to shipping via a radio station, and would request that those vessels in the vicinity of the distressed aircraft track listen on 2182 kc/s. In this manner, the RCC and Air Traffic Control Center would attempt to get the aircraft and a ship together in position and voice communications in case the pilot desires to ditch alongside. In similar fashion, the merchant ships in the area of an actual ditching can be quickly determined. Frequently, the nearest surface aid is found in the form of a merchant vessel. A case where significant aid was given by merchant vessels was the ditching of a U.S. Air Force KC-97, thirty-five miles off the Florida coast, during the night of 30 March 1960. Coast Guard Radio Station, Miami, acting on information from the AMVER System, contacted several vessels in the vicinity of the disaster. The Sinclair Refining Company tanker SS SHELDON CLARK and the United Vinters Line wine tanker SS ANGELO PETRI responded to the call and rescued five persons.

7. AMVER is used in a similar fashion for surface search and rescue situations as well. An additional bonus to merchant ships is that AMVER can supply them with information as to what ships near them have a doctor aboard. A merchant ship at sea with a seriously ill or injured person on board, can, by contacting the RCC, obtain medical advice by radio. If the case is serious enough so that a doctor on the scene is necessary, AMVER can supply the vessel with the positions of doctor-vessels which are near them. With this information, the vessel can then arrange a rendez-vous with the doctor-vessel.

8. To better illustrate the use to which AMVER is being put, statistics for the month of January 1961 are given below. It can be seen that AMVER prepared 104 separate surface pictures which were delivered to the several Rescue Coordination Centers requesting them. Grouped by types of situations, these are:

Ship medico	38
Aircraft alert/distress	37
Vessels disabled/missing	17
Texas Tower #4 disaster	1
Unusual sightings (flares)	4
Special demonstrations	7
	<hr/>
Total	104
	<hr/>

SECTION 2; COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 20

20.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 20 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 20

20.3.1 The General Committee reviewed the material presented to it under Agenda Item 20 and made no comment.

Agenda Item 21 : Search and rescue requirements for communicationsSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO
AGENDA ITEM 21

The plan of aircraft operations, together with the statement of regionally agreed operational requirements established by Sub-Committee 1, as reported in Part 1 of the Report on Agenda Item 1 and in paragraph 2.1.1.3 of the Report on Agenda Item 2, governed the consideration of Agenda Item 21.

SECTION 1 : ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 2121.1.1 Communications between rescue coordination centres.

21.1.1.1 The Committee when considering the communication requirements between rescue coordination centres agreed to use as a basis the inter-area communication requirements as specified in para. 15.1.1 of Part 15 of the Report and the table attached as Appendix A to Part 15, Section 1. It agreed that in those cases where the ATS requirement specified direct and immediate communication between adjacent FICs or ACCs and where the RCCs associated with the FICs and ACCs concerned were connected by local communication links, the ATS communication requirements would also meet the SAR communications requirements as specified in paragraph 3.2.2.(b) of Annex 12.

21.1.1.2 In a number of cases where the RCC, associated with a FIC or ACC was not located in the same general area, the Committee agreed to specify additional communication requirements between such FICs/ACCs and the related RCCs.

21.1.1.3 In a few cases the Committee found that the communications requirements specified for ATS would, in case of search and rescue operations, not meet the SAR communication requirements. However, bearing in mind the economic repercussions imposed on the provider States if permanent communication links were specified for such cases, it was agreed that the SAR communication requirements could be met by communication links to be established on request.

21.1.1.4 In one particular case insufficient information was available regarding the plans on the SAR organization in one State adjacent to the NAT Region and it was therefore not possible to specify a definite communications requirement until clarification of the existing situation and of the plans of this administration had been obtained.

21.1.1.5 In a further case the Committee agreed to accept the communication requirement as specified for ATS provided that in cases of actual SAR operations the transit time requirement could be reduced.

21.1.1.6 The table presented at Appendix A to this Section therefore indicates the SAR requirements for communications between RCCs, over and above those contained in the table at Appendix A to Section 1 of Part 15 of this Report, as they were communicated to the Communications Committee.

21.1.2 Communications between rescue coordination centres and other agencies

21.1.2.1 The Committee considered the additional communication requirements with other agencies as specified in paragraphs 3.2.1 and 3.2.2. of Annex 12 and agreed that, as these were in all cases national responsibilities, there existed no need to specify them in detail.

21.1.3 Communications between rescue coordination centres and Ocean Station Vessels

21.1.3.1 The Committee considered the requirement of communications between rescue coordination centres and ocean station vessels. It noted that the third NAT RAN Meeting had already dealt with this question and had stipulated in Recommendation 55 (c) of the COM Committee of that Meeting that, for prolonged communication for the purpose of coordination between RCCs and OSVs, States should use available means of communication other than the en-route communications channels. Even though it was agreed that the present situation appeared to be fairly satisfactory, it was believed necessary to again draw the attention of the Communications Committee to this particular problem with a view to providing separate communication channels for this purpose if and when required.

