



CAR REGION Y2K CONTINGENCY PLAN

Final Version

(12 September 1999)

Prepared by the Y2K Contingency Planning for the CAR Region Task Force

ICAO Approval

Approval

This plan was approved by the President of ICAO on behalf of the ICAO Council on the 12th September 1999.

Co-ordination

The ICAO NACC Regional Office will distribute this plan to all-relevant States and organizations.

Revision/Testing

This plan should be reviewed, simulated and/or tested at appropriate intervals.

Revision Conditions

Amendments and revisions are to be co-ordinated with affected States, organisations and ICAO.

This final version of the CAR Region Y2K Contingency Plan approved by ICAO Council on 12th September 1999 supersedes any previous distributed version of the Plan.

Overview

Introduction

This plan has been developed to detail contingency arrangements, which will permit the continuation of air traffic in the event of the partial or total withdrawal of air traffic services and systems during the Y2K critical period(s).

This plan is to be activated during the agreed critical time periods of a Y2K event. However this plan may also be used in the event that some or all air traffic service providers within the traffic flows in the CAR Region lose the ability to effectively provide communications, navigation and/or surveillance services.

This plan aims to ensure the continuing safety of air navigation within FIRs and to minimise effects on the travelling public.

The procedures contained in this document supplements or details, where so required, those actions and procedures prescribed in State specific contingency plans.

Description of Y2K Significant Dates

Several dates have been identified that may create problems to software functionality. The dates involved have different potential impacts on the provision of the Air Traffic Services (ATS) and the potential risks to mission critical systems differ. Therefore different actions are required for each of the Y2K dates.

I. Saturday, 21.8.1999 - GPS Clocks Reset to Zero

- a) This could affect GPS based aircraft navigation systems if they do not reset properly.

REQUIRED ACTION:

A NOTAM by the United States should be promulgated to indicate the possible problems with the GPS rollover date of August 21, 1999. It should be promulgate two AIRAC cycles before the rollover date and this NOTAM should be valid for at least one AIRAC cycle after the rollover date. It is recommended that States in the CAR Region promulgate an AIS Circular with similar information.

II. Thursday, 9.9.1999 – '9999' Pattern Used As Software Flag

- a) ATS applications, as well as basic infrastructure utility companies (i.e. telephone, power, etc.), may interpret the '9999' pattern as a software error flag.

REQUIRED ACTION:

Based on the experience gathered from previous dates that had a similar problem (i.e. April 9, 1999), a heightened awareness should be maintained for the potential isolated degradation of automated systems.

III. Saturday, 1.1.2000 – The Millennium Date, the first occurrence of two zeros.

- a) ATS applications as well as basic infrastructure utility companies (i.e. Telephone, Power, etc.) may miss calculate dates and generate errors that cease the operation of the application.

REQUIRED ACTION:

States should follow the implementation phases described for the activation of this plan in Appendix 1.

IV. Tuesday, 29.2.2000 – The first Leap Year in the New Millennium

- a) Some systems have been found to handle the Leap Year incorrectly in the new millennium and could cease the operation of software applications.

REQUIRED ACTION:

The precise measures that will be adopted for this date will be based on the experience obtained from the previous Y2K dates.

Airspace Definition This contingency plan applies to the following traffic flows:

- CAR/SAM
- CAR/NAM, and
- CAR/NAT/EUR

contained in the FIRs/UIRs of: Mazatlan, Mazatlan Oceanic, Monterrey, Mexico, Merida, Houston Oceanic, Miami Oceanic, Havana, Nassau, San Juan, Piarco, Santo Domingo, Curacao, Port-au-Prince, Kingston and Central America.

**Contingency
Situations**

- Contingency Situation: Significant degradation of ATS
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Activation

Responsibilities

The activation and deactivation of this Regional plan will take place in three phases in order to transition in the most efficient and orderly manner.

Phase I : Will be activated 12 hours prior to midnight UTC on 31 December 1999.

Phase II : Will start 2 hours prior to midnight UTC on 31 December, 1999.

Phase III : The termination of this Plan will be as stated in the Resumption of Normal Services Section to this Plan.

Establishment of a Regional Co-ordination Unit

A CAR Regional Y2K Co-ordination Unit (CAR Y2K RCU) will be activated starting with Phase I. The CAR Y2K RCU will be the point of contact for all critical Y2K event status reports from ATS Providers within the CAR Region and will disseminate progress reports to all concerned bodies on a world-wide basis (See **Appendix 10**).

Hours of operation of CAR Y2K RCU

It is expected that the CAR Y2K RCU will be staffed on a 24-hour basis during the period of time that the plan is active.

The work of the CAR Y2K RCU will be scaled down as each traffic flow returns to normal operations and closed when regular operations are resumed across the whole CAR Region.

National Y2K Coordination and Information Centers/Units

States are to activate the National Y2K Coordination and Information Centers/Units (Y2K NCIC/NCIU) to provide the following functions starting with Phase I of this plan:

Establishment of National Y2K Coordination and Information Centers/Units

The National Y2K Coordination and Information Centers/Units of each State should be in operation at or before the activation of the regional plan. Its role is:

- a) to oversee the smooth implementation of the agreed Contingency Plan;
- b) to be a point of contact with the CAR Y2K RCU, relevant airline operation centres and other Y2K NCIC/NCIU (either within the State or adjacent to the State);
- c) to advice and assist in decision making to ATS operational units within the State's area of responsibility; and
- d) to co-ordinate with adjacent States and the CAR Y2K RCU when operations return to normal and contingency measures are no longer required.

Hours of operation of Y2K NCIC/NCIU

The Y2K NCIC/NCIU* will operate on a 24-hour basis until such time that information is received that operations are normal within that State's area of responsibility in co-ordination with the CAR Y2K RCU.

*If applicable.

Y2K CONTINGENCY SITUATION

Description

This contingency plan starts with a transition period in preparation for the worst case scenario within the Y2K time period. Disruptions of air traffic services will be offset by alternate provisions of air-ground, ground-ground communication, as well as some surveillance capabilities.

In the event of a major disruption of public services, such as landlines supporting elements of communications, navigation, or surveillance, areas of self-contained systems will continue to operate, providing localized areas of air traffic control or other services.

The detailed implementation strategy and Y2K Contingency Situation are described in **Appendix 1**.

Airspace and Routes

Contingency Routes

A contingency route structure has been developed for use within defined geographical areas of traffic flows. This plan assumes that during the Y2K critical time period, international aircraft will flight plan using these routes so as to minimise disruption to operations. A chart of the contingency routes is attached at **Appendix 2**.

The routes specified in the contingency plan were selected from the established ATS route network (**Appendix 3**).

The routes have been developed to ensure that as far as possible, crossovers occur at or within manageable areas of airspace, where limited communications and/or surveillance capability will continue to exist during the Y2K critical period.

Long-haul flights in the CAR Region

- Those flights that completely overfly the CAR region, or
 - Those flights that land and/or take off within the CAR region, and are over three (3) hours in duration.
-

International Route Structure

ATS contingency routes to be used during the Y2K critical period are listed at **Appendix 3**.

Terminal area procedures such as contingency SID/STARs for use by international aircraft for arrivals or departures shall be published as required by individual States to complement documentation provided by this plan.

Guidelines adopted for the contingency routes

- Most routes have been designated as one-way during the time that the contingency plan is in effect.
 - Certain routes, as labeled, will have altitude restrictions to ensure separation from crossing traffic.
 - The routes have been designed to minimize crossing points.
 - ATC providers should avoid requesting/approving Wrong/Inappropriate Altitude For Direction Of Flight (WAFDOF) during those times that the contingency routes are in effect.
 - Each route will have a minimum separation standard of 15 minutes longitudinal, unless otherwise noted on the route.
 - Air Traffic Control facilities should, in coordination with the National CICs, modify these routes or procedures to deal with operational requirements such as additional outages or weather. Such changes should be kept to the absolute minimum. The National CIC should relay these changes to the Regional CU to ensure that all affected FIRs are aware of the changes(s).
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Domestic Route Structure

ATS contingency routes which are available during the critical period for flight between aerodromes contained wholly within the boundaries of a State's FIR shall be defined and promulgated by individual States in the National Y2K contingency plans for ATS.

Airspace Classifications

If control services become unavailable during the critical period, airspace classifications will remain unchanged.

Terminal areas and those areas where self-contained limited ATS will be provided, will either retain their current ICAO airspace classification or be reclassified as airspace with specific restrictions to assist contingency traffic management.

Reclassification of airspace within its FIR would be a State responsibility and should be co-ordinated with the Y2K NCIC and adjacent FIRs.

Charts / Tables

The following charts which support this plan shall be promulgated for the critical period by each State:

- Contingency ATS route structure
 - Contingency SIDs/STARs (if required)
 - VHF and HF Frequencies to be used for air-ground and Y2K TIBA (**Appendix 4**).
-

Air Traffic Management

**ATS
Responsibilities**

During the contingency critical period, ATS including ATC may be restricted to the provision of services where communication is available. When practicable, consideration should be given to the provision of limited flight monitoring by an adjacent ATS Provider.

If able, the State ATS provider should provide NOTAMS stating what service is no longer being provided and if able an expected date of restoration of service.

**Limited Flight
Monitoring**

Specific frequencies (HF/VHF) may be available for the purposes of flight monitoring and specifically for the provision of alerting service. These frequencies shall be published as part of the AIC information provided by this plan.

**Level Restrictions:
Domestic/Regional
Route Structure**

Wherever possible aircraft on long-haul international flights shall be afforded the priority of FL 290 and above. For flight planning purposes, domestic and regional operators should plan on using FL 280 and below.

Lateral Separation

Lateral separation shall be in accordance with ICAO Doc. 4444 (Procedures for Air Navigation Services, Rules of the Air and Air Traffic Services) and Doc. 7030. (Regional Supplementary Procedures).

Vertical Separation

Vertical separation shall be in accordance with ICAO Annex 2 Appendix 3.

Longitudinal Separation	Each route will have a minimum separation standard of 15 minutes longitudinal, unless otherwise noted on the route.
Crossing Tracks Separation	Aircraft flying on crossing tracks will be separated by a minimum of 15 minutes.
Reciprocal Tracks	Where lateral separation is not provided, vertical separation shall be provided for at least 15 minutes prior to and after the time the aircraft are estimated to pass, or are estimated to have passed. Provided that it has been determined that the aircraft have passed each other, this minimum need not apply.
Traffic Acceptance Rates	Manageable Y2K contingency acceptance rates for traffic should be calculated and co-ordinated among relevant ATS providers and airspace users. Any unanticipated loss of service that further impacts acceptance rates of airways or airports should be communicated and contingency traffic flow rates should be co-ordinated between all affected ATS Providers and communicated to aircraft operators through Y2K National CICs and/or the CAR Y2K RCU.
Priority of Flights	Priority for operations will be afforded to long haul international flights and special operations as co-ordinated with the NCICs and the CAR Y2K RCU. Therefore, states should consider regulating the number of non-scheduled flight operations during the Y2K critical time period (or any other time when such restrictions are necessary). NOTAMS must be issued outlining the restrictions and the procedures to be followed. Special operations may include: • Aircraft in an emergency situation or operating with significant reduction in operating efficiency • Mercy flights and aircraft engaged in search and rescue, medical evacuation, and coast-watch operations • Operations of State aircraft State contingency plans should prioritise the use of existing restricted areas or other such airspace established around terminal areas for the purpose of traffic management during the contingency critical period. States with special needs may apply or set their own priorities.

Coordination

Flight Data and Control Information The Y2K roll-over date could result in degradation of all types of communications equipment used to pass critical data concerning aircraft movements, flight plans, and control data. ATC facilities should develop procedures to ensure that the passage of ATC messages (oral and written) is accomplished as soon as practical, preferably 30 minutes prior to the boundary crossing estimate of the aircraft.

The types of messages that would need early coordination would include:

- Departure messages or departure clearance requests
- Estimate messages for boundary crossings
- Transfer of control messages (procedural control)
- Transfer of communications
- ATC clearance requests

* It is understood that due to the close proximity of some airports/aircraft to the FIR boundary, it might not be possible to accomplish coordination 30 minutes in advance under all circumstances. However, all practical measures should be taken to coordinate as soon as possible in these cases.

Readback Transfer of Control (or estimate) messages between ATC facilities shall be read back by the receiving party to ensure accuracy of the information.

Near Boundary Operations All near boundary operations should be co-ordinated with adjacent ATC facilities. (i.e. Search and Rescue and other special type operations).

Communications

Monitoring Services

In areas where a control service is not available, a flight monitoring communications system may be available on specific HF/VHF frequencies allocated by this plan, to international aircraft operating on designated contingency routes.

The limited monitoring service when available, will acknowledge:

- Emergency communications;
- When initial contact is made on the frequency;
- When advised of changing frequency.

The monitoring service, when available, will provide alerting services to the extent possible and shall be used to establish aircraft positions during transition to full air traffic service provision.

Frequencies to be used - International

Frequencies to be used for control services, Y2K TIBA transmissions and flight monitoring communications by international aircraft are detailed in **Appendix 4** to this plan and shall be published in advance of the Y2K critical period.

Ground to Ground Communications

Appendix 5 specifies the communications systems to be used for co-ordination between ATS units in a given order of priority.

Other Communications Issues

In en-route airspace where air-ground communications are unavailable, Y2K Traffic Information Broadcast by Aircraft (TIBA) procedures would apply (Appendix 7 refers), and combined with the pre-activated Y2K contingency routes, would permit a safe contingency traffic management system. Additionally, if air-ground communications are disrupted, a HF flight monitoring service should be provided to aircraft on contingency routes.

When ATS becomes unavailable within an FIR, aircraft operating on contingency routes as described in this plan will implement Y2K TIBA procedures as defined in Appendix 7 of this Plan.

Additionally, where possible, States that have more than one FIR/ACC should make arrangements, and introduce procedures for one FIR/ACC to provide back-up air-ground communication service for aircraft operating in their adjacent FIR(s) or ACC(s).

**Alternate
Communications**

To mitigate any possible air-ground communication failures, alternate communication service agreements should be developed between adjacent States that will outline responsibilities regarding the taking over of air-ground communications and relaying of pilot reports to affected ATS providers.

SAR and Emergencies

**SAR and
Emergencies**

Appendix 6 specifies which Rescue Co-ordination Centres (RCCs) and/or Search and Rescue (SAR) Units should be notified and their area of responsibility and jurisdiction.

**Contingency
Airports**

The status of available airports, civil/military, for emergency landings, and other contingencies should be readily available to ATC and aircraft operators.

Pilot and Operator Procedures

**Changes to In-
flight Procedures**

- Transponders should remain active at all times.
 - Flight Crews should be familiarized with Y2K TIBA procedures in **Appendix 7** to this plan.
 - Flight crews should be informed that random direct routes will not be accepted by ATC during any of the Y2K time periods.
 - In addition to the assigned ATC frequency, flight crews shall monitor Y2K TIBA frequencies.
 - Aircraft operating on the contingency routes described in this plan shall maintain their last cleared level unless a change of level is necessary in the case of an emergency.
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**Communication
Procedures**

Where services become unavailable during the Y2K time period pilots will contact designated contingency service provision frequencies as listed in **Appendix 4** for control and/or flight monitoring services.