21.1.4. VHF "scenes of action" frequency for SAR operations

21.1.4.1 The Committee considered the desirability of establishing a requirement for provision of a common VHF "scene of action" frequency for search and rescue operations additional to the worldwide emergency frequency of 121.5 Mc/s. It was agreed that an urgent requirement for such a common frequency existed. However, when reviewing the existing situation, it noted the following:

21.1.4.1.1 In the EUM Region and in the northern part of the AFI Region, the frequency 123.1 Mc/s has been designated for the above purpose and some of the search and rescue facilities to be used in the NAT Region and operated from the eastern seaboard of the North Atlantic are already equipped with this frequency.

21.1.4.1.2 In Canada and the United States the frequency 123.1 Mc/s has been assigned for other purposes and the frequency 121.6 Mc/s is therefore used by the United States as the "scene of action" frequency.

21.1.4.2 The Committee was therefore not able to specify a definite frequency for common use as the "scene of action" frequency. It was, however, believed that if in further deliberations within the COM Committee no agreement on a common frequency could be reached, the present situation would be temporarily acceptable, except that in areas where facilities differently equipped might be required to cooperate the frequency 121.5 Mc/s would have been used for this purpose.

21.1.4.3 In order to avoid any possible misunderstanding the Committee stated, however, that there existed no requirement for aircraft not especially equipped for search and rescue to carry the "scene of action" frequency.

21.1.5. Carriage by aircraft of frequency 2182 kc/s for communication with ships

21.1.5.1 As mentioned in paragraph 20.1.2.5 of Part 20 of the Report, the Committee considered the question of assistance in search and rescue which could be rendered by ships to aircraft in distress. Under this Agenda Item, it therefore reviewed the requirement for possibilities of communication either between aircraft in distress and ships or between SAR aircraft and ships and the extent to which the frequency 2182 kc/s could be used for this purpose. In this connection, it noted that this question was already under consideration both by ICAO and by IMCO and that it was also to be reviewed by the 7th Communications Division.

While it was therefore agreed that no specific provisions should be made at this time with regard to the carriage of this frequency by aircraft, it was nevertheless believed of sufficient importance that the attention of all concerned be drawn to the possible use that could be made of it.

RECOMMENDATION 21/1: USE OF FREQUENCY 2182 Kc/s FOR COMMUNICATIONS BETWEEN AIRCRAFT AND SHIPPING

That the attention of all concerned be called to the possibilities of the frequency 2182 kc/s for communication between aircraft and ships in case of emergency or SAR operations.

21.1.6 Requirement for a compulsory watch on frequency 121.5 Mc/s

21.1.6.1 The Committee when considering this question noted Recommendation 35 of the Communications Committee of the Third North Atlantic Regional Air Navigation Meeting (Montreal 1954) to the effect "That aircraft, when not otherwise engaged in VHF communications, and, in addition, to the extent that they are able, should, when operating on routes over the North Atlantic, maintain communication watch on 121.5 Mc/s." Whilst agreeing with the objective of this Recommendation which was directed towards assisting in intercepting possible emergency communications by other aircraft made on that frequency, the Committee considered it necessary in the interests of clarity to restate the requirement in the following terms:

"That a continuous listening watch should be maintained on frequency 121.5 Mc/s except for those periods where aircraft were required to maintain a listening watch on other VHF channels and equipment limitations or cockpit duties did not allow this watch to be maintained."

The Committee was agreed that the Communications Committee could best meet this requirement by introduction of an appropriate Supplementary Procedure.

21.1.6.2 When considering this subject, the Committee was presented with practical operating experience regarding the use of frequency 121.5 Mc/s in the NAT Region which seemed to indicate that considerable abuse was committed in utilizing this frequency. It was agreed that such practices tended to degrade the effectiveness of measures which are being taken in the interest of safety of international air navigation and that steps should be taken to eliminate this highly undesirable practice.

21.1.6.3 The Committee noted Recommendation 48 of the Special North Atlantic Regional Air Navigation Meeting 1956 to the effect "That, to the maximum extent possible, arrangements should be made aboard ocean station vessels to enable a continuous guard to be maintained on 121.5 Mc/s during communication on 127.9 Mc/s at the same operating position." It agreed that the requirement expressed in this Recommendation still existed and therefore informed the Communications Committee accordingly.

APPENDIX A to PART 21, SECTION 1

Table of SAR requirements for communications
supplementary to those specified for ATS purposes
in Part 15 of the Report

The requirements for communications are those
indicated in para. 3.2.2 of Annex 12

RCC TO BE CONNECTED (1)	RCC, ACC OR FIC TO BE CONNECTED (2)	REMARKS (3)
Edinburgh	Shanwick ACC	*Should the ATS communication requirement between related ACC'S not meet the needs of SAR services for rapid communications as per Annex 12, provision should be made for communications additional to those of ATS to be made available "on request." Requests for start of operation of any additional communications may be transmitted via communications used by ATS.
	Plymouth RCC	
Plymouth	Shanwick ACC	
	Edinburgh RCC	
	Lajes RCC *	Requires clarification regarding plans of Morocco. If RCC Rabat re-located to Casablanca then ATS requirement between Lisboa and Casablanca will also meet SAR requirements.
Torbay	Gander ACC	
	Lajes RCC *	
Lajes	Plymouth RCC *	
	Torbay RCC *	ATS COM requirement of B20 between Lisboa ACC and Canarias FIC should be reduced to B10 in case of actual SAR operations.
	Rabat RCC	
	Gando RCC	
	Dakar RCC *	
	San Juan *	

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON
THE ACTION TAKEN ON AGENDA ITEM 21

21.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 21 and made no comment.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN
ON AGENDA ITEM 21

21.3.1 The General Committee reviewed the material presented to it under Agenda Item 21 and made no comment.

Agenda Item 22: Search and rescue supplementary proceduresSTATEMENT OF OPERATIONAL REQUIREMENTS RELATING SPECIFICALLY TO AGENDA ITEM 22

None of the statements of operational requirements related specifically to Agenda Item 22.

SECTION 1: ACTION BY THE RAC/SAR COMMITTEE ON AGENDA ITEM 2222.1.1 Amendments to SAR Supplementary Procedures

22.1.1.1 The Committee agreed that, because any flight in the NAT Region would be carried out over large areas of open water or mountainous and sparsely inhabited areas, it would be necessary to make the carriage of rescue equipment in private aircraft, i.e. those whose requirement for equipment is not covered by the specifications of Annex 6, the subject of a supplementary procedure. In addition, it was further agreed that such aircraft, when undertaking operations in the NAT Region, should be equipped with two-way radio communications equipment unless they were specifically exempted from this provision in accordance with local procedures.

22.1.1.2 A further procedure which was agreed required that the RCCs be informed of the radio frequencies available to survivors in cases of emergencies.

22.1.1.3 It was further agreed that information on aircraft which may have been compelled to ditch should be transmitted to ships at sea and coast stations at an early stage and an appropriate supplementary procedure covering this was formulated.

22.1.1.4 Regarding the question of granting permission to SAR facilities to transit boundaries, it was agreed that States should conclude appropriate agreements amongst themselves providing that SAR facilities be permitted to cross their national boundaries without prior permission after an appropriate notification had been sent. It was, however, accepted that in some cases such agreements may be limited in scope and may not cover all the SAR facilities provided by a neighbouring State.

22.1.1.5 With regard to SAR communications facilities, the Committee agreed that, in order to maintain their efficiency over long periods of inactivity, it would be necessary to conduct regular communications tests at frequent intervals.

22.1.1.6 A number of incidents which had occurred during search and rescue operations had indicated that there existed a requirement for a supplementary procedure which would keep aircraft not participating in the actual search and rescue operations off the scene of the incident. The presence of such aircraft had in the past created dangerous situations and had resulted in a number of near misses. It was therefore agreed that a supplementary procedure to this effect should be formulated.

RECOMMENDATION No. 22/1: AMENDMENT TO THE RAC/SAR SUPPLEMENTARY PROCEDURES

- a) Add, following paragraph 8.1.1, a new paragraph 8.1.2 as follows:

"8.1.2 Private aircraft operating within the FIRs of the NAT Region shall

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

- b) Add against paragraph 8.3.1 in Document 7030 in Column 2 "NAT".

- c) Add against paragraphs 8.5.2 and 8.5.3 in Document 7030 in Column 2 "NAT".

- d) Add against paragraph 8.6.1 in Document 7030 in Column 2 "NAT".

- e) Add against paragraph 8.7.1 in Document 7030 in Column 2 "NAT".

- f) Add a new paragraph 8.8 to Document 7030 as follows:

"8.8 Flights into areas of SAR operations

"8.8.1 Aircraft not engaged in actual SAR operations and not controlled by air traffic control should as far as practical avoid any area in which actual search and rescue operations are in progress unless otherwise authorized by the appropriate ATS unit."

22.1.2 Carriage of Survival Equipment in Aircraft

22.1.2.1 The Committee was requested by Sub-Committee 1 to consider and report on a proposed operational requirement presented to the Meeting by the Air Navigation Commission conforming to a proposed amendment to paragraph 6.3.3.1 of Annex 6, dealing with the circumstances under which certain stated life saving equipment should be carried. The Committee was informed that this proposed amendment was now being considered by the Air Navigation Commission and that it had been referred to this meeting in the belief that the meeting would be able to provide some additional opinions on the subject which might be of assistance to the Commission.

22.1.2.2 Having noted that this contentious question had, in the past, been considered by RAC/SAR, OPS and AIR divisional type meetings, and that a proposed amendment had recently been submitted to all States for comment, the Committee decided that it would be inappropriate for the RAC/SAR Committee to submit any views on the adequacy of this proposed requirement since there was a good chance that the few States represented would only reiterate the views already submitted to the Commission. Furthermore, since this was a matter (amendment of an Annex) which is normally treated at a Divisional type meeting, and since many operational considerations are involved, it was generally agreed that the Committee was not competent to deal with it.

22.1.2.3 Although the Committee was not in a position to consider in detail the question posed by the Air Navigation Commission, it decided that in principle a SAR requirement existed in the North Atlantic Region for all aircraft to be equipped with sufficient life saving equipment to ensure survival pending the completion of search and rescue operations.