Y2K TIBA

Traffic information broadcasts by aircraft (TIBA)* detailed in **Appendix 7** are intended to permit a standard format for reports and supplementary information of an advisory nature. These are to be transmitted by pilots on the designated frequencies published in **Appendix 4**.

* TIBA is not an ATC procedure.

Flight Planning Requirements

Information required for Flight Planning procedures is detailed in **Appendix 9**.

Resumption of Normal Services

The resumption of normal services will be managed by a staged recovery from contingency conditions and shall commence after midnight local when a Y2K National CIC considers that there is no longer a need for this plan:

Stage 1 Immediately after midnight local or as soon as practical thereafter), ATC facilities (ACCs, Approach Controls, Towers, etc.), shall determine the status of their air traffic service capabilities. Communication line checks should be performed with all adjacent facilities and radio checks performed with all aircraft within their area of responsibility, and a final report similar to the ones generated for the CAR Y2K RCU in **Appendix 10** should be generated.

- ATC facilities will report all Y2K-related equipment outages to their Y2K NCIC.

Stage 2 Each Y2K NCIC will prepare a final status report based on Stage 1 of all Y2K related equipment outages and their impact on air traffic service capabilities within their area of responsibility, and

- Y2K NCICs will issue a statement to the CAR Y2K RCU that they are ready to resume normal services.

Stage 3 The CAR Y2K RCU will facilitate co-ordination among the Y2K NCICs within the CAR Region that have passed Stage 2 and the Y2K RCU from adjacent regions to determine a mutually acceptable time to discontinue the CAR Region Y2K Contingency Plan, either in part or complete

- NOTAMS will be issued by State ATS Providers specifying the time to changeover from contingency to normal procedures.

Stage 4 The entire CAR Region will resume normal services when all FIRs in the Region have past Stage 3.

Note: All National Y2K CICs shall remain activated through Stage 4 of this deactivation process.

Appendixes

Appendix 1	Implementation Strategy and Contingency Situation.
Appendix 2	Chart of Contingency Routes
Appendix 3	International Contingency Route Structure
Appendix 4	VHF and HF Frequencies to be used for air-ground and Y2K TIBA
Appendix 5	The Y2K Communications, Navigation, Surveillance (CNS) and ATS Automation Systems Contingency Planning of the CAR Region
Appendix 6	SAR and Emergencies
Appendix 7	Changes to In-flight Procedures (Y2K TIBA Procedures)
Appendix 8	Pilot Procedures
Appendix 9	Flight Planning Requirements
Appendix 10	CAR Y2K RCU
Appendix 11	Contingency Planning for Exchange of OPMET Information
Appendix 12	AIS Y2K Contingency Measures

APPENDIX 1
CAR Y2K Contingency Plan Activation Times

FIR	Time Difference to UTC	Activation Time (LCL)	
		Phase I (1200 UTC) 31 December 1999	Phase II (2200 UTC) 31 December 1999
Central America	- 06:00	06:00	16:00
Curaçao	- 04:00	08:00	18:00
Havana	- 05:00	07:00	17:00
Houston Oceanic	- 06:00	06:00	16:00
Kingston	- 05:00	07:00	17:00
Mazatlan	- 07:00	05:00	15:00
Mazatlan Oceanic	- 07:00	05:00	15:00
Merida	- 06:00	06:00	16:00
Mexico	- 06:00	06:00	16:00
Miami Oceanic	- 05:00	07:00	17:00
Monterrey	- 06:00	06:00	16:00
Nassau	- 05:00	07:00	17:00
Piarco	- 04:00	08:00	18:00
Port-au-Prince	- 05:00	07:00	17:00
San Juan	- 04:00	08:00	18:00
Santo Domingo	- 04:00	08:00	18:00

1.0 IMPLEMENTATION STRATEGY

- 1.1 PHASE I: This phase will take effect from the moment that this Regional Y2K Contingency Plan begins as stipulated in the Activation Section of this plan and the following measures are required to be adopted:
- a) Where required, additional resources should be made available at ATS facilities to manually process information, to account for the potential degradation of services.
 - b) A regional contingency route structure has been developed for use in the CAR Region for the major international traffic flows. International flights should file their flight plans using these routes, so as to minimize disruption to the operations, in the event that services become affected. A chart depicting international routes is included in **Appendix 2**.
 - c) Operators that anticipate having flights operating during Y2K time periods shall adhere to the flight planning guidelines stated in **Appendix 9**.
 - d) The CAR Regional Y2K Coordination Unit, staffed by CAR States/International Organizations as well as the National Y2K Coordination Information Centers/Units, should be manned and activated from the beginning of this plan.
- 1.2 PHASE II: This phase will start to take effect as stipulated in the Activation Section of this plan and the following measures are required to be adopted:
- a) In order to minimize any potential situations that may occur at airports during this particular time, it is recommended that operators avoid scheduling take-off and landings from 15 min prior to 30 min past midnight UTC and local time.
 - b) All aircraft will be required to be established on contingency routes and separated using the criteria specified in the Air Traffic Management section of this plan, by the beginning of this phase.
 - c) Pilots shall make contact with the appropriate ATC facility at least 10 minutes prior to entering any FIR.
- 1.3 PHASE III: The termination of this Plan will be as stated in the Resumption of Normal Services Section to this Plan.

2.0 CONTINGENCY SITUATION

- 2.1 This contingency situation takes effect upon a declaration of the Y2K NCIC or CAR Y2K RCU that a given FIR is unavailable to provide adequate Air Traffic Services. However when an aircraft finds itself not having made contact with an ATS and has expired all attempts to reestablish communications, it should fall back to these procedures.
- 2.2 Apply the loss of communication procedures established in **Appendix 8**.
- 2.3 Aircraft will be routed around FIRs that are in this contingency situation using the shortest route to incorporate them to other Y2K contingency routes.
- 2.4 In order to segregate traffic from the affected FIRs, separation standards shall be coordinated with the CAR Y2K RCU.
- 2.5 In suitably equipped aircraft, pilots should fly 1 NM offset to the right of the airway centerline.

APPENDIX 2 -Chart of Contingency Routes for the Caribbean Region

“To be included in the hard copy of the Plan that the ICAO NACC Regional Office will send via regular mail.”

CAR Region Y2K Contingency Plan

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APPENDIX 3

Explanation of the Y2K Contingency Routes Table

INTRODUCTION

One table is provided, shown the Y2K Regional Contingency Route Structure. The table is suitable to find the route to be flown and its limitations during the specific period of time.

Routes were designed to provide continuity of operations between regions (NAM/CAR/CAR/SAM/NAT/PAC). National and Sub-regional contingency routes have been omitted. ATS Routes are depicted in the set of maps provided (not to be used for navigation). Routes extension after the transitions points NAM/CAR/SAM/NAT/PAC are displayed as a reference only and do not belong to the Y2K CAR/SAM network.

HOW TO USE THIS TABLE:

COLUMN (by letters)

- A. First, find the name of the city or region that will be the departure point "FROM".
- B. Then, in the next column "VIA" check if any of them or combination of waypoints is according to the route to be flown. This waypoints are shown in *italics* Underline followed by a letter or pair of them, identifying the region where they are located:

A = North Atlantic Region.
C = Caribbean Region.
P = Pacific Region.
S = South American Region.
N = NAM Region.
- C. The following step is to check your destination (city or region) "TO".
- D. Then proceed to check ATS Routes, which includes the waypoints (VIA) in *italics* to facilitate its description for selection. In case where several options exist, routes are separated by dash (- -). Waypoints in **bold** type mean the transition between routes which make possible, multiple combinations of them to different destinations.
- E. "FIR" involved in the referred route are listed.
- F. "FL" indicates which flight levels are available.
- G. "LONG SEP". indicates the longitudinal separation which will be applied.
- H. Under the column "Remarks", unidirectional, bidirectional routes or segments of them are defined between waypoints (XXX - YYY), or exception where only one way is provided. Also main direction of the route is shown where applicable.

CAR Region Y2K Contingency Plan

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Note: Traffic departing or arriving from/to places that are not covered in this table, should plan to use National Y2K Contingency Routes for making the transition to/from the Y2K Regional Contingency Routes Structure.

For example:

From Buenos Aires (Argentina) to Los Angeles (USA).

1. Find in the table FROM/TO
2. According to the Y2K Contingency Routes Table the boundary between Caribbean & South American regions is ISEBA and the entry point for NAM Region is JULIAN (JLI)
3. This combination is found only in route number 11.
4. Under the ATS Route column the second option is suitable for the requirement:
EZE UW8 PAR UW20 SIS UA301 SJE UB689 **VVC**
5. Then from VVC is necessary to join another ATS Route which is printed partially in the first option of the same route 11 :
VVC UA317 TBG UG440 ISEBA UG440 LIB UL200 ALSAL UL318 PBC UJ5 HMO UJ7 PPE J93 JLI.
From JULIAN a STAR to LAX should be filed.
6. Flight Level 290 and higher are available.
7. Long. Separation of 15' is provided.
8. As a remark the ATS Route UA317 between BRASILIA (BRS) and TABOGA (TBG) is bidirectional
9. Overflying FIR's should be selected for the pertinent purpose.

11	MONTEVIDEO B.AIRES SAO PAULO RIO BRASILIA ASUNCION LIMA GUAYAQUIL MANTA QUITO BOGOTA PANAMA	<u>ISEBA(C/S)</u> <u>JULIAN(C/N)</u> Or <u>LIXAS(C/S)</u> <u>JULIAN(C/N)</u>	COSTA RICA MANAGUA TEGUCIGALPA S. SALVADOR GUATEMALA MEXICO USA (WEST)	CPN UW9 ATF UA317 VVC UA317 TBG UG440 <u>ISEBA</u> UG440 LIB UL200 ALSAL UL318 PBC UJ5 HMO UJ7 PPE J93 <u>JLI</u> ...	SUER SAEU SARU SGFA SLLF SBPH SPIM SEGU SBMU SKED MPZL MHTG MMID MMEX MMZT KZLA	290&ABV	15'	BIDIRECTIO NAL UA317 (BRS-TBG) -- 0 -- NORTHBOUND
3						6	7	
	1	2	1	5				
				EZE UW8 PAR UW20 SIS UA301 SJE UB689 VVC ...		9		8
				...MNV UZ30 <u>LIXAS</u> UL203 ALSAL ...				

Y2K CONTINGENCY ROUTES CAR/SAM REGIONS/RUTAS DE CONTINGENCIA Y2K PARA REGIONES CAR/SAM

Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
1	LIMA GUAYAQUIL QUITO CALI BOGOTA MEDELLIN PANAMA CARTAGENA MARACAIBO CARACAS MARGARITA	<u>ONGAL(C/S)</u> <u>FOF(C/A)</u>	LESSER ANTILLES EUROPE	LIM UG436 OKASO UB696 MHV UG437 ESV UR564 GIR UA550 MIQ UA551 <u>ONGAL</u> UA551 <u>FOF</u> ... ATLANTIC RANDOM ROUTES	SPIM SEGU SKED SVZM TTZP	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UG437 (MHV-ESV) UR564 (ESV-GIR) UA550 (GIR-BOG) -- 0 -- NORTHBOUND
2	EUROPE LESSER ANTILLES	<u>PJM(C/A)</u> <u>MILOK(C/S)</u> <u>ACORA(C/S)</u> <u>ALCOT(C/S)</u> Or <u>PPR(C/A)</u> <u>ITEGO(C/S)</u>	MARGARITA CARACAS ARUBA CURACAO BONAIRE MARACAIBO CARTAGENA PANAMA BOGOTA CALI QUITO GUAYAQUIL LIMA	ATLANTIC RANDOM ROUTES... <u>PJM</u> A516 <u>MILOK</u> UA516 <u>ACORA</u> PJG UG431 <u>ALCOT</u> UG431 STB UA567 BUV UG431 GIR UR564 ESV UG437 LIM ATLANTIC RANDOM ROUTES... <u>PPR</u> UA550 <u>ITEGO</u> UA550 PBL UW40 BRM UW8 LFA UW44 CUC UA567 BUV ...	TJZS TNCF SVZM SKED SEGU SPIM TTZP	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UG437 (ESV-MHV) UR564 (GIR-ESV) UA431 (BUV-GIR) -- 0 -- SOUTHBOUND
3	SAO PAULO RIO BRASILIA MANAUS BARCELONA MARGARITA	<u>KIKER(C/S)</u> <u>GRANN(C/N)</u>	PTO RICO S. DOMINGO USA (EAST) CANADA	PCX UL304 BVI UA300 <u>KIKER</u> A300 DDP A523 <u>GRANN</u> ... BCO UW2 BRS UL304 BVI ...	SBBS SBMU SVZM TJZS	290&ABV	15'	UNIDIRECTIONAL -- 0 -- NORTHBOUND

CAR Region Y2K Contingency Plan

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
4	CANADA USA (EAST) PTO RICO	<u>KRAFT(C/N)</u> <u>MINDA(C/S)</u>	BARBADOS TRINIDAD MARGARITA BARCELONA GEORGETOWN PARAMARIBO ROCHEMBEAU BRASILIA RIO SAO PAULO	... <u>KRAFT</u> A300 DDP G449 ANADA UG449 POS UA324 <u>MINDA</u> UA324 TIM UA312 BRS UA317 PAI ----- ... BRS UW1 CPN	TJZS TTZP SYGC SMPM SBBL SBBS	290&ABV	15'	UNIDIRECTIONAL -- 0 -- SOUTHBOUND
5	SAO PAULO RIO BRASILIA MANAUS VALENCIA CARACAS CURACAO ARUBA BONAIRE S. DOMINGO	<u>KABON(C/S)</u> <u>ZBV(N)</u>	USA (EAST)	PCX UL304 CBC UG443 MIQ UA554 <u>KABON</u> UA554 SEKAR A554 GTK A555 <u>ZBV</u> ... BCO UW2 BRS UL304 CBC ...	SBBS SBMU SVZM TNCF MDCS KZMA	290&ABV	15'	UNIDIRECTIONAL -- 0 -- NORTHBOUND
6	USA (EAST)	<u>ZBV(N)</u> <u>REPIS(C/S)</u>	HAITI CURACAO ARUBA BONAIRE CARACAS VALENCIA MANAUS BRASILIA RIO SAO PAULO	... <u>ZBV</u> A315 JOSES UA315 PJG UG446 <u>REPIS</u> UG446 MIQ UA315 BRS UA317 PAI ... BRS UW1 CPN	KZMA MTEG MDCS TNCF SVZM SBMU SBBS	290&ABV	15'	UNIDIRECTIONAL -- 0 -- SOUTHBOUND