SECTION 2: COMMENTS AND RECOMMENDATIONS BY SUBCOMMITTEE 1 ON THE ACTION TAKEN ON AGENDA ITEM 22

22.2.1 The Subcommittee reviewed the material presented to it under Agenda Item 22 and made the following comment:

Subcommittee 1 noted the RAC/SAR Committee's observation at paragraph 22.1.2.3 but could offer no further assistance to the Air Navigation Commission respecting the question posed by it.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 22

22.3.1 The General Committee reviewed the material presented to it under Agenda Item 22 and made no comment.

Agenda Item 23: Recapitulation of previous NAT Regional Recommendations (excluding AGA Recommendations) with a view to eliminating those which are no longer applicable

SECTION 1: ACTION BY THE TECHNICAL COMMITTEES ON AGENDA ITEM 23

23.1.1 Each Technical Committee examined all outstanding Recommendations of previous NAT Meetings in its field and, with the exception of the Recommendations stated below, found that all had either been superseded by Recommendations of this Meeting or were no longer valid.

23.1.2 COM COMMITTEE - Recommendation 52 of the Third NAT RAN Meeting was restated, with the deletion of the phrase "or radio telegraph" which is no longer valid.

RECOMMENDATION 23/1 - RETRANSMISSION OF R/T MESSAGES OVER THE AFS

That messages which are received by radiotelephone, and requiring retransmission, should be recorded in such a manner as to facilitate their retransmission.

Comment: This Recommendation is related to the question of retransmission of material on the aeronautical fixed service which has been received on the aeronautical mobile service and not to the requirements for the maintenance of a communication log.

23.1.3 MET Committee - The Committee agreed to restate Recommendation 20 of the MET Committee of the Second NAT RAN Meeting with several, generally minor, changes intended to bring the Recommendation up to date. The MET Committee noted that the Delegate of Iceland declared that the extra services required by these changes are already being rendered.

RECOMMENDATION 23/2 - MINIMUM SPECIFICATION OF METEOROLOGICAL FACILITIES AND SERVICES REQUIRED IN ICELAND

That the schedule given hereunder be regarded as the minimum specification of meteorological facilities and services required in Iceland for the provision of meteorological service to international aviation.

1. A main meteorological office, located at Keflavik aerodrome, providing meteorological services in accordance with the ICAO procedures in force in the North Atlantic Region, including:

1.1 The preparation and display of:

1.1.1 Surface synoptic charts embracing the North Atlantic Region for the main synoptic hours of 00, 06, 12 and 18 GMT.

1.1.2 Surface synoptic charts embracing the Eastern North Atlantic for the intermediate synoptic hours of 03, 09, 15 and 21 GMT.

1.1.3 Current contour charts embracing the North Atlantic Region for the 700, 500 and 300 millibar surfaces, at least twice daily.

1.1.4 Prognostic surface and upper air charts embracing the North Atlantic Region based on the synoptic charts prescribed in 1.1.1 and 1.1.3.

1.1.5 Thermodynamic diagrams of upper air soundings made at selected stations in the North Atlantic Region, including Scandinavia and the Eastern Seaboard of North America.

1.1.6 Route, flight, area and terminal forecasts and amendments thereto, as required for international operations to and from Keflavik and Reykjavik aerodromes and for operational planning.

1.1.7 Routine terminal forecasts and any necessary amendments thereto for Keflavik, Reykjavik and Saudarkrokur aerodromes.

1.1.8 Provision of area meteorological watch and the issue of SIGMET information.

2. Meteorological briefing for all international flights departing from Keflavik and Reykjavik aerodromes.

3. Hourly observations for aircraft to be made at Keflavik and Reykjavik aerodromes, and special observations on request and whenever rapid deterioration or improvement in weather conditions occurs.

4. Synoptic surface observations at the stations listed below at the hours 00, 03, 06, 09, 12, 15, 18 and 21 GMT:

Reykjavik	Akureyri
Keflavik	Raufarhöfn
Stykkishólmur	Delatangi
Galtarviti	Hólar
	Vestmannaeyjar

5. Upper air soundings of temperature, humidity and pressure at 00 and 12 hours GMT and upper wind observations at 00, 06, 12 and 18 hours GMT, by radioelectric means.

6. The collection and dissemination of meteorological information as required by operational centres and meteorological offices in the North Atlantic Region.

7. Broadcast of meteorological reports for aircraft in conformity with the supplementary procedures for the North Atlantic Region.

23.1.3.1 The MET Committee agreed to restate MET Recommendations Nos. 1 and 17 of the Third NAT RAN Meeting in the following forms

RECOMMENDATION 23/3 - SUPPLEMENTARY REPORTS FROM OCEAN STATION VESSELS (Ref. Rec. MET 1 of NAT III)

That the special attention of States operating ocean station vessels be drawn to the need for supplementary observations to be taken on board ocean station vessels between synoptic hours and disseminated.

RECOMMENDATION 23/4 - TRAFFIC HANDLING CHECKS (Ref. Rec. MET 17 of NAT III)

That

(a) in order to assess the efficiency of the communications channels, traffic handling checks should be undertaken at the following points:

- i) New York, with respect to the data transmitted on the radioteletypewriter circuit to Santa Maria and Paris;
- ii) Santa Maria, on the handling of meteorological data on the radioteletypewriter circuits to New York and Paris;
- iii) Paris, with respect to the meteorological data transmitted on the radioteletypewriter circuit to Santa Maria and New York;

Note 1: Checks should be made on the traffic handled between 0001 and 2359 GMT on a day determined by co-ordination between States concerned at the request of any interested State and should not be made on more than one day per month.