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
7	MONTEVIDEO B.AIRES ASUNCION SANTA CRUZ CALI BOGOTA CARTAGENA MARACAIBO	OTAMO (C/S) <u>ZBV(N)</u>	JAMAICA CUBA USA (EAST)	...EZE UW8 PAR UW20 SIS UA301 <u>OTAMO</u> UA301 MLY UB503 ENAMO B503 ZQA A555 <u>ZBV</u> ...	SUER SAEU SARU SGFA SLLF SBPH SPIM SKED SKEC MKJK MUFH KZMA	290&ABV	15'	UNIDIRECTIONAL -- 0 -- NORTHBOUND
8	USA (EAST) CUBA JAMAICA	<u>ZBV(N)</u> <u>KILER(C/S)</u>	MARACAIBO CARTAGENA BOGOTA CALI SANTA CRUZ ASUNCION B. AIRES MONTEVIDEO	... <u>ZBV</u> A301 URSUS UA301 UCA UG430 <u>KILER</u> UG430 MQU UA317 REMIL UA300 MCS UA300 GUA UA301 ENO... ... MCS UA556 CRR	KZMA MUFH MKJK SKEC SKED SBMU SBPH SBBS SBCW SLLF SGFA SARU SAEU SUEO	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UA317 (REMIL-VVC) UA556 (MCS-CRR) -- 0 -- SOUTHBOUND
9	USA (CENTRAL)	<u>MARTE(C/N)</u> Or <u>KEHLI(C/N)</u> <u>BUFEO(C/S)</u>	MEXICO BELIZE GUATEMALA S. SALVADOR TEGUCIGALPA MANAGUA COSTA RICA SOUTH AMERICA	... <u>MARTE</u> UB753 TNT UA502 MGA UA317 <u>BUFEO</u> UA317 TBG... ----- ... <u>KEHLI</u> UA770 AUR UG436 CAT UA317 MGA ...	KZHU MMID MHTG MPZL	290&ABV	15'	UNIDIRECTIONAL -- 0 -- SOUTHBOUND
10	BELEM ROCHAMBEAU PARAMARIBO GEORGETOWN TRINIDAD BARBADOS	<u>TRAPP(C/S)</u> <u>PISAX(C/S)</u> Or <u>GRANN(C/N)</u>	PTO RICO USA(EAST)	BEL UA555 <u>TRAPP</u> UA555 BGI UA632 <u>PISAX</u> ... ----- ... BGI UA555 ILURI A555 DDP VERMO A523 <u>GRANN</u> ...	SBBL SOOO TTZP TJZS	290&ABV	15'	UNIDIRECTIONAL -- 0 -- NORTHBOUND

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
11	MONTEVIDEO B.AIRES SAO PAULO RIO BRASILIA ASUNCION LIMA GUAYAQUIL MANTA QUITO BOGOTA PANAMA	<u>ISEBA(C/S)</u> <u>JULIAN(N)</u> Or <u>LIXAS(C/S)</u> <u>JULIAN(N)</u>	COSTA RICA MANAGUA TEGUCIGALPA S. SALVADOR GUATEMALA MEXICO USA (WEST)	CPN UW9 ATF UA317 VVC UA317 TBG UG440 <u>ISEBA</u> UG440 LIB UL200 ALSAL UL318 PBC UJ5 HMO UJ7 PPE J93 <u>JLI</u> ... EZE UW8 PAR UW20 SIS UA301 SJE UB689 VVCMNV UZ30 <u>LIXAS</u> UL203 ALSAL ...	SUER SAEU SARU SGFA SLLF SBPH SPIM SEGU SBMU SKED MPZL MHTG MMID MMEX MMZT KZLA	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UA317 (BRS-TBG) -- 0 -- NORTHBOUND
12	USA (WEST) MEXICO GUATEMALA S. SALVADOR TEGUCIGALPA MANAGUA COSTA RICA	<u>TIJUANA</u> <u>(C/N)</u> <u>BUFEO(C/S)</u>	PANAMA BOGOTA BRASILIA RIO SAO PAULO	... <u>TIJ</u> J1 HUX UJ9 TGZ UA552 AUR UG436 LAN DCT CAT UA317 <u>BUFEO</u> UA317 ATF UW9 CPN ... ATF UA317 PAI	MMZT MMEX MMID MHTG MPZL SKED SBMU SBBS	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UA317 (TBG-BRS) -- 0 -- SOUTHBOUND
13	SANTIAGO LIMA GUAYAQUIL QUITO	<u>LEVOR(C/S)</u> <u>TADPO(C/N)</u> Or <u>FALLA(C/S)</u> <u>KEHLI(C/N)</u>	PANAMA COSTA RICA MANAGUA TEGUCIGALPA S. SALVADOR GUATEMALA USA (EAST & CENTRAL)	ERO UL312 SLS UG436 OKASO UB696 MHV UG437 ESV UR564 TCO UG426 TBG UA321 SPP UG448 <u>LEVOR</u> UG448 <u>TADPO</u> SPP UA552 PZA UR899 <u>FALLA</u> UR899 PLP UA766 <u>KEHLI</u> ...	SCEZ SCFZ SPIM SEGU SKED MPZL MKJK MUFH MHTE MHTG MMID KZHU	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UG437 (MHV-ESV) UA321 (TBG-SPP) -- 0 -- NORTHBOUND

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
14	USA (EAST & CENTRAL) CUBA GUATEMALA S. SALVADOR TEGUCIGALPA MANAGUA COSTA RICA	<u>ZBV(N)</u> <u>DUXUN(C/S)</u> Or <u>FRISH(C/N)</u> <u>PELRA(C/S)</u>	PANAMA QUITO MANTA GUAYAQUIL LIMA SANTIAGO	... <u>ZBV</u> A301 URSUS UA301 UCA UG437 <u>DUXUN</u> UG437 TBG UG437 LIM UL302 TOY UG551 TBN ... <u>FRISH</u> UA321 <u>PELRA</u> UA321 TBG ...	MUFH KZHU MKJK MMID MPZL MHTG SKED SEGU SPIM SCFZ SCEZ	290&ABV	15'	ALL THE ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UG437 (ESV-MHV) UA321 (SPP-TBG) -- 0 -- SOUTHBOUND
15	MONTEVIDEO B.AIRES RIO SAO PAULO SANTA CRUZ LA PAZ LIMA	<u>LOGAL(C/S)</u> <u>JULIAN(N)</u>	USA (WEST) MEXICO	SCB UB694 BRU UA304 AND UA320B LIM UL305 SLS UL312 <u>LOGAL</u> UL312 LAP UJ8 LMM UJ33 CEN UJ7 PPE J93 <u>JLI</u>SNT UW24 CBA UR550 TUC UA303 LIM ...	SAEU SUEO SACU SCFZ SBBS SBCW SLLF SPIM SEGU MHTG MMID MMEX MMZT KZLA	290&ABV	15'	ALL ROUTE IS BIDIRECTIONAL EXCEPT: UB694 (SCO-BRU) UJ8 (LAP-LMM) UJ33 (LMM-CEN) UJ7 (CEN-PPE) J93 (PPE-JLI) BIDIRECTIONAL SEGMENT: UA303 (LOA-LIM) -- 0 -- NORTHBOUND
16	USA (WEST) MEXICO	<u>TIJUANA</u> <u>(C/N)</u> <u>LOGAL(C/S)</u>	LIMA LA PAZ SANTA CRUZ SAO PAULO RIO B.AIRES MONTEVIDEO	... <u>TIJ</u> J1 SJD UL312 <u>LOGAL</u> UL312 SLS UL305 LIM UA320 AND UA304 BCO ... LIM UA303 LOA UR560 JUJ UA558 ROS UW5 FDO...	MMZT MMEX MMID MHTG SEGU SPIM SLLF SBCW SBBS SCFZ SACU SUEO SAEU	290&ABV	15'	ALL THE ROUTE IS BIDIRECTIONAL EXCEPT: J1 (TIJ-LAP) UA304 (BRU-BCO) BIDIRECTIONAL SEGMENT: UA303 (LIM-LOA) -- 0 -- SOUTHBOUND

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
17	MONTEVIDEO B.AIRES SANTIAGO	<u>OSELO(C/S)</u> <u>JULIAN(N)</u>	USA (WEST) MEXICO	...EZE UA306 TBN DCT ERO UL401 <u>OSELO</u> UL401 UKABO UL312 SJD J1 LAP UJ8 LMM UJ33 CEN UJ7 PPE J93 <u>JLI</u> UKABO UL401 POGAM UG428 ACA J21 MEX DCT SLM UJ5 HMO UJ7 PPE ...	SUEO SAEU SAMV SCEZ SCFZ SPIM SEGU MHTG MMID MMEX MMZT KZLA	290&ABV	15'	ALL ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UL401 (ERO-POGAM) UL312 (UKABO-LAP) -- 0 -- NORTHBOUND
18	USA (WEST) MEXICO	<u>TIJUANA</u> <u>(C/N)</u> <u>OSELO(C/S)</u>	SANTIAGO B.AIRES MONTEVIDEO	... <u>TIJ</u> J1 SJD UL312 UKABO UL401 <u>OSELO</u> UL401 ERO DCT AMB UA305 EZE... MEX DCT CUA UJ39 OAX UL308 POGAM UL401 UKABO ...	KZLA MMZT MMEX MMID MHTG SEGU SPIM SCFZ SCEZ SAMV SAEU SAEF SUEO	290&ABV	15'	ALL ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: J1 (LAP-SJD) UL312 (SJD-UKABO) UL401 (POGAM-ERO) -- 0 -- SOUTHBOUND
19	SANTIAGO ASUNCION B.AIRES MONTEVIDEO SAO PAULO RIO	<u>RAKUD(S/A)</u> <u>NANIK(S/A)</u>	EUROPA	AMB UA307 DOZ UW3 JUA UL402 SIS UR554 VAS UA311 FOZ UA307 CPN DCT BCO UW13 CNF UB678 SVD UA314 REC UA32 <u>RAKUD</u> SVD UB602 MSS FLZ UR1 <u>NANIK</u> ... EZE UA305 CRR UA309 PAG UA302 MRC UA314 SVD ...	SCEZ SAMV SACU SARU SAEU SUEO SGFA SBCW SBBS SBRE	UA32: FL330-350 & ABV UR1: FL330- 370-410	30' (OCE- ANIC) 15' (CON- TINEN- TAL)	ALL ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT UB678 (CNF-SVD) UB602 (SVD-MSS) UW33 (MSS-FLZ) UR1 (FLZ-NANIK...) -- 0 -- NORTHBOUND

CAR Region Y2K Contingency Plan

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Nº	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
20	EUROPE	<u>NANIK(S/A)</u> <u>ONTER(S/A)</u>	RIO SAO PAULO MONTEVIDEO B.AIRES ASUNCION SANTIAGO	... <u>NANIK</u> UR1 FLZ UW33 MSS UB602 SVD UB678 SCB UA311 FOZ UB688 MCS UA300 GUA UA301 ENO ... FLZ UB688 MCS FLZ UB688 FOZ FOZ UA307 DOZ UA306 TBN ... <u>ONTER</u> UB602 SVD SCB UA318 EZE	SBRE SBBS SBCW SGFA SARU SACU SAMV SCEZ SAEU SUEO	UR1: FL310- 350-390 UB602: FL310- 350-390	30' (OCE- ANIC) 15' (CON- TINEN- TAL)	ALL ROUTE IS UNIDIRECTIONAL EXCEPT: BIDIRECTIONAL SEGMENT: UR1 (...NANIK-FLZ) UW33 (FLZ-MSS) UB602 (MSS-SVD) UB678 (SVD-CNF) -- 0 -- SOUTHBOUND
21	USA (EAST)	<u>CANOA(C/N)</u>	MEXICO	... <u>CANOA</u> UB646 MID UJ18 VER UJ12 PBC DCT MEX	KZMA MUFH MMID MMEX	290&ABV	15'	UNIDIRECTIONAL -- 0 -- WESTBOUND
22	MEXICO	<u>SWORD</u> <u>(C/N)</u>	USA (EAST)	MEX UJ30 NAU UA509 <u>SWORD</u> ..	MMEX MMID KZHU	290&ABV	15'	UNIDIRECTIONAL -- 0 -- EASTBOUND
23	MONTEVIDEO B.AIRES SANTIAGO	<u>SAURI(S/P)</u>	ISLA DE PASCUA OCEANIA	...SNO UG224 <u>SAURI</u> ...	SCEZ SCIZ	290&ABV	15'	BIDIRECCIONAL
24	USA (SOUTHWEST)	<u>TIJUANA</u> <u>(C/N)</u>	MAZATLAN MEXICO GUADALAJARA PUERTO VALLARTA	... <u>TIJ</u> J1 SRL UJ6 LMM UJ33 MZT UT7 GDL ----- ... MZT UJ33 AGU J13 PTJ UJ65 MEX ----- ... <u>TIJ</u> UT4 LMM ... ----- ... <u>TIJ</u> VEGAS UL312 SJD UJ9 PVR	KZLA MMZT MMEX	290&ABV	15'	UNIDIRECTIONAL -- 0 -- SOUTHBOUND
25	USA (CENTRAL)/ LA PAZ (MEXICO)	<u>VYLLA(C/N)</u>	LA PAZ (MEXICO)/ USA (CENTRAL)	... <u>VYLLA</u> J92 LAP	KZAB MMZT	290&ABV	15'	BIDIRECTIONAL
26	USA (CENTRAL)/ MAZATLAN	<u>JUAREZ</u> <u>C/N)</u> <u>KEYLO(C/N)</u>	MAZATLAN / USA (CENTRAL)	... <u>CJS</u> UJ54 CUU UJ35 DEL J141 MZT ... <u>KEYLO</u> J141 DEL ...	KZAB MMZT	290&ABV	15'	BIDIRECTIONAL

CAR Region Y2K Contingency Plan

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N°	FROM/DE	VIA	TO/HACIA	ATS ROUTES/RUTAS ATS	FIR	FL	LONG SEP	REMARKS/ OBSERVACIONES
	A	B	C	D	E	F	G	H
27	USA (CENTRAL)/ TORREON SALTILLO MONTERREY GUADALAJARA PUERTO VALLARTA MANZANILLO	<u>NEWLA(C/N)</u>	TORREON SALTILLO MONTERREY GUADALAJARA PUERTO VALLARTA MANZANILLO/ USA (CENTRAL)	... <u>NLD</u> UJ11 MTY UJ10 SLW ----- ... MTY UJ45 SLP J25 GDL ----- ... GDL UJ14 PVR ----- ... GDL UJ11 ZLO	KZAB MMZT	290&ABV	15'	BIDIRECTIONAL
28	USA (CENTRAL)/ MEXICO ACAPULCO	<u>REYNOSA (C/N)</u>	MEXICO ACAPULCO/ USA (CENTRAL)	... <u>REX</u> UJ17 CVM J21 PCA J21 MEX DCT OTU ... ----- ... OTU UJ19 CUA UJ15 ACA ----- ... CUA UJ39 OAX UJ33 HUX	KZHU MMEX MMTY	290&ABV	15'	BIDIRECTIONAL
29	USA (CENTRAL)/ MEXICO GUADALAJARA MANZANILLO	<u>COKER(C/N)</u>	MEXICO GUADALAJARA MANZANILLO/ USA (CENTRAL)	... <u>COKER</u> UA649 PAZ UJ102 PCA J21 MEX ----- ... MEX UJ18 TLC UJ12 GDL UJ14N PVR ----- ... GDL UJ11 ZLO	KZHU MMEX MMTY	290&ABV	15'	BIDIRECTIONAL

NOTE: For more information refer to attachment: "Explanation of the Y2K REGIONAL CONTINGENCY ROUTES TABLE".