Note 2: References to Santa Maria are to be replaced by Lisboa when the relay centre in Santa Maria is transferred to Lisboa.

(b) reports be prepared in the form shown in the Annex* to this Recommendation;

(c) reports of checks carried out as in paragraph (a) above be sent to all North Atlantic States, ICAO and WMO as soon as possible and not later than two weeks after the check has been made.

* See page 23-4

(Annex to Recommendation 23/4)

METEOROLOGICAL TRAFFIC HANDLING CHECK

1	2	3	4	5	6	7
Message Collective or Bulletin Heading	Time of obser- vation or origina- tion of data GMT	Filing time (originating station or time message received (relay stn.) GMT	Time of transmission GMT	Group count	Handling and transmission time (Column 4 minus Column 3) in minutes	Remarks (if handling time greater than 30 minutes)
(Example of information to be entered on this form given below)						
SMUS 2KIDL	0000	0010	0040	500	30	Unable to transmit earlier because of equipment failure (transmitter inoperative)
SMNT KIDL	0000	0025	0046	250	21	
etc.						
etc.						
USUS KIDL	0000	0308	0348	600	40	
etc.						

23.1.4 RAC/SAR Committee -RECOMMENDATION 23/5 - INFORMATION ON THE POSITION OF SHIPS
(Ref. Rec. 17 of NAT III)

That those States in the Region recording information on the position of selected merchant or other ships at sea in the North Atlantic Ocean disseminate, on a regular basis, insofar as practicable, such information to other States of the Region requesting it.

RECOMMENDATION 23/6 - LIAISON VISITS BY RCC PERSONNEL
(Ref. Rec. 24 of NAT III)

That States of the Region, in co-ordinating their search and rescue organizations with those of neighbouring Contracting States, as provided in Annex 12, paragraph 2.1.5, and in the preparation of the detailed plan for the conduct of search and rescue (Annex 12, paragraph 4.1.1 and 4.1.2), encourage the exchange of visits of rescue co-ordination centre personnel of different States.

RECOMMENDATION 23/7 - LIAISON VISITS BY ATS PERSONNEL
(Ref. Rec. 24 of NAT III)

That, to promote efficiency in the co-ordination of air traffic control, States be encouraged to facilitate liaison visits by personnel of air traffic services units.

RECOMMENDATION 23/8 - METEOROLOGICAL INFORMATION TRANSMITTED
TO AIRCRAFT
(Ref. Rec. 10 of Special NAT)

That States draw the attention of aircraft operating agencies to the need to exercise a critical approach both to the number and contents of messages containing meteorological information transmitted to aircraft on the initiative of a ground agency, and to exercise discretion in requests from aircraft for meteorological information, in order that replies need not be unnecessarily lengthy,

RECOMMENDATION 23/9 - SYSTEM OF REPORTING ATS INCIDENTS
(Ref. Rec. 25 of Special NAT)

That States and operators provide a system of reporting incidents involving ATS and aircraft within 24 hours of their occurrence, and that these reports be addressed directly from the area control centre concerned to the interested operator or from the operator to the ACC.

RECOMMENDATION 23/10 - PROMULGATION OF RAC INFORMATION IN AIPs
(Ref. Rec. 26 of Special NAT)

That, in order to reduce the number of incidents, States ensure that their AIPs or similar publications contain all necessary information on air traffic services and communications procedures and practices peculiar to their respective North Atlantic and adjacent "domestic" control area or flight information regions.

SECTION 2: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 23

23.2.1 . Subcommittee 1 examined all outstanding recommendations of previous NAT Meetings in its field and found that all had either been superseded by Recommendations of this Meeting or were no longer valid.

23.2.2 The Subcommittee also noted the action taken by the Technical Committees as reported in Section 1.

SECTION 3: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 23

23.3.1 The General Committee reviewed the material presented to it under Agenda Item 23 and made no comment.

Agenda Item 24: Preparation of a tentative coordinated implementation programme for provision of the recommended revised requirements for facilities, services and procedures in the Region, including identification of any parts of the revised regional plan that might require priority implementation

SECTION 1: ACTION BY SUBCOMMITTEE 1 ON AGENDA ITEM 24

24.1.1 Subcommittee 1 reviewed the implementation dates proposed by the various technical committees and recommended the adoption of the following consolidated schedule.

RECOMMENDATION 24/1 - DATES OF IMPLEMENTATION, FACILITIES AND SERVICES

That the facilities and services called for by the following recommendations of the meeting be provided by the times indicated.

- a) Recs. 4/2. 4/3. 4/5. 4/6. 4/8. 4/10. 4/11. 4/13. 4/14. 4/15.
Radio Navigation Aids

Radio navigation aids not already implemented and the recommended changes in facilities and frequency assignments to be implemented as soon as practicable.