APPENDIX 4

Table: VHF & HF Frequencies to be used for Air-Ground and Y2K TIBA on Y2K Contingency Planning for CAR Region

Major Traffic Flow	VHF Communications				A/G HF Communications			Remarks			
	Air/Ground			Y2K TIBA	Station	Frequency (kHz)	Network				
	Station/ACC	Sector	Frequency (MHz)	Frequency (MHz)							
1	2	3	4	5	6	7	8	9			
	MERIDA	1	128.30	130.55	Merida Radio	5550	CAR-A	126.9 MHz Merida Radio for General Purpose			
		2	125.80			6577	CAR-A				
		3	128.20			8918	CAR-A				
		4	123.75			11396	CAR-A				
	MEXICO	1	126.60	130.55		10024	CAR-A				
		2	128.00								
		3	125.80								
		4	123.00								
		5	125.10								
		6	126.00								
		7	126.60								
	MONTERREY	1	124.50	130.55							
		2	127.40								
		3	125.60								
		4									
	MAZATLAN	1	128.30	130.55							
		2	124.20								
		3	124.40								
		4									
		5									

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Major Traffic Flow	VHF Communications				A/G HF Communications			Remarks
	Air/Ground			Y2K TIBA	Station	Frequency (kHz)	Network	
	Station/ACC	Sector	Frequency (MHz)	Frequency (MHz)				
1	2	3	4	5	6	7	8	9
	CENAMER	1 2 3	123.90 124.1 & 134.9* 124.30	130.55	CENAMER RADIO	6577N 6649 N 8918 N/D 10024 D 11396 D	CAR-A SAM-1 CAR-A SAM-1 CAR-A	* Secondary frequency N: Night use D: Day use
	HABANA	1 2 3 4	123.7 & 125.55* 120.25 & 125.55* 133.7 & 124.55* 135.1 & 124.55*	130.55	Boyeros Radio	2887 5550 6577 8918 11396 13297	CAR-A CAR-A CAR-A CAR-A CAR-A/ SAM/2	* Secondary frequency
	KINGSTON	East West	128.10 124.00	130.55		N/A		
	MIAMI	6 40 43 60 62	132.20 135.22 123.92 127.22 132.30	130.55		N/A		
	HOUSTON	East West	135.77 132.65	130.55				

CAR Region Y2K Contingency Plan
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Major Traffic Flow	VHF Communications				A/G HF Communications			Remarks
	Air/Ground			Y2K TIBA	Station	Frequency (kHz)	Network	
	Station/ACC	Sector	Frequency (MHz)	Frequency (MHz)				
1	2	3	4	5	6	7	8	9
	PORT AU PRINCE	1	124.50	130.55		N/A		
	SANTO DOMINGO	1	124.30	130.55		N/A		
	CURAÇAO	1	124.1 & 127.1	130.55		N/A		
	SAN JUAN	2 4 6 8	134.30 ARINC 135.70 134.30	130.55	San Juan	ARINC		
	PIARCO	1	123.70 125.40	130.55		5526 5550 5598 6577 8825 8918 10096 11387 13297 8855	SAM-2 CAR-A NAT-A CAR-A NAT-A CAR-A SAM-2 CAR-B CAR-A/ SAM-2 SAM-2	

APPENDIX 5

THE Y2K COMMUNICATIONS, NAVIGATION, SURVEILLANCE (CNS) AND ATS AUTOMATION SYSTEMS CONTINGENCY PLANNING OF THE CAR REGION

1. INTRODUCTION

1.1 The Communication, Navigation and Surveillance and ATS Automation systems fall notably in the regularity, safety and efficiency of the air navigation services; therefore it is important to take into account the degree of the Y2K problem incidence in the CNS systems parts.

1.2 It is also most important the necessity that States/Territories/Organizations have already established contingency communication procedures for several situations:

- a) letters of agreement between neighboring ATS authorities for emergency inter-center communication when communications fail;
- b) agreements with local telecommunication providers concerning alternative procedures to be implemented in the event of communications failure;
- c) schemes for the re-routing of aeronautical fixed telecommunications network (AFTN) messages when a circuit is lost, or using other means for conveying important AFTN messages when a communication center is out of service;
- d) procedures for ATS personnel to follow for various contingency situations which can include, for example, the provision of ATC using procedural (non-radar) control methods in the event of a Y2K-related radar system failure;
- e) regional procedures for ATS personnel and aircraft operators to follow in the event of lost air/ground communications.

2. COMMUNICATION

2.1 The purpose of this section is to review the options for communication means for Y2K contingency planning, based on the alternative communication options and on the various scenarios and recommendations for specific failure cases identified by the Y2K Contingency Task Force Meeting for the CAR Region.

2.2 It was also advised of the result of discussion on Y2K issues. In particular it reviewed the alternative communication means to support the contingency situations which are detailed in the following paragraphs.

2.3 Air-Ground Communications failure on VHF and/or HF

2.3.1 Voice radiotelephonic (R/T) communication functions are in general not date sensitive, except management and house-keeping elements like recording and logging. Older systems are likely hardware oriented without software functions.

2.3.2 The consequences of limited range in reception and transmission must be considered. Also, any limitation in the number of frequencies within the last resort facility should be coordinated beforehand.

2.3.3 One of the alternatives for air/ground communication may be realized by completely independent in-house installations with batteries or emergency power systems and receivers/transmitters with the antenna on, or at the roof of the respective ATS-building. In ACCs and TMAs, stand-alone synthesised VHF transceivers should be available as back-up systems of air-ground communication.

2.3.4 HF air-ground communication is available in the entire area of CAR Region provided by some States and Organizations. The HF is considered less likely to be affected by Y2K problems. However, a small quantity of aircraft that operate in the CAR Region has on board HF equipment and it has been considered that the HF air-ground communication is not, in a general use, a back-up of air-ground communication system for the CAR Region; therefore it is consider that the HF air-ground communication is expected to be met only by the aircraft equipped with the HF equipment by the use of the existing HF air-ground network in the CAR Region. It is important to note the need of considering the capacity of neighboring State(s) to assume responsibility when any of their neighbouring ATC units has a degradation or problems in its communications and control systems.

2.3.5 States/Territories/Organizations should ensure that aeronautical stations serving adjacent FIRs have common HF air-ground frequencies. Arrangements should be made to provide additional common frequencies, if required, in co-ordination with the ICAO Regional Office concerned. In accordance to para 5.2.2.2.1 PANS of Annex 10, Volume II, aeronautical stations using the same HF radiotelephony network, should assist each other in order to provide air-ground communications service required of the network by aircraft flying on the air routes covered by the network. In ACCs where HF frequencies were not available at the ATS operational consoles, concerned States/Territories/Organizations are advised to study this problem and implement appropriate solutions.

2.3.6 As the communication terrestrial links between VHF or HF station and the ACC provided by PTT or Civil Aviation Authority to connect the remote controlled air-ground VHF transmitters and receivers to the ACCs, may be affected by Y2K problems, consideration should be given to the use of VSATs or VHF/UHF analogue radio-link to provide as an alternate terrestrial link.

2.3.7 Where available, SATCOM satellite phones should be used as a last fall back system.

2.3.8 If air-ground communication cannot be maintained between aircraft and ATC Centers, the pilots should attempt contact through relay by other aircraft or by any other ATC Unit, or in the last option air to air should be provided between the pilots. It was indicated that VHF 123.450 MHz will be designated for INTERPILOT air-to-air communication to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems. The use of air-to-air channel 123.450 MHz will be included in Annex 10, Volume II, paragraph 5.2.1.6.3.2.6 by Amendment 74 for wide use effective 4 November 1999. It was also noted that the new frequency 123.450 MHz is expected to replace all existing air-to-air channels in a progressive manner. It was therefore suggested that the frequency 123.450 MHz would be available and can be used during the contingency period for Traffic Information Broadcast by Aircraft (TIBA) procedure to be adopted in the CAR Region, and it is recommendable that the adjacent Regions will also use the frequency 123.450 MHz for facilities of communication procedures.

2.3.9 The Table COM 1 shows a menu of the different alternatives possible in case of failure or degradation of the normal means used for air-ground communications.

2.3.10 Every ATS Unit must list the alternatives that they are going to use in case of a failure in the normal means used for air-ground communications for the contingency period.

**Table COM 1 – Y2K ALTERNATIVES FOR AIR-GROUND COMMUNICATIONS
(no priority intended)**

Item	Means	Remarks
1	2	3
1	Stand-alone synthesised VHF transceivers located in each ACCs and TMAs as back-up system.	
2	The pilots should attempt contact through relay either by aircraft or by any other ATC Unit	
3	Y2K compliant radiolink as back-up system located between ATC Unit and VHF Stations.	Applies where the telecommunication link is the non-Y2K compliant element and where it is possible to install.
4	VHF air to air radiocommunications. TIBA frequency	
5	HF air-ground AMS communication	If available. Where the air-ground HF communications are normally not between controllers/pilots, other arrangements should be made.
6	SATCOM communication	If available.
7	ACARS	If available. Provided by ARINC and SITA

2.3.11 The VHF & HF frequencies to be used for air-ground and TIBA on Y2K Contingency Planning in CAR Region are shown in **Appendix 4**.

2.4 Aeronautical Fixed Service (AFS)

2.4.1 The Aeronautical Fixed Service (AFS) is mainly supported by three digital communication networks that will be Y2K compliant, the VSAT MEVA Digital Network, the Eastern Caribbean Network (E/CAR Network), and International Satellite Communication System (ISCS/1) VSAT Network. The MEVA and E/CAR Networks have been supporting the ATS speech circuits and AFTN circuits. The ISCS/1 Network has been supporting the exchange of OPMET information.

2.4.2 The Status of MEVA Network for Y2K and the MEVA contingency plan with the alternative communication means, to support the contingency situations are the following. The States/Territories/Organizations MEVA users are: Aruba, Bahamas, Cayman Islands, Cuba, Dominican Republic, Haiti, Jamaica, Netherlands Antilles, Panama, United States and COCESNA. The Service Provider is establishing the necessary arrangement to implement before the end of September 1999, a small SATCOM station (Skycell Communication Services) at each ATC unit, and at the MEVA Network Control Center as an alternative routing and an integral part of the MEVA Y2K Contingency.

2.4.3 The new E/CAR Digital AFS Network is being implemented in the States and Territories of the E/CAR Region and it will be Y2K compliant. It expressed concerns about the capability of the network to provide a level of service compatible with efficient air traffic control requirements. The Intercaribbean Aeronautical Communications LTD (IACL) is the representative of the E/CAR States, for the management, operation and maintenance of the network. IACL will give an update on the status of the network including installation target dates for its implementation in August 1999.

2.4.4 ATS Speech Circuits

2.4.4.1 Voice communication Functions may be date sensitive, as management and housekeeping elements like recording and logging. Older systems are likely hardware oriented without software functions, which are in general not date sensitive.

2.4.4.2 In the event that normal means of communication have failed, ATS Speech Circuits alternatives should be made available.

2.4.4.3 With respect to the ATS speech circuits, it was recognised that those circuits implemented in the MEVA or ECAR Networks between ATC units considered complying with Y2K.

2.4.4.4 The table COM 2 is a menu of alternatives for a failure in the ATS Circuits.

2.4.4.5 The table COM 2 as the next to follow, will illustrate a proposal of classification of the alternatives in: BASIC and SUPPLEMENTARY alternatives. The BASIC ones is/are those mean(s) that should, at least, be used as contingency means. The SUPPLEMENTARY ones is/are the mean(s) that should be available in case of lost or degradation of the BASIC ones.

**Table COM 2 – Y2K ALTERNATIVES CIRCUIT FOR ATS SPEECH CIRCUITS
(no priority intended)**

Item	Means	Remark
1	2	3
	<u>BASIC ALTERNATIVES:</u>	
1	International direct dialing phone (IDD)	Voice
2	The Small SATCOM Station installed in each ACC. (Skycell Communication Services)	Voice
3	INMARSAT or IRIDIUM Satphone link (voice and data)	Voice and data
	<u>SUPPLEMENTARY ALTERNATIVES:</u>	
4	Internet to telephone (Internet voice service)	Voice. International telephone call
5	AFTN facilities	Limited to handle to some ATS operational messages.
6	Fax capacity	
7	HF air-ground voice channel, including ARINC voice service	If available. For G/G communications as a last resort.

2.4.4.6 The alternative communication procedures should be developed with adjacent ACCs to ensure harmonized means of communications.

2.4.4.7 When telephone communications between two ATS units fail and no effective alternative method of coordination is available, aircraft will be instructed to pass their flight details on R/T to the adjacent ATS units before the transfer point.

2.4.4.8 The following Table COM 3 shows the current connection means as well as alternatives for the contingency period for the ATS circuit between the ACC Units. The alternatives are referred to the Table COM 2.

2.4.4.9 Table COM 3 must be review by each ACC Unit and complemented with any other alternative given by the table that has not been selected. Each ACC Unit must submit a listing of all the IDD numbers, fax numbers, AFTN addresses, Skycell VSAT phone numbers, HF frequencies and any other information of the other alternative selected that should be use in the contingency period.

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Table COM 3: CAR ATS SPEECH CIRCUITS CONTINGENCY MEASURES BETWEEN STATES/TERRITORIES/ORGANIZATIONS

ATS Circuit	Current Connectivity	ALTERNATIVES							Remarks
		BASIC			SUPPLEMENTARY				
		IDD	Skycell VSAT	INMARSAT/IRIDIUM (1)	INTERNET VOICE SER.(3)	AFTN	FAX	HF (2)	
1	2	3	4	5	6	7	8	9	10
CENAMER ACC									
/BOGOTA ACC	PTT	✓	✓		✓	✓	✓		* Transfer to MEVA Network * Recommended transfer to MEVA
/GUAYAQUIL ACC	PTT	✓	✓		✓	✓	✓		
/HABANA ACC	PTT*	✓	✓		✓	✓	✓	✓	
/KINGSTON ACC	MEVA	✓	✓		✓	✓	✓		
/MERIDA ACC	PTT*	✓	✓		✓	✓	✓	✓	
/PANAMA ACC	PTT/MEVA	✓	✓		✓	✓	✓	✓	
CURACAO ACC									
/BARANQUILLA ACC	PTT	✓	✓		✓	✓	✓		
/KINGSTON ACC	MEVA	✓	✓		✓	✓	✓		
MAIQUETIA ACC	PTT	✓	✓		✓	✓	✓		
/PORT AU PRINCE ACC	MEVA	✓	✓		✓	✓	✓		
/SAN JUAN ACC	MEVA	✓	✓		✓	✓	✓		
/SANTO DOMINGOACC	MEVA	✓	✓		✓	✓	✓		
HABANA ACC									
/CENAMER ACC	PTT*	✓	✓		✓	✓	✓	✓	* Transfer to MEVA Network * Transfer to MEVA Net * Recommended transfer to MEVA * Transfer to MEVA Net.
/KINGSTON ACC	PTT*	✓	✓		✓	✓	✓		
/MERIDA ACC	PTT*	✓	✓		✓	✓	✓	✓	
MIAMI ACC	PTT*	✓	✓		✓	✓	✓	Via ARINC	
/PORT-A-U-PRINCE ACC	PTT*	✓	✓		✓	✓	✓		
HOUSTON ACC									
/MERIDA ACC	PTT*	✓	✓		✓	✓	✓	Via ARINC	* It will use Mexico Sat service
/MIAMI ACC	PTT	✓	✓		✓	✓	✓		* It will use Mexico Sat service
/MONTERREY ACC	PTT*	✓	✓		✓	✓	✓		