- b) AFS Facilities and Services

Recs. 6/1 to 6/3, 6/5 - Teletypewriter Channels in NAT Cable

Rec. 6/6 Revisions of NAT AFTN
Rec. 6/9 Discontinuance of Radio Circuits
Rec. 6/10 AFS Voice Circuits
Rec. 6/12 SAR-Requirements for Communication
Rec. 6/13 AFS MET Circuits

Through agreements between the States concerned, the Regional Plan for these facilities and services should be implemented as soon as practicable in the light of the operational requirement for the communication service provided.

24.1.1
(cont'd)

- c) Recs. 7/3 and 7/4 - VHF Facilities.

As soon as possible after the approval of the revised Plan by Council.

- d) Recs. 7/5 and 7/10 - Amendments stemming from the revision of Aerodrome list.

Immediately after approval of the revised Plan by Council.

- e) Recs. 7/8 and 7/9 - VHF Assignments.

12th April 1962.

NOTE: OSV's not able to change frequency on 12th April 1962 should do so as soon as possible thereafter.

- f) Recs. 7/14, 7/15 and 9/1 - Revision of HF Plan and associated Operating Practices in light of amended deployment principles.

12th April 1962.

- g) Rec. 7/16 - Requirement for HF Family A at new locations.

At the convenience of the States concerned after approval by Council.

- h) Rec. 7/17 - Deletion of HF Family D at specified locations.

At the convenience of the States concerned after approval by the Council.

- i) Rec. 7/18 - Deletion of HF Families B and C at Santa Maria.

Any time after implementation of Rec. 7/19.

- j) Rec. 7/19 - Addition of Families B and C at Lisboa.

At the convenience of Portugal after approval by Council.

- k) Rec. 7/20 - Withdrawal of 3023.5 Kc/s.

Any time after approval by Council.

- l) Recs. 7/22, 7/25, 7/27, 7/28, 7/29, 7/30 - Revised VOLMET broadcast plan.

15th March 1962 at 1400 GMT.

m) Rec. 10/2 - Radiowind observations at Thorshavn

Not later than 1 January 1963 (ICAO to inform WMO)

n) Rec. 11/1 - Operational meteorological facilities and servicesTables MET 1 and MET 2

To be implemented as required for current operations, concurrently with the implementation of the new NAT FIR structure.

Appendix MET B

To be implemented as soon as possible.

o) Rec. 12/5 - Meteorological traffic handling checks on the SCOTICE-ICECAN Cable (Channel No.2)

As soon as the channel is implemented.

p) Recs. 14/1, 14/2 & 14/4 - FIRs and ATS Units in Charge

- i) amendments to the boundaries of existing FIRs be implemented not later than 12 April 1962;
- ii) new FIRs be implemented if practicable by 12 April 1962 but in any event not later than four weeks following provision of the requisite communications facilities specified for ATS purposes.

q) Recs. 14/5 & 14/6 - Control Areas

Amendments to the limits of existing control areas be made, new control areas be established and area control service provided as soon as practicable following provision of the communications facilities specified for air traffic services purposes.

r) Recs. 19/1, 19/2 & 19/3 - SAR Areas and RCCs

- i) amendments to the boundaries of existing SRRs be implemented not later than 12 April 1962;
- ii) new SRRs be implemented if practicable by 12 April 1962 but in any event not later than the date on which the associated FIRs are established.

s) Recs. 20/1, 20/2 - SAR Facilities and Services

That the SAR facilities and services be provided as soon as practicable.

RECOMMENDATION 24/2 - DATES OF IMPLEMENTATION - SUPPLEMENTARY PROCEDURES

That the supplementary procedures called for by the following recommendations of the meeting be implemented by the times indicated.

- a) Recs. 5/6 & 5/8 - AIS Supplementary Procedures
As soon as practicable.
COM Supplementary Procedures.
- b) Rec. 9/3 - SUPP related to airborne watch on 121.5 Mc/s.
12th April 1962
- c) Rec. 9/2 - SUPP related to overdue reports
12th April 1962
MET Supplementary Procedures
- d) Recs. 13/3 & 13/4 - Meteorological supplementary procedures
To be applied four months after date of approval by Council.
- e) Recs. 18/1 & 22/1 - RAC Supplementary Procedures
To be applied not later than three months after the despatch from Montreal of the resulting amendments to the Regional Supplementary Procedures in Doc 7030.

SECTION 2: COMMENTS BY THE GENERAL COMMITTEE ON THE ACTION TAKEN ON AGENDA ITEM 24

24.2.1 The General Committee reviewed the material presented to it under Agenda Item 24 and made no comment.

SECTION 1: APPLICATION OF RULES OF PROCEDURE AND DIRECTIVES TO
REGIONAL AIR NAVIGATION MEETINGS

25.1.1 This being the first time that the new Rules of Procedure for the conduct of Air Navigation Meetings and Directives to Regional Air Navigation Meetings in Doc.8144-AN/874 were being applied, the Meeting wishes to record its opinion that the new provisions are satisfactory, with certain exceptions as follows.