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ATS Circuit	Current Connectivity	ALTERNATIVES							Remarks
		BASIC			SUPPLEMENTARY				
		IDD	Skycell VSAT	INMARSAT/IRIDIUM (1)	INTERNET VOICE SER.(3)	AFTN	FAX	HF (2)	
1	2	3	4	5	6	7	8	9	10
KINGSTON ACC /BARRANQUILLA ACC /CENAMER ACC /CURACAO ACC /HABANA ACC /PANAMA ACC PORT-AU-PRINCE ACC	PTT MEVA MEVA PTT* MEVA MEVA	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓		✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓		* Transfer to MEVA Net
MAZATLAN ACC /LOS ANGELES ACC /MEXICO ACC MONTERREY ACC	PTT PTT PTT	✓ ✓ ✓	✓ ✓ ✓		✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓		
MERIDA ACC /CENAMER ACC /HABANA ACC /HOUSTON ACC /MEXICO ACC /MONTERREY ACC	PTT* PTT* PTT* PTT PTT	✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓		✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓	✓ ✓ Via ARINC	* Recommended transfer to MEVA * Recommended transfer to MEVA * It will use Mexico Sat service
MEXICO ACC /MAZATLAN ACC /MERIDA ACC /MONTERREY ACC	PTT PTT PTT	✓ ✓ ✓	✓ ✓ ✓		✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓		
MONTERREY ACC /HOUSTON ACC /MAZATLAN ACC /MERIDA ACC /MEXICO ACC	PTT PTT PTT PTT	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓		✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓		

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ATS Circuit	Current Connectivity	ALTERNATIVES							Remarks
		BASIC			SUPPLEMENTARY				
		IDD	Skycell VSAT	INMARSAT/IRIDIUM (1)	INTERNET VOICE SER.(3)	AFTN	FAX	HF (2)	
1	2	3	4	5	6	7	8	9	10
MIAMI ACC									
/HABANA ACC	PTT*	✓	✓		✓	✓	✓	Via ARINC	* Transfer to MEVA Net
/HOUSTON ACC	PTT/FAASAT	✓	✓		✓	✓	✓		
/NASSAU ACC	MEVA	✓	✓		✓	✓	✓		
/NEW YORK ACC	PTT/FAASAT	✓	✓		✓	✓	✓		
/PORT-AU-PRINCE ACC	MEVA	✓	✓		✓	✓	✓		
/SAN JUAN ACC	MEVA/PTT	✓	✓		✓	✓	✓		
/SANTO DOMINGO ACC	MEVA	✓	✓		✓	✓	✓		
PIARCO ACC									
/MAIQUETIA ACC	PTT*	✓	✓		✓	✓	✓		*Transfer to E/CAR
/GEORGETOWN ACC	PTT	✓	✓		✓	✓	✓	Via ARINC	
/NEW YORK ACC	PTT*	✓	✓		✓	✓	✓		*Transfer to E/CAR
/PARAMARIBO ACC	PTT	✓	✓		✓	✓	✓		
/ROCHANBEAU ACC	PTT	✓	✓		✓	✓	✓		
/SAN JUAN ACC	E/CAR	✓	✓		✓	✓	✓	Via ARINC	
/SANTA MARIA ACC	PTT	✓	✓		✓	✓	✓		
PORT-AU-PRINCE ACC									
/CURACAO ACC	MEVA	✓	✓		✓	✓	✓		
/HABANA ACC	*	✓	✓		✓	✓	✓		* implemented to MEVA
/KINGSTON	MEVA	✓	✓		✓	✓	✓		
/MIAMI ACC	MEVA	✓	✓		✓	✓	✓		
/SANTO DOMINGO ACC	MEVA	✓	✓		✓	✓	✓		
SAN JUAN ACC									
/CURACAO ACC	MEVA	✓	✓		✓	✓	✓		
/MAIQUETIA ACC	PTT	✓	✓		✓	✓	✓		
/MIAMI ACC	MEVA/PTT	✓	✓		✓	✓	✓		
/NEW YORK ACC	PTT*	✓	✓		✓	✓	✓		
/PIARCO ACC	E/CAR	✓	✓		✓	✓	✓	Via ARINC	* It will be implemented to E/CAR
/SANTO DOMINGO ACC	MEVA	✓	✓		✓	✓	✓		

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ATS Circuit	Current Connectivity	ALTERNATIVES							Remarks
		BASIC			SUPPLEMENTARY				
		IDD	Skycell VSAT	INMARSAT/IRIDIUM (1)	INTERNET VOICE SER.(3)	AFTN	FAX	HF (2)	
1	2	3	4	5	6	7	8	9	10
SANTO DOMINGO ACC									
/CURACAO ACC	MEVA	✓	✓		✓	✓	✓		
/MIAMI ACC	MEVA	✓	✓		✓	✓	✓		
/PORT-AU PRINCE ACC	MEVA	✓	✓		✓	✓	✓		
/SAN JUAN ACC	MEVA	✓	✓		✓	✓	✓		

Notes:

1. Accordingly with the bilateral agreements.
2. Reference to the Appendix 4, Table: " VHF & HF Frequencies to be used for Air-Ground and TIBA on Y2K Contingency Planning for CAR Region".
3. For the Internet voice service, a unique software application version must be defined. The application proposed is "Internet Phone", available through the Internet in the Microsoft Web Site (Free download). Additionally for this alternative means, the IP address must be known.

2.4.5 Aeronautical Fixed Telecommunications Network (AFTN)

2.4.5.1 This concerns mainly to the exchange of ATS, AIS, and MET messages as distributed on the Aeronautical Fixed Communication Network (AFTN), ATS functions are not directly affected, but a loss of AFTN information may have an impact on the overall capacity. Therefore, Y2K contingency measures shall be considered.

2.4.5.2 The AFTN communications may suffer a degradation of the following facilities as a result of the Y2K roll-over:

- Main AFTN COM Centers
- Tributary AFTN COM Centers
- AFTN Station
- Main AFTN Circuit
- AFTN Tributary/Station Circuit.

2.4.5.3 Main AFTN COM Centers, AFTN Tributaries and AFTN Stations

2.4.5.3.1 Main AFTN COM Centers may suffer a degradation of the Automated Message Switching System (AMSS), in hardware and/or software as a result of the Y2K roll-over.

2.4.5.3.2 In the event of failure of a Main AFTN COM Center, AFTN Tributary, or AFTN Station a different Y2K compliant stand-alone PC – based terminal or standby message switching systems with essential functionality should be available for immediate use. Additionally, where such alternative systems are established, States should ensure that the hardware and/or software are significantly different so that a duplication of possible Y2K effects is eliminated.

2.4.5.3.3 In the event of failure of a main AFTN COM Centre, the other AFTN COM Center should:

- a) relay transit traffic via AFTN alternate routing;
- b) destination traffic to the failed center should be stored until activation of the standby system
- c) Use other alternative means (example: ARINC/SITA messaging services)

2.4.6.5.4 In the event of unavailability of an AFTN Main Center, AFTN Tributary or AFTN Station any options in table COM 4 should be considered for implementation.

Table COM 4. Y2K ALTERNATIVE FOR MAIN/TRIBUTARY AFTN COM CENTERS

Item	Means	Remark
1	2	3
	<u>BASIC ALTERNATIVES:</u>	
1	A stand alone AFTN terminal or where a State has made available a PC-based standby message switching system with essential functionality, with direct access to telecommunication links.	
2	Stand alone AFTN terminal with dial up modem via IDD or Skycell VSAT to FAA's NADIN system/ ARINC messaging services	NADIN SVC, to be defined (TBD)
3	International direct dialing (IDD) voice capacity will be used with fax or modem	Limited to handle essential operational messages.
	<u>SUPPLEMENTARY ALTERNATIVES:</u>	
4	ARINC or SITA messaging services	Used with automatic or manual procedures where the ARINC or SITA connection, if available.
5	Internet / E-mail messages	

2.4.5.4 AFTN Circuits

2.4.5.4.1 For some supporting channels of the international AFTN circuits that are using the PTTs communication systems with Y2K incidence connecting main AFTN centers/tributary/station, it is important to note that even though those AFTN centers, tributaries and stations have been tested or updated with new Y2K compliant hardware/software, PTTs communications systems could fail.

2.4.5.4.2 It was considered that one of the principal and better alternatives to the PTT systems failures is the use of Y2K compliance VSAT systems or other networks. In this sense, civil aviation in the CAR Region has implemented a Y2K compliant VSAT digital communications network (MEVA Network) and the E/CAR Network. Furthermore, the fact these two new Networks have been planned to support ATS speech circuits and AFTN circuits is favourable. The majority of the international AFTN circuits are still implemented through the PTT systems. In this respect, it was regretted that the plan to transfer the support of the AFTN circuits to the MEVA and E/CAR Networks with the view of improving the capacity and quality of the international AFTN circuits, as well as to avoid the incidence of the Y2K problems of the PTTs in the AFTN communications linking circuits in the Region would not be achieved completely for the present year.

2.4.5.4.3 It has been recognized that the end to end Y2K trials among AFTN systems do not provide Y2K assurance because the co-ordination with the PTT service providers could be done in order to perform end to end testing, however, in the majority of the cases it could not be done, or the PTT could not provide a formal Y2K compliance notification. Therefore, in view of the multiplicity of systems and equipment from different administrations, and by the grade and nature of the solutions to be applied, it should be considered that these failures could be very long, affecting the AFTN circuits operation and in result the efficiency, regularity and security of the air navigation services.

2.4.5.4.4 The systems alternatives and links with the AFTN stations in the CAR Region should be determined by States/Organizations and should be reflected in the Y2K Regional and National Contingency plan and in the bilateral letters of agreement.

2.4.5.4.5 In the event of failure of AFTN circuits through the PTT systems between the main centres, then normal alternate routing as planned will occur otherwise a VSAT system located at the center should be used, where available else any agreed alternative. As VSAT is the preferred alternative means available if loss of PTT systems occurs, States not currently using VSAT should consider providing VSAT links between main AFTN COM Centers to support AFS communications, where feasible and operationally viable.

2.4.5.4.6 In the event of failure of main communication link service, the following alternatives should be considered:

Table COM 5 – ALTERNATIVES FOR FAILURE OF AFTN COMMUNICATION LINKS
(no priority intended)

Item	Means	Remark
1	2	3
1	BASIC ALTERNATIVES: Upgrade existing circuit through MEVA Network, E/CAR Network or other Y2K compliant network.	If available
2	Normal AFTN alternate routing as specified in the CAR/SAM routing directory	Main and tributary AFTN centers
3	Stand alone AFTN terminal, with dial up capability to ARINC messaging services via the Skycell Satellite Communication Services	See note 1
4	Stand alone AFTN terminal with dial up modem via IDD or Skycell VSAT to FAA's NADIN system	Service TBD
5	SUPPLEMENTARY ALTERNATIVES: INMARSAT or IRIDIUM Satphone link (voice and data)	Limited to handle essential operational messages. See note 2
6	Fax and/or IDD voice capacity	
7	ARINC or SITA messaging services	Used with automatic or manual procedures where the ARINC or SITA connection, if available.
8	Internet/E-mail messages	
9	HF air-ground voice channel	For ground-ground communication to exchange important messages as a last resort

Notes:

1. Access to ARINC or SITA messaging services requires connectivity arrangements with the service provider.
2. These facilities should only be used to relay important operational messages, when used as an alternative means

2.4.5.4.7 The following Table COM 6 shows the alternatives for the contingency period for a failure in the AFTN Main and Tributary COM Centers. The alternatives are referred to the Table COM 4.

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2.4.5.4.8 Table COM 6 must be review by each AFTN Center and complemented with any other alternative given by the table that has not been selected. Each ACC Unit must submit a listing of all the IDD number, fax number and Skycell VSAT phone numbers and any other information of the other alternative selected that should be used in the contingency period.

Table COM 6: CAR AFTN MAIN/TRIBUTARY Y2K CONTINGENCY ALTERNATIVES

AFTN Main(M) / Tributary (T) Centers	ALTERNATIVES					REMARKS
	BASICS			SUPPLEMENTARIES		
	PC Standby Switch	Standalone PC – FAA NADIN /ARINC Service	IDD	ARINC/ SITA SERVICE	Internet/E-mail	
1	2	3	4	5	6	7
BELICE (T)			✓		✓	
CENTROAMERICA(M)	✓	✓	✓		✓	
CURACAO(T)		✓	✓		✓	
GRAND TURK(T)		✓	✓	✓	✓	
GUATEMALA (T)			✓		✓	
HABANA(T)		✓	✓	✓	✓	
KINGSTON(T)		✓	✓	✓	✓	
LA MESA(T)			✓		✓	
MEXICO(M)	✓	✓	✓	✓	✓	
NASSAU(T)		✓	✓	✓	✓	
NICARAGUA (T)			✓		✓	
PORT OF SPAIN(M)	✓	✓	✓	✓	✓	
PORT-AU-PRINCE(T)		✓	✓		✓	
SAN JOSE (T)			✓		✓	
SAN SALVADOR (T)			✓		✓	
SANTO DOMINGO(T)		✓	✓	✓	✓	
USA(M)	✓		✓	✓	✓	

2.4.5.4.9 The following Table COM 7 shows the current connection means as well as the alternatives for the contingency period for the Communication links between the AFTN Units. The alternatives are referred to the Table COM 5.

2.4.5.4.10 Table COM 7 must be reviewed by each AFTN Unit and complemented with any other alternative given by the table that has not been selected. Each AFTN Unit must submit a listing of all the IDD numbers, fax numbers, Skycell VSAT phone numbers and HF frequencies in any other information of the other alternative selected that should be use in the contingency period.

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**Table COM 7: CAR AFTN CIRCUITS CONTINGENCY MEASURES BETWEEN STATES/TERRITORIES/ORGANIZATIONS
(COMMUNICATION LINK FAILURE)**

/AFTN Circuit (Category)	Current Connectivity	ALTERNATIVES									Remarks
		BASIC				SUPPLEMENTARY					
		Y2K compliant Network	Alternate Routing	Standalone PC – ARINC SERVICE	Standalone PC – FAA NADIN	INMARSAT/IRIDIUM SER.	FAX/IDD	ARINC/SITA Message Service	E-MAIL	HF	
1	2	3	4	5	6	7	8	9	10	11	12
CENTROAMERICA (M)											
BELICE (T)	COCESNA					✓	✓		✓		
GUATEMAL (T)	COCESNA					✓	✓		✓		
LA MESA (T)	COCESNA					✓	✓		✓		
MEXICO (M)	PTT		✓		✓	✓	✓		✓	✓	
NICARAGUA (T)	COCESNA					✓	✓		✓		
SAN JOSE (T)	COCESNA					✓	✓		✓		
SAN SALVADOR (T)	COCESNA					✓	✓		✓		
USA (M)	ARINC	✓	✓		✓	✓	✓		✓		
CURACAO(T)											
ARUBA(S)	PTT/MEVA					✓	✓		✓		
USA(M)	PTT/MEVA				✓	✓	✓		✓		
HABANA (T)											
MEXICO (M)	-		✓		✓	✓	✓	✓	✓	✓	Not implemented * Transfer to MEVA
USA(M)	PTT*				✓	✓	✓		✓		
KINGSTON (T)											
CAYMAN(S)	PTT*					✓	✓		✓		*Not implemented
PANAMA(T)	*					✓	✓		✓		
USA(M)	MEVA				✓	✓	✓		✓		
MEXICO(M)											
CENTROAMERICA(M)	PTT		✓		✓	✓	✓		✓	✓	Not implemented
HABANA(T)	-		✓		✓	✓	✓	✓	✓	✓	
USA(M)	PTT/ARINC		✓		✓	✓	✓	✓	✓		

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/AFTN Circuit (Category)	Current Connectivity	ALTERNATIVES									Remarks
		BASIC				SUPPLEMENTARY					
		Y2K compliant Network	Alternate Routing	Standalone PC – ARINC SERVICE	Standalone PC – FAA NADIN	INMARSAT/IRIDIUM SER.	FAX/IDD	ARINC/SITA Message Service	E-MAIL	HF	
1	2	3	4	5	6	7	8	9	10	11	12
PORT OF SPAIN(M)											
ANGUILLA(S)	PTT**					✓	✓		✓		*transfer to E/CAR
ANTIGUA(S)	PTT*					✓	✓		✓		*transfer to E/CAR
BARBADOS(S)	PTT*					✓	✓		✓		*transfer to E/CAR
CARACAS(M)	PTT/E/CAR		✓		✓	✓	✓		✓		
DOMINICA(S)	PTT*					✓	✓		✓		*transfer to E/CAR
FORT-DE-FRANCE(S)	PTT*					✓	✓		✓		*transfer to E/CAR
GEORGETOWN(T)	PTT					✓	✓		✓		
GRENADA(S)	PTT*					✓	✓		✓		*transfer to E/CAR
MONSERRAT(S)	PTT*					✓	✓		✓		*transfer to E/CAR
POMITE-A-PITRE(S)	PTT*					✓	✓		✓		*transfer to E/CAR
SAINT KITTS AND NEVIS(S)	PTT*					✓	✓		✓		*transfer to E/CAR
SAINT LUCIA(S)	PTT*					✓	✓		✓		*transfer to E/CAR
SAINT VINCENT(S)	PTT*					✓	✓		✓		*transfer to E/CAR
USA(M)	PTT/E/CAR		✓		✓	✓	✓		✓		
CURACAO(T)											
ARUBA(S)	PTT/MEVA					✓	✓		✓		
USA(M)	PTT/MEVA				✓	✓	✓		✓		
USA(M)											Only the CAR Region connections are shown
CENTROAMERICA(M)	ARINC		✓		✓	✓	✓		✓		
CURACAO(T)	PTT*				✓	✓	✓		✓		* Transfer to MEVA
GRAND TURK(T)	PTT				✓	✓	✓		✓		
HABANA(T)	PTT*				✓	✓	✓		✓		* Transfer to MEVA
KINGSTON(T)	PTT*				✓	✓	✓		✓		* Transfer to MEVA
MEXICO(M)	PTT*	✓	✓		✓	✓	✓		✓		
NASSAU(T)	PTT*				✓	✓	✓		✓		* Transfer to MEVA
PANAMA(T)	PTT*				✓	✓	✓		✓		* Transfer to MEVA

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/AFTN Circuit (Category)	Current Connectivity	ALTERNATIVES									Remarks
		BASIC				SUPPLEMENTARY					
		Y2K compliant Network	Alternate Routing	Standalone PC – ARINC SERVICE	Standalone PC – FAA NADIN	INMARSAT/ IRIIDIUM SER.	FAX/IDD	ARINC/SITA Message Service	E-MAIL	HF	
1	2	3	4	5	6	7	8	9	10	11	12
PORT-A U-PRINCE(T)	MEVA				✓	✓	✓		✓		
PORT OF SPAIN(M)	PTT/E/CAR				✓	✓	✓		✓		
ST. MAARTEN(S)	PTT				✓	✓	✓		✓		* Transfer to MEVA
SANTO DOMINGO(T)	PTT				✓	✓	✓		✓		* Transfer to MEVA
TORTOLA(S)	E/CAR				✓	✓	✓		✓		

2.4.6 Communication means for the exchange of OPMET information

2.4.6.1 The communication means for the exchange of OPMET information is referred in the Appendix 11.

3 NAVIGATION

3.1 It must be considered that en-route navigation aids, approach & landing aids and aerodrome ground aids might fail by Y2K problems. They are mainly free-standing systems, with a potential risk of impact from the millennium on monitoring and control functions. Technical outages should be covered by contingency measures. States are to assess how critical each navaid is, in relation to the type of operations over their FIR and into their airports, so as to ensure that the minimum requirements are met.

3.2 It was informed that the Global Positioning System (GPS) clocks will reset to zero on 21st August 1999 and that aircraft GPS receivers that meet the U.S. Federal Aviation Administration (FAA) Technical Standard Order (TSO C129) for GPS navigation will not encounter GPS receiver difficulties with that GPS rollover date. However, aircraft that are not TSO C129 compliant could encounter GPS difficulties.

3.3 In the implementation Y2K contingency plan of en-route navigation aids (NDB, VOR, DME and GPS) and of Approach and landing aids (ILS, VOR, DME, NDB and GPS, RVR, VASIS/PAPIS, lightning and beacon), the following matters should be taken into account and Y2K contingency means should be considered:

- a) Remote monitoring and control of NAVAIDS may be affected by Y2K roll-over,
- b) Precision approaches will be affected by failure of any of the approach, runway exit and holding position lights, that are mandatory for such approaches. In addition, RVR measuring equipment needs to be serviceable for CAT II ILS.
- c) GPS satellites have been certified as Y2K compliant. GPS will continue to be available for en-route and terminal operations including non-precision approaches.

3.4 Every ATS Unit must provide any information concerning a possible failure or degradation in their NAVAIDS for the contingency period.

4 SURVEILLANCE

4.1 The following surveillance systems may be Y2K sensitive: primary radar, secondary radar, radar data processing system, display processors, radar recording, and backup systems. It is recommended that the States/Territories/Organizations to take into account the contingencies means by several situations. It is considered that one of the most important incidence is into the radar data processing system.

4.2 Radar Data Processing

4.2.1 Functions of radar data processing are in general not date sensitive, much of the processing is real-time oriented. But management and house-keeping elements often make use of dates for logging and recording; thus, replaying and analyzing functions may be endangered.

Note: the technical solutions given below depend on local arrangements, the following statements are to be checked on individual circumstances.

4.2.2 A Radar By-Pass Processor may replace the radar-related functions of the Main System; some of the operational functions may be lost or replaced; displayed data for primary plots and SSR tracks can be different and have been locally explained; also, the content of label with corresponding lines are specified when a Radar By-Pass Processor is in operation.

4.2.3 Every ATS Unit must provide any information concerning a possible failure or degradation in its SURVEILLANCE systems for the contingency period.

5. CARIBBEAN Y2K COORDINATION AND INFORMATION CENTERS

5.1 There are two types of Y2K Co-ordination and Information Centers (Y2K RCU & NCIC). They are the following:

- National Y2K Coordination and Information Centers (Y2K NCIC), which should be located close to the ACC. There is a need to address staffing communication means on operation hours.
- Caribbean Y2K Coordination Unit (CAR Y2K RCU). There is a need to address staffing, communication with States concerned and other CICs, hours of operations and co-ordination with other States.

5.2 CAR Y2K RCU and NCICs Communications Requirements

5.2.1 In order to fulfil the Regional CAR Y2K RCU and National Y2K CICs communications requirements, it was considered and recommended to implement a pre-defined communications system that encompass possible communications means, such that, the necessary communications between the RCU and NCICs will be granted. The communications between the national CICs and their respective ATS units should be included as part of each National Y2K contingency plan. However, each State/Territory/Organisation could use the following recommendations for their National implementation.

5.3 NCICs Communications Requirements

5.3.1 Communications between the eleven Caribbean NCICs (CENAMER, Cuba, Curacao, Dominican Republic, Haiti, Jamaica, Mexico, Trinidad and Tobago, Miami, Houston and San Juan) and the Miami CAR Y2K RCU should consider Table COM 8.

5.3.2 The Table COM 8 defines primary means as those communications means that must be available for the NCICs operations. Other means must be implemented together with the primary means for use in case of a primary means failure.

Table COM 8: NCIC Communication Means

Item	Means	Remark
1	2	3
	Primary Means:	
1	IDD	Will require multiple lines
2	Fax	
3	Electronic Mail (Internet)	
4	AFTN Station	AFTN address will be assigned
5	Skycell Satellite Communication Services small VSAT	One VSAT per Y2K NCIC See Note 1
6	Stand alone AFTN terminal, with dial up capability to ARINC/SITA messaging services via Skycell Satellite Communication Services or IDD	
	Other Means:	
7	INMARSAT or IRIDIUM Satphone link (voice and data)	

Note 1: States/Territories where the volume of air traffic operations permits could use the same Y2K NCIC Skycell Satellite Communications Services system installed for communications between the Y2K NCIC and CAR Y2K RCU, as the ATS speech circuit Y2K contingency plan for ACC communications.

5.4 CAR Y2K RCU Communications

5.4.1 The Table COM 9 defines primary means as those communications means that must be available for the CAR Y2K RCU's operations. Other means must be implemented together with the primary mean for use in case of a primary means failure and for communication with other Y2K Regional Unit and/or Global.

Table COM 9: CAR Y2K RCU Communication Means

Item	Means	Remark
1	2	3
1	Primary Means: IDD	Will require multiple lines
2	Fax	
3	Electronic Mail (Internet)	
4	AFTN Station	AFTN address will be assigned
5	Skycell Satellite Communication Services small VSAT	One VSAT per two NCIC (4-VSATs) See Note.
6	Stand alone AFTN terminal, with dial up capability to ARINC/SITA messaging services via Skycell Satellite Communication Services or IDD	
7	Other Means: INMARSAT or IRIDIUM Satphone link (voice and data)	

Note: The Skycell VSAT station that will be installed in the CAR Y2K RCU will be a different station of that that will be used by Miami Air Route Traffic Control Center.

6. IMPLEMENTATION OF Y2K CNS CONTINGENCY PLANNING

6.1 States/Territories should coordinate with concerned agencies/service providers and take urgent action to implement the provisions of Y2K CNS contingency

6.2 Target Dates

- **1 July 1999** – States/Territories to provide the status of their contingency planning to ICAO Regional Office for review.
- **1 August 1999** - All alternative CNS planning to be finalised.
- **1 September 1999** – Contingency CNS systems should be in place, tested and supporting procedures developed. ICAO has to be advised by this date of States compliant with this contingency plan.
- Contingency communications arrangements shall remain in place while the plan is active.

APPENDIX 6

Search and Rescue and Emergencies

- 1.0 The State responsible for the Search and Rescue Region (SRR) in which an emergency occurs is normally responsible for conducting search and rescue (SAR) operations in the area. However, in the event of an emergency occurring during the Y2K changeover, which results in that State suffering an air-ground communications failure, the State concerned may be unaware of the occurrence of any emergency necessitating the initiation and conduct of SAR action.
- 1.1 In the event that the State responsible for the SRR is unaware of this occurrence, the adjacent ACC first to know of the emergency shall declare the appropriate SAR phase and inform the State responsible for the particular area in the most expeditious method possible.
- 1.2 Where possible, every effort should be made by States to enter into arrangements with adjacent States to assist not only in initiating SAR action but to facilitate SAR units to enter the SRR concerned, and undertake immediate search and rescue of the aircraft in the emergency condition if such agreements do not already exist.
- 1.3 In the conduct of any SAR action in an area where the State is unable to provide meaningful communications with SAR units, mutually acceptable arrangements should be made to allow an adjacent State with the communications capabilities to maintain contact with the SAR units involved in the SAR action and to coordinate with the State responsible for the SRR.

APPENDIX 7

Changes to In-flight Procedures

Y2K TRAFFIC INFORMATION BROADCASTS BY AIRCRAFT (Y2K TIBA) AND RELATED OPERATING PROCEDURES

Introduction

Traffic information broadcasts by aircraft are intended to permit reports and relevant supplementary information of an advisory nature to be transmitted by pilots on a designated VHF radio telephone (RTF) frequency for the information of pilots of other aircraft in the vicinity.

Y2K Traffic information broadcasts by aircraft (Y2K TIBA)

1. Introduction and applicability of broadcasts

1.1 Y2K TIBAs should be introduced only when necessary and as a temporary measure.

1.2 The broadcast procedures should be applied in designated airspace where:

- a) there is a need to supplement collision hazard information provided by air traffic services outside controlled airspace; or
- b) there is a temporary disruption of normal air traffic services.

1.3 Such airspaces should be identified by the States responsible for provision of air traffic services within these airspaces, if necessary with the assistance of the appropriate ICAO Regional Office(s), and duly promulgated in aeronautical information publications or NOTAM, together with the VHF RTF frequency, the

message formats and the procedures to be used. Where, in the case of 1.2 a), more than one State is involved, the airspace should be designated on the basis of regional air navigation agreement and promulgated in Doc 7030.

1.4 When establishing a designated airspace, dates for the review of its applicability at intervals not exceeding 12 months should be agreed by the appropriate ATS authority(ies).

2. Details of broadcasts

2.1 VHF RTF frequency to be used

2.1.1 The VHF RTF frequency to be used should be determined and promulgated on a regional basis. However, in the case of temporary disruption occurring in controlled airspace, the States responsible may promulgate, as the VHF RTF frequency to be used within the limits of that airspace, a frequency used normally for the provision of air traffic control service within that airspace.

2.1.2 Where VHF is used for air-ground communications with ATS and an aircraft has only two serviceable VHF sets, one should be tuned to the appropriate ATS frequency and the other to the Y2K TIBA frequency.

2.2 Listening watch

A listening watch should be maintained on the Y2K TIBA frequency 10 minutes before entering the designated airspace until leaving this airspace. For an aircraft taking off from an aerodrome located within the lateral limits of the designated airspace listening watch should start as soon as appropriate after take-off and be maintained until leaving the airspace.

2.3 Time of broadcasts

A broadcast should be made:

- a) 10 minutes before entering the designated airspace or, for a pilot taking off from an aerodrome located within the lateral limits of the designated airspace, as soon as appropriate after take-off;
- b) 10 minutes prior to crossing a reporting point;
- c) 10 minutes prior to crossing or joining an ATS route;
- d) at 20-minute intervals between distant reporting points
- e) 2 to 5 minutes, where possible, before a change in flight level;
- f) at the time of a change in flight level; and
- g) at any other time considered necessary by the pilot.

2.4 Forms of broadcast

2.4.1 The broadcasts other than those indicating changes in flight level, i.e. the

broadcasts referred to in 2.3 a), b), c), d) and g), should be in the following form:

ALL STATIONS (necessary to identify a traffic information broadcast)

(call sign)

FLIGHT LEVEL (number) (or CLIMBING* TO FLIGHT LEVEL (number))

(direction)

(ATS route) (or DIRECT FROM (position) TO (position))

POSITION (position**) AT (time)

ESTIMATING (next reporting point, or the point of crossing or joining a designated ATS route) AT (time)

(call sign)

FLIGHT LEVEL (number)

(direction)

Fictitious example:

"ALL STATIONS WINDAR 671 FLIGHT LEVEL 350 NORTHWEST BOUND DIRECT FROM PUNTA SAGA TO PAMPA POSITION 5040 SOUTH 2010 EAST AT 2358 ESTIMATING CROSSING ROUTE LIMA THREE ONE AT 4930

* For the broadcast referred to in 2.3 a) in the case of an aircraft taking off from an aerodrome located within the lateral limits of the designated airspace.