25.1.2 When acting on Agenda Item 1, Subcommittee 1 encountered difficulties in applying Principle 2 (Doc.8144, Part II, paragraph 1.2.2) when deciding on the inclusion of route segments terminating considerably beyond the regional boundary. While the example given under Principle 2 provides guidance in certain cases, the wording of Principle 2 as a whole does not clearly distinguish between acceptable and unacceptable route segments. Thus an element of potential controversy is present. It would be desirable if a further study could be made aimed at arriving at a simpler process regarding the inclusion or otherwise in the table of aircraft operations of route segments extending beyond regional boundaries. A system, whereby essentially the total route network to be considered by a RAN Meeting would be established well in advance of the Meeting, would have obvious advantages.

25.1.3 The preparation of amendments to the various parts of the Regional Plan on the basis of the accepted table of aircraft operations encountered difficulties with respect to the application of Principle 3. The present provisions call for consideration of Principle 3 routes by the Meeting for planning purposes only "to the degree that the plan for the adjoining region concerned is regarded by the Meeting as obsolete or incompatible with the principles upon which the plan formulated by the Meeting is based". The Meeting found that the application of this directive must vary with the type of facility or service under consideration. For example, it proved acceptable to plan for the exchange of operational meteorological data with terminals of route segments extending thousands of miles beyond the regional boundary. Similarly, it was found acceptable to list the VHF frequencies assigned to aerodromes in other ICAO regions and the North American continent, as appropriate, in the NAT VHF Plan. Recommendation 7/10 refers.

25.1.4 It was considered to be not altogether appropriate to include in the North Atlantic Plan flight information regions intended to meet the needs of aircraft operations on the polar routes between Northern Europe and Alaska, but Recommendation 14/4 was addressed directly to the States territorially involved in en-route flight information service for these polar operations.

25.1.5 This inconsistency in the treatment of various types of facilities and services for these extra-regional parts of NAT operations did not cause major difficulty, but more specific guidance on the matter might be helpful to future Meetings, in particular since the penetration of route segments far beyond a regional boundary may be expected to increase with time and the problem will accordingly aggravate.

25.1.6 The Meeting agreed that the above matters should be recommended for further study.

RECOMMENDATION 25/1 - APPLICATION TO REGIONAL PLANNING OF PRINCIPLES FOR DETERMINATION OF ROUTE SEGMENTS

That the principles for determination of the route segments network contained in paragraph 1.2.2 of Doc.8044-AN/874 be consolidated and simplified so as to provide more specific guidance to a meeting in selecting the aeronautical facilities, services and procedures relevant to its assigned planning task.

SECTION 2: TECHNICAL AND OPERATIONAL SPECIFICATIONS USED IN REGIONAL PLANNING

25.2.1 The Meeting used the list of references to current ICAO technical and operational specifications which relate to the provision of air navigation facilities and services, compiled for guidance in the preparation of the Regional Plan. It found the availability of the reference list a convenience, but felt that its major advantage lay in its availability well in advance of the convening of the Meeting.

25.2.2 In response to the Air Navigation Commission's invitation for comment on the usefulness of the list, the Meeting therefore wishes to record that, in its opinion, continuation of the practice is justified.

SECTION 3: SCHEDULING OF OPERATIONAL REQUIREMENTS PERTAINING TO THE WORK OF THE RAC/SAR COMMITTEE

25.3.1 The Meeting noted the Directive from the Air Navigation Commission intended to lead to the early completion of Subcommittee 1's work on requirements pertaining to RAC matters and to release those requirements to other technical committees before awaiting the completion of work on operational requirements pertaining to the work of other committees. It was appreciated that the Air Navigation Commission hoped, through this measure, to enable the RAC/SAR Committee to establish its revised plan for the organisation of the airspace and communication requirements resulting therefrom some days earlier, which would in turn permit other technical

committees to take the RAC/SAR Committee's planning into account at an earlier stage of the Meeting than would otherwise have been possible.

25.3.2 The Meeting wishes to advise that it proved possible to establish the RAC operational requirements on the opening day of the Meeting, thus permitting the RAC/SAR Committee to commence its substantive work based upon these operational requirements on the second day. This gain in time was retained throughout the sequence of planning by the MET and COM Committees and the measures accordingly proved to be worthwhile.

SECTION 4: ADVICE TO THE AIR NAVIGATION COMMISSION ON MATTERS OF
 WORLD-WIDE CHARACTER

25.4.1 Subcommittee 1, while fully recognizing its responsibilities for the establishment of operational requirements under Agenda Item 2 wishes to draw the attention of the Air Navigation Commission to the difficulties experienced at the Fourth NAT RAN Meeting in giving advice or opinions on matters which have been referred to it, which are of specific world-wide concern and are more appropriate for decision by a Divisional Meeting or the ANC. The Subcommittee considers that it is particularly undesirable for a Regional Meeting to be asked to state views on a subject which has already been circulated to all contracting States for comment and is awaiting a decision by ICAO.