** For broadcasts made when the aircraft is not near an ATS significant point, the position should be given as accurately as possible and in any case to the nearest 30 minutes of latitude and longitude.

SOUTH 1920 EAST AT 0012 WINDAR
671 FLIGHT LEVEL 350 NORTHWEST
BOUND OUT"

2.4.2 Before a change in flight level, the broadcast (referred to in 2.3 e)) should be in the following form:

ALL STATIONS

(call sign)

(direction)

(ATS route) (or DIRECT FROM
(position) TO (position))

LEAVING FLIGHT LEVEL (number)
FOR FLIGHT LEVEL (number) AT
(position and time)

2.4.3 Except as provided in 2.4.4, the broadcast at the time of a change in flight level (referred to in 2.3 f)) should be in the following form:

ALL STATIONS

(call sign)

(direction)

(ATS route) (or DIRECT FROM
(position) TO (position))

LEAVING FLIGHT LEVEL (number)
NOW FOR FLIGHT LEVEL (number)

followed by:

ALL STATIONS

(call sign)

MAINTAINING FLIGHT LEVEL
(number)

2.4.4 Broadcasts reporting a temporary flight level change to avoid an imminent collision risk should be in the following form:

ALL STATIONS

(call sign)

LEAVING FLIGHT LEVEL (number)
NOW FOR FLIGHT LEVEL (number)

followed as soon as practicable by:

ALL STATIONS

(call sign)

RETURNING TO FLIGHT LEVEL
(number) NOW

2.5 Acknowledgment of the broadcasts

The broadcasts should not be acknowledged unless a potential collision risk is perceived.

3. Related operating procedures

3.1 Changes of cruising level

3.1.1 Cruising level changes should not be made within the designated airspace, unless considered necessary by pilots to avoid traffic conflicts, for weather avoidance or in response to an operational emergency.

3.1.2 When cruising level changes are unavoidable, all available aircraft lighting which would improve the visual detection of the aircraft should be displayed while changing levels.

3.2 Collision avoidance

If, on receipt of a traffic information broadcast from another aircraft, a pilot decides that immediate action is necessary to avoid an imminent collision risk, and this cannot be achieved in accordance with the right-of-way provisions of Annex 2, the pilot should:

- a) unless an alternative manoeuvre appears more appropriate, immediately descend 150 m (500 ft), or 300 m (1000 ft) if above FL 290 in an area where a vertical separation minimum of 600 m (2 000 ft) is applied;
- b) display all available aircraft lighting which would improve the visual detection of the aircraft;
- c) as soon as possible, reply to the broadcast advising action being taken;
- d) notify the action taken on the appropriate ATS frequency; and
- e) as soon as practicable, resume normal flight level, notifying the action on the appropriate ATS frequency.

3.3 Normal position reporting procedures

Normal position reporting procedures should be continued at all times, regardless of any action taken to initiate or acknowledge a traffic information broadcast.

Note: This Y2K TIBA Procedures are intended to be used only during the Y2K critical time periods and differs slightly from the TIBA Procedures shown in Annex 11 Attachment C.

APPENDIX 8

Pilot Procedures

8.1 Hours of activation per the Activation and Resumption of Normal Services sections:

- Phase I 12:00 UTC, Dec-31-1999
- Phase II 22:00 UTC, Dec-31-1999
- Phase III In accordance with Stage 4 of this Phase*

* As FIRs in the CAR Region cross midnight local and complete Stage 3 of Phase III, the Regional Y2K Contingency Plan may be discontinued, either in part or completely in those FIRs.

8.2 Procedures for Phase I:

- a. Flights that terminate prior to 22:00 UTC, including the flight time required to fly to the alternate airport will not be subject to the Y2K contingency routes in this plan.
- b. Flights that on the event of proceeding to the alternate airport penetrate Phase II, shall flight plan to use Y2K Contingency Routes to the alternate airport.
- c. Flights that penetrate Phase II shall ensure that by 22:00 UTC they are established on Y2K Contingency Routes for the remainder of the trip to the destination and alternate airports as appropriate.

8.3 Procedures for Phase II:

- a. All flight planning must ensure that by Phase II of this plan aircraft will be on contingency routes. Including routes to the alternate airport.
- b. All flight plans must be presented at least 2 hours in advance of the Estimated Time of Departure.
- c. Flight crews should be aware that random direct routes will not be accepted by ATC.
- d. In addition to the assigned ATC frequency, flight crews shall monitor Y2K TIBA frequencies.
- e. Transponders should remain active at all times. If transponder Code is not assigned by ATC, aircraft should squawk 2000.
- f. Pilots shall make contact with the appropriate ATC facility at least 10 minutes prior to entering any FIR.

8.4 Radio failure procedures for the Y2K Contingency Plan:

8.4.1 On flights that are planned with step climbing, pilots must be aware that in the event of a route change, they must coordinate with ATC the new point at which they require to climb.

8.4.2 When air to ground loss of communications occur, the flight crew shall determine the origin of the problem using all communications means available with the following procedure:

- a. Attempt to make contact with ATC in the assigned frequency.
- b. Attempt to make contact with another aircraft in the ATC assigned frequency.
- c. Attempt to make contact with ATC or another aircraft on adjacent ATC frequencies.
- d. Attempt to make contact with another aircraft on the Y2K "TIBA" frequency.

8.4.3 If all attempts to make contact in section 8.4.2 fail, it can be assumed that the problem is originated on the aircraft and

- a. Air-ground communication Failure Procedures per ICAO Doc. 4444 should be followed.
- b. In suitably equipped aircraft, pilots should fly 1 nm offset to the right of the airway centerline.
- c. The procedure in section 8.4.2 should be repeated periodically to try and reestablish communications.

8.4.4 If communication is established with another aircraft, it can be assumed that the communication problem is originated in the ATC facility. The following procedure should be conducted to try and reestablish communications.

- a. Attempt to establish communications by requesting that another aircraft relay information to ATC in the following order of preference:
 - The assigned ATC frequency.
 - The secondary ATC frequency for that sector.
 - Adjacent ATC sector/facility frequencies.
 - The Y2K "TIBA" frequency.
- b. If communications can not be established with ATC per section 8.4.4 a., Flight Crews will be expected to:

During the EN ROUTE Phase,

- Proceed according to the current flight plan route
- Maintain the last assigned speed and level
- Apply Y2K TIBA procedures, preferably in the English language, using the corresponding ATC and Y2K TIBA frequencies as published in Appendix 4.
- In suitably equipped aircraft, pilots should fly 1 nm offset to the right of the airway centerline.
- Attempt to reestablish communications per section 8.4.2 periodically.

During the ARRIVAL Phase,

- Apply Y2K TIBA procedures, preferably in the English language, using the corresponding ATC and Y2K TIBA frequencies as published in Appendix 4.
- Flight Crews shall co-ordinate with other aircraft in the vicinity using the primary frequency for a given Terminal Area.
- Sequence for approach may be coordinated using arrival time over facility
- In the event of two aircraft arriving at the same time preference should be given to the one at the lower altitude.

APPENDIX 9

Flight Planning Requirements

- 1.0 All operators are expected to familiarize themselves with the Regional Y2K Contingency Plan as well as National Contingency Plans published by States. For aircraft intending to operate in areas during periods when the contingency plans are activated, the operators shall plan the flight to conform to the activation times of the Contingency Plans. Operators shall ensure that flights are flight planned on contingency routes prior to entering an area, which is under Contingency Plan procedures.
- 1.1 The flight planning requirements during the contingency period will be in accordance to ICAO Annex 2 Chapter 3 and Doc 4444 Part II. Additional information, will, however, be required, to indicate that the flight will operate in airspace where the contingency plan is active. This information is to be indicated in the 'RMK/'field of item 18 of the ICAO flight plan, for example, 'RMK/Contingency routes'. (Remarks/aircraft will be operating on contingency routes in (NAME) and (NAME) FIRs).
- 1.2 Regular AIS routes may be used for flight planning during Phase I. However, all flight planning must ensure that by Phase II of this Plan, aircraft will be on Y2K contingency routes. Including routes to the alternate airport.
- 1.3 Repetitive Flight Plans (RPLs/Bulk Stored) will not be accepted for the time that the contingency plan is activated. All operators are required to file flight plans in accordance with contingency flight planning procedures.
- 1.4 All flight plans must be presented at least 2 hours in advance of the Estimated Time of Departure.
- 1.5 Flight crews should be informed that random direct routes will not be accepted by ATC during Phase II.
- 1.6 In order to minimize any potential situations that may occur at airports during this particular time, it is recommended that operators avoid scheduling take-off and landings from 15 min prior to 30 min past midnight UTC and local time.

APPENDIX 10

CAR Y2K Regional Coordination Unit (CAR Y2K RCU)

1. Location

1.1 The CAR Y2K Regional Coordination Unit CAR (CAR Y2K RCU) will be located at the FAA Miami ACC (ARTCC), in Miami, Florida, United States.

2. Time of Activation

2.1 In accordance with the planning in the CAR Region and respecting the difference of UTC and local time in this region, it is planned to activate the CAR Y2K RCU on a 24-hour basis as of 31.12.1999, 12.00 UTC (7 am. Miami local time). Staff planning shall assume that the unit may have to operate on a continuous basis for several days.

2.2 The operation of the RCU will be scaled down as each ATS provider returns to normal operations and closed when regular operations are resumed across the whole CAR Region.

3. Composition of the CAR Y2K RCU

3.1 The CAR Y2K RCU should comprise experts of ICAO, IATA and all the FIRs of the CAR Region to address Y2K-related matters for the ICAO CAR Region and for its interfaces. The members of the CAR Y2K RCU should have qualifications and experience to actively perform all duties and functions.

4. Functions

4.1 The functions of the CAR Y2K RCU shall be as follows:

- a) To facilitate flight safety in the event air traffic services and/or systems fail as result of a Y2K related problem. The role of the CAR Y2K RCU will be monitor the activities related to Y2K from a strategic perspective. There will be no tactical control. The CAR Y2K RCU will keep a regional overview of what has occurred, is occurring and will occur during the Y2K critical time periods.
- b) To facilitate continuity of ATS regionally and inter-regionally by coordinating as required with other regions, service providers and users groups as required;
- c) To collect, collate and analyse information on the relevant status of failures and outages during Y2K change-over, affecting ATS units and airports of States/Territories/International Organizations in the CAR Region and in adjacent Regions;
- d) To disseminate relevant Y2K information to NCICs/NCIUs, States/Territories/International Organizations and other concerned parties;

- e) To assist in close co-ordination with NCICs in identifying the need for traffic flow measures along a traffic flow if required, including modifications in separation minimum, and co-ordinating their implementation;
- f) To liaise with adjacent Y2K Regional Co-ordination Units (Y2K RCU) in relation to the implementation of contingency measures and with the Global Y2K Co-ordination Unit (G Y2K CU) as required, including the disseminating of reports on the status of facilities and operations in the CAR region;
- g) To assist coordination between States of the region if direct State to State coordination is not available or ineffective or with the transfer of specific responsibilities for air traffic services from one ACC to another in the event that a particular ACC is unable to provide ATS;
- h) To assist in the co-ordination with NCICs of CAR Region for the resumption of normal operations, once contingency measures are no longer required;
- i) To liaise with the G Y2K CU for promulgation of harmonized public relation information.

5. Internal Organization and Responsibilities

5.1 The **ICAO NACC Regional Director** or his designee shall be responsible for:

- a) The overall operation of the CAR RCU
- b) In the event of mayor degradation affecting any FIR he will decide the actions to be taken by the RCU.
- c) Mediate any differences between Y2K Coordination Units within the CAR Region.
- d) Coordinate with high-level officials of the CAR Region Administrations and International organizations as needed.

5.2 A **Core Team** composed by an ICAO NACC Regional Officer, an IATA representative and a Y2K RCU Coordinator (State) to perform the following activities in close coordination with the RCU Director:

- a) In the event of major degradation affecting the CAR Region will provide recommendations to the CAR RCU Director;
- b) Will analyse all data received by the CAR RCU for potential impact to the Air Traffic Services and airports of the Region;
- c) Will determine what information should be disseminated to the Global Y2K RCU, adjacent RCUs, NCICs or any other unit;
- d) Based on the information received, will provide recommendations to the CAR RCU Director when to deactivate partially or totally the Y2K Contingency Plan of the CAR Region;
- e) Other duties as assigned by the CAR RCU Director.

5.2.1.1 In addition to Core Team duties:

5.2.1.2 **ICAO NACC Regional officers** will:

- Serve as a member of the Core Team
- Coordinate the dissemination of approved CAR Y2K RCU data to the G Y2K CU and adjacent RCUs and other Y2K units.
- Perform other duties as assigned by the RCU Director.

5.2.1.3 **IATA Representative(s)** will:

- Serve as Core Team member
- Liaise with airlines
- Provide to the airlines the information originated by the CAR Y2K RCU
- Provide to the CAR Y2K RCU information from the airline sources.

5.2.1.4 The **Y2K RCU Coordinator** will:

- Serve as member of the Core Team
- Provide supervision of Y2K specialists of the RCU
- Ensure all reports are received from the NCICs timely
- Consolidate reports received from the NCICs and forward them to the Core Team
- Coordinate with NCICs/RCU as directed by the Core Team
- Other duties as assigned by the CAR RCU director.

5.3 **ATS specialists** that will assist the CAR Y2K RCU Core Team will perform the following duties:

- a) To monitor the activities related to Y2K by keeping a general overview of what has occurred, is occurring, and will occur during the Y2K critical time periods;
- b) To collect and collate information received on the status of the Y2K critical time periods affecting the Air Traffic System and forward it to the RCU Coordinator;
- c) To liaise with the NCICs/NCIUs as directed;
- d) To disseminate the information as directed;
- e) To co-ordinate with adjacent RCUs in relation to implementation of contingency measures as directed;
- f) To co-ordinate the deactivation of the Regional Contingency Plan among CAR States as directed;
- g) Any duties assigned by the CAR RCU Coordinator.

5.4 **AIS (with telecommunication experience) specialists** that will assist the CAR Y2K RCU Core Team will perform the following duties:

- a) To liaise with the NCICs/NCIUs as directed;
- b) To disseminate the information as directed;
- c) Assist and participate in the drafting and promulgation of aeronautical information, as required;
- d) Maintain an effective control of all the aeronautical information concerning the States with which exchange might be carried out;
- e) Maintain contact with those States that have NOTAM Banks in order to take action, in case information is lost as a consequence of the Y2K critical time periods;
- f) Handle and operate the AFTN/SITA/ARINC equipment as required;
- g) Handle and operate communications equipment as required
- h) Any duties assigned by the CAR RCU Coordinator.