SECTION 5: TABLE MET 2 - AVAILABILITY OF OPERATIONAL METEOROLOGICAL
 INFORMATION AT METEOROLOGICAL OFFICES AND FLIGHT
 INFORMATION CENTRES

25.5.1 The Meeting considered Recommendation 11/1 of the Fifth Session, MET Division/Second Session CAeM. It believed that most of the purposes of the Table would be served if the task of preparing it were so organised as to involve less debate on detail - for example, by objective application of the operational requirements stated by Subcommittee 1, taking account of the agreed air route network and listing of international aerodromes and alternates. It also believed that the intended purpose of the Table would also be served if it were contained in the body of the report but not as part of the Regional Plan, or if it were included in the Regional Plan for guidance purposes only, to be prepared by the ICAO Secretariat in accordance with the relevant principles stated by the RAN Meeting. The following recommendation was made:

RECOMMENDATION 25/2 - SIMPLIFICATION OF TABLE MET 2

That ICAO in consultation with States and IATA study the possibility of simplifying the task of preparing at Regional Air Navigation

Meetings Table MET 2, or its modification, and of including it in the Report rather than as part of the Regional Plan. Alternatively, the possibility should be studied of including the Table in the Regional Plan for guidance purposes only, to be prepared by the ICAO Secretariat in accordance with the relevant principles stated by the RAN Meeting.

25.5.2 The Meeting also considered Recommendation 12/1 of the Fifth Session MET Division/Second Session CAeM dealing with the presentation of MET requirements to the COM Committee concerning the ground exchange of operational meteorological information. It also noted the action by Council on this Recommendation which limited its application to a trial application. As far as paragraph (a) of the Recommendation is concerned, it was agreed that an inverted form of the Table, i.e., showing the information that has to be transmitted rather than that which should be available at meteorological offices, would be of greater use to the COM Committee than the present Table MET 2. With regard to paragraph (b), which calls for information on expected increases in exchanges based on the differences between the previous and the new Regional Plan, it was agreed that exchanges of operational meteorological information are often brought up to date between Regional Air Navigation Meetings without always having been reflected in the previous Regional Plan. The Meeting therefore questioned the usefulness of the presentation prescribed in this part of the Recommendation. However, the Meeting was not in a position to recommend alternative methods, but noted that the forthcoming Seventh Session of the COM Division intended to study inter alia this subject.

SECTION 6: COMMENTS BY THE GENERAL COMMITTEE

25.6.1 The General Committee reviewed the material presented to it in Part 25, Sections 1-5, and made no comment.

-END-

ICAO TECHNICAL PUBLICATIONS

The following summary gives the status, and also describes in general terms the contents of the various series of technical publications issued by the International Civil Aviation Organisation. It does not include specialized publications that do not fall specifically within one of the series, such as the ICAO Aeronautical Chart Catalogue or the Meteorological Tables for International Air Navigation.

INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES are adopted by the Council in accordance with Articles 54, 37 and 90 of the Convention on International Civil Aviation and are designated, for convenience, as Annexes to the Convention. The uniform application by Contracting States of the specifications comprised in the International Standards is recognized as necessary for the safety or regularity of international air navigation while the uniform application of the specifications in the Recommended Practices is regarded as desirable in the interest of safety, regularity or efficiency of international air navigation. Knowledge of any differences between the national regulations or practices of a State and those established by an International Standard is essential to the safety or regularity of international air navigation. In the event of non-compliance with an International Standard, a State has, in fact, an obligation, under Article 38 of the Convention, to notify the Council of any differences. Knowledge of differences from Recommended Practices may also be important for the safety of air navigation and, although the Convention does not impose any obligation with regard thereto, the Council has invited Contracting States to notify such differences in addition to those relating to International Standards.

PROCEDURES FOR AIR NAVIGATION SERVICES (PANS) are approved by the Council for worldwide application. They comprise, for the most part, operating procedures regarded as not yet having attained a sufficient degree of maturity for adoption as International Standards and Recommended Practices, as well as material of a more permanent character which is considered too detailed for incorporation in an Annex, or is susceptible to frequent amendment, for which the processes of the Convention would be too cumbersome. As in the case of Recommended Practices, the Council has invited

Contracting States to notify any differences between their national practices and the PANS when the knowledge of such differences is important for the safety of air navigation.

REGIONAL SUPPLEMENTARY PROCEDURES (SUPPS) have a status similar to that of PANS in that they are approved by the Council, but only for application in the respective regions. They are prepared in consolidated form, since certain of the procedures apply to overlapping regions or are common to two or more regions.

The following publications are prepared by authority of the Secretary General in accordance with the principles and policies approved by the Council.

ICAO FIELD MANUALS derive their status from the International Standards, Recommended Practices and PANS from which they are compiled. They are prepared primarily for the use of personnel engaged in operations in the field, as a service to those Contracting States who do not find it practicable, for various reasons, to prepare them for their own use.

TECHNICAL MANUALS provide guidance and information in amplification of the International Standards, Recommended Practices and PANS, the implementation of which they are designed to facilitate.

AIR NAVIGATION PLANS detail requirements for facilities and services for international air navigation in the respective ICAO Air Navigation Regions. They are prepared on the authority of the Secretary General on the basis of recommendations of regional air navigation meetings and of the Council action thereon. The plans are amended periodically to reflect changes in requirements and in the status of implementation of the recommended facilities and services.

ICAO CIRCULARS make available specialized information of interest to Contracting States. This includes studies on technical subjects as well as texts of Provisional Acceptable Means of Compliance.