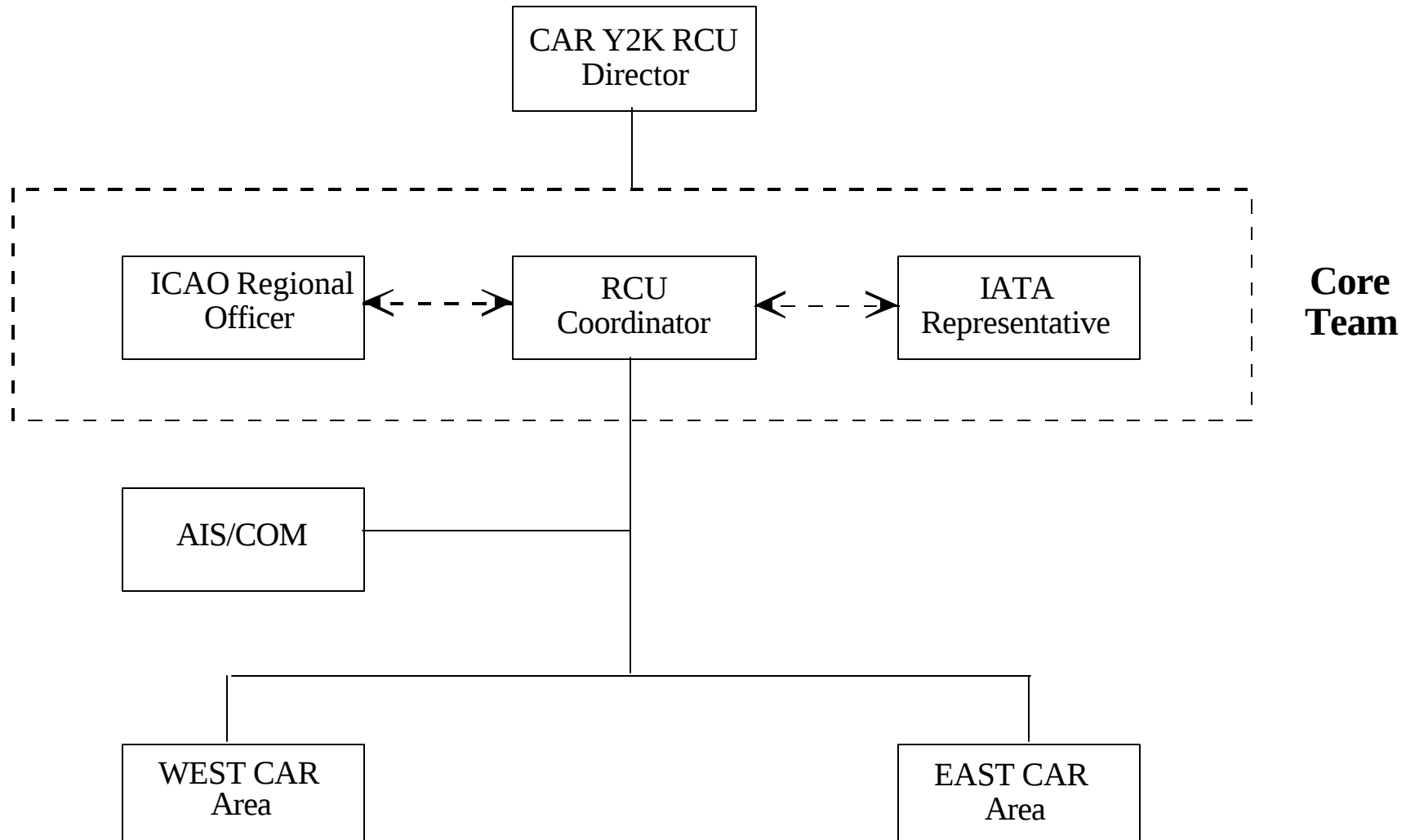
6. Staff Participating in the CAR Y2K RCU

6.1 National administrations and international organizations shall bear the costs for their staff participating in the CAR Y2K RCU.

7. Procedures

7.1 The procedures of the CAR Y2K RCU are contained in the STANDARD OPERATING PROCEDURES (SOP) HANDBOOK that will be distributed separately.

Organization Chart CAR Y2K RCU



APPENDIX 11

CONTINGENCY PLANNING FOR EXCHANGE OF OPMET INFORMATION

**(METAR, SPECI, TAF, TAF AMD, SIGMET, AIRMET, volcanic ash and
tropical cyclone advisories)**

**CONTINGENCY ARRANGEMENTS FOR THE EXCHANGE OF
ESSENTIAL OPMET INFORMATION
(METAR, SPECI, TAF, TAF AMD, SIGMET, AIRMET,
volcanic ash and tropical cyclone advisories)**

1 General

1.1 OPMET information in alphanumeric format (METAR, SPECI, TAF, TAF AMD, SIGMET, AIRMET, volcanic ash and tropical cyclone advisories), received by the AFTN at the London and Washington World Area Forecast Centres (WAFCs) is uplinked to the three ICAO satellite broadcasts (ISCS(1), ISCS(2), and SADIS) for dissemination globally to States having appropriate one-way VSAT receiving equipment.

1.2 For the CAR Region, all States/Territories with exception of Cuba, Haiti and Mexico, further to the use of the AFTN for the exchange of OPMET data, are using the two-way (reception/transmission) VSAT facility. This capability can be used to send OPMET data to the Washington WAFc.

1.3. Concerning Cuba (IACC) and Mexico (SENEAM), further to the AFTN and the one-way (reception only) VSAT equipment operational, they could establish the necessary coordination with the National Meteorological Service (NMS) concerned in order to study the possibility to use their two-way VSAT/STAR4 equipment to send the OPMET information (either safety or routine messages) to the WAFc of Washington for broadcasting in case of a breakdown of an AFTN link.

1.4 Although Haiti has not yet available the foreseen two-way VSAT/STAR4 equipment, serious problems are not envisaged with the exchange of OPMET information, in view that Haiti has already implemented and is making full use of the AFTN through the MEVA system (Satellite System). However, the AFTN communication between the MET office at the airport and the ACC must be implemented.

1.5 Another alternative mean of transmission of the OPMET information to the two WAFCs (London and Washington) providing a valuable contingency resource for the global dissemination of OPMET information could be the use of the networks of communication service provider (e.g. ARINC and SITA).

Note 1: A failure of a PTT or commercial power may impact these services.

Note 2: The development of global arrangements for SITA Y2K back-up will not be possible.

1.6 The Washington WAFc provides access to OPMET information and many other products via INTERNET, but it will not accept data input via INTERNET (See Attachment C).

Note: a failure of a PTT or commercial power may impact these services.

1.7 In connection with the foregoing, and in order to ease the preparatory communications arrangements for the exchange of OPMET information in the CAR Region:

a) **Attachment A:** shows the contingency requirements on OPMET information to be concentrated in the London and Washington WAFCs;

b) **Attachment B:** shows a Table on the means of communication currently used in the CAR Region for OPMET information to be concentrated in the London and Washington WAFCs as well as the alternative means to be used by each State/Territory concerned;

- c) **Attachment C:** provides information concerning INTERNET access to OPMET data; and
- d) **Attachment D:** lists useful WEB site addresses to access the volcanic ash advisory centres (VAACs).

ATTACHMENT A**CONTINGENCY REQUIREMENTS FOR OPMET INFORMATION TO BE
CONCENTRATED AT THE LONDON AND WASHINGTON WAFCs**

1 OPMET information in alphanumeric format (METAR, SPECI, TAF, TAF AMD, SIGMET, AIRMET, volcanic ash and tropical cyclone advisories), received by AFTN at the London and Washington WAFCs is uplinked to the SADIS and ISCS (1) and (2) satellite broadcasts for dissemination globally to States have appropriate VSAT receiving equipment. This is a one-way distribution function only and currently some 120 States have, or intend to install in the near future, VSAT receivers. There is also a two-way facility available, but this is currently limited to the ICAO Central American and Caribbean (CAR) Region, and a small number of States in other ICAO regions (Bogota, Colombia; Zurich, Switzerland; and Pretoria, South Africa). Additional two-way sites are planned for Cairo, Egypt; Dakar, Senegal and possibly Singapore. The one-way satellite broadcast is intended to achieve full global distribution. The two-way capability will be extended beyond the CAR Region based on operational requirements stated by the ICAO Planning and Implementation Regional Groups (PIRGs).

2 The ICAO satellite broadcasts are expected to be Y2K compliant but they depend on the collection of OPMET messages (virtually global) via the AFTN. If any parts of the AFTN break down temporarily due to the Y2K problem, arranging for alternative means of transmission of the OPMET information to the two WAFCs and/or one or more of the existing two-way VSAT stations could provide a valuable contingency resource for the global dissemination of OPMET information. It is postulated that use could be made of ARINC and SITA circuits to provide contingency support to the affected parts of the AFTN. However, if for any reason, it were not possible to take advantage of ARINC/SITA circuits to provide contingency support to the AFTN globally, there would still be the possibility of making specific regional contingency arrangements for OPMET collection. This might entail OPMET information being inserted at airline company offices at aerodromes by the aerodrome meteorological office and meteorological watch office (MWO) for onward delivery to London and Washington WAFCs and AFTN switching centres. While it would clearly be far better to have ARINC/SITA form part of regional contingency arrangements for the whole AFTN, which would automatically address OPMET requirements, if this were not possible then their support should be seriously considered to collect OPMET safety messages and concentrate them in London and Washington and possibly the international OPMET data banks.

3 Routine air reports are received primarily through ATS communications units and airlines and would have to be subject to further consideration. It is likely that such routine messages would not be covered by the contingency arrangements. Special air reports are safety messages.

4 In theory at least, OPMET information could be concentrated at either of the two WAFCs and would be forwarded to the other via a dedicated GTS link between London and Washington. OPMET information from some areas perhaps could be concentrated at any of the two-way VSAT stations for uplink/downlink to the WAFC master stations.

5 Summarizing, an initial review of minimum requirements for OPMET information under Y2K contingency arrangements reveals that the following would be required, in the order of priority:

Safety messages: SIGMET and AIRMET
 TAF AMD
 VOLCANIC ASH ADVISORY
 TROPICAL CYCLONE ADVISORY
 SPECIAL AIREP

Routine messages: METAR
 SPECI
 TAF

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ATTACHMENT B

MEANS OF COMMUNICATION FOR OPMET INFORMATION TO BE CONCENTRATED AT THE LONDON AND WASHINGTON WAFCs

STATE/TERRITORY	CURRENTLY		ALTERNATIVE MEANS				REMARKS
	AFTN	VSAT/STAR4	INTERNET	VSAT/STAR4*	ARINC/SITA	PHONE/MODE	
1	2	3	4	5	6	7	8
ANGUILLA (United Kingdom)	X	Relayed by Antigua					
ANTIGUA AND BARBUDA	X	2W	X				
ARUBA (Netherlands)	X	Relayed by Curaçao					
BAHAMAS	X	2W					
BARBADOS	X	2W	X				
BELIZE	X	2W	X				
BERMUDA (United Kingdom)	X	2W					
CAYMAN ISLANDS (United Kingdom)	X	2W	X				
COSTA RICA	X	2W	X				
CUBA	X	1W		2W (NMS)			Need coordination with NMS
DOMINICA	X	Relayed by Barbados					
DOMINICAN REPUBLIC	X	2W	X				
EL SALVADOR	X	2W	X				
FRENCH ANTILLES (Guadeloupe) (Martinique)	X	2W	X				
	X	2W	X				

* VSAT/STAR 4 or other GTS link to Washington from CAR States/Territories will be used to transmit OPMET data as a contingency if the AFTN is down

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STATE/TERRITORY	CURRENTLY		ALTERNATIVE MEANS				REMARKS
	AFTN	VSAT/STAR4	INTERNET	VSAT/STAR4*	ARINC/SITA	PHONE/MODE	
1	2	3	4	5	6	7	8
GRENADA	X	2W	X				
GUATEMALA	X	2W	X				
HAITI	X						AFTN Via MEVA
HONDURAS	X	2W	X				
JAMAICA	X	2W	X				
MEXICO	X	1W	X	2W (NMS)			Need coordination with NMS/FAM
MONTSERRAT (United Kingdom)		Relayed by Antigua					
NETHERLAND ANTILLES (Curacao) (Sint Maarten)	X	2W	X				
NICARAGUA	X	2W	X				
SAINT KITTS AND NEVIS	X	Relayed by Antigua					
SAINT LUCIA	X	2W					
SAINT VINCENT AND THE GRENADINES	X	Relayed by Barbados					
TORTOLA (United Kingdom)	X	Relayed by Antigua					
TRINIDAD AND TOBAGO	X	2W	X				
UNITED STATES	X	2W	X				

Legend: 2W = two way VSAT equipment 1W = one way VSAT equipment
 NMS = National Meteorological Service FAM = Mexican Air Force

* VSAT/STAR 4 or other GTS links to Washington from CAR States/Territories will be used to transmit OPMET data as a contingency if the AFTN is down.

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ATTACHMENT C

INTERNET ACCESS TO OPMET DATA

- 1 The OPMET Data Bank serving the CAR States is the Washington OPMET Data Bank.
- 2 The Washington OPMET Data Bank cannot be addressed via INTERNET.
- 3 The Washington OPMET Data Bank is only accessible via the AFTN.
- 4 All data/products that are provided by NOAA/NWS (U.S.) to the OPMET users are available on their http server. OPMET users can look at what is available via INTERNET at the URL:

nws.noaa.gov

- 5 The United States Aviation Weather Centre in Kansas City, makes the products available via the INTERNET at:

www.awc-kc.noaa.gov

ATTACHMENT D

USEFUL WEB SITE ADDRESSES*

TO ACCESS THE

Volcanic ash advisory centres (VAAC)

Anchorage	http://www.alaska.net/~aawu/vaac.html
Darwin	http://www.bom.gov.au/info/vaac
Montreal	http://www.cmc.ec.gc.ca/cmc/CMOE/vaac/A-vaac.html
Toulouse	http://www.meteo.fr/aeroweb/info/vaac/
Washington	http://www.hpssd1en.wwb.noaa.gov/SSD/ML/vaac-dc.html
Wellington	http://www.met.co.nz

Note: - The homepages for VAACs normally contain hyperlinks to homepages of the other VAACs.

Alaska Volcano Observatory:	http://www.avo.alaska.edu
Canadian MET Centre:	http://www.cmc.ec.gc.ca ftp://ftp/cmc.ec.gc.ca/ftp/cmc/EER/vaac/realtime_auto_traj/
Michigan Technical University:	http://www.geo.mtu.edu/volcanoes
VAFTAD:	http://www.arl.noaa.gov/vaftad.html http://www.arl.noaa.gov/ready/runvaftad.html http://www.arl.noaa.gov/ready/vaftad.menu.html http://www.arl.noaa.gov/ready.html
WAFS Internet:	http://weather.noaa.gov/fax/wafsfax.shtml
Caribbean Disaster Emergency Response Agency:	http://www.cdera.org
Global Volcanism Network Bulletin:	http://www.nmnh.si.edu/gvp/

* These addresses are included for back-up information purposes only, and it should be clearly understood that operational reliance on receipt of information on volcanic ash from any web site cannot be assured.

APPENDIX 12
AIS Y2K Contingency Measures
ACTIONS TO BE TAKEN FOR THE Y2K COMPLIANCE
OF THE NOTAM DATABASES

1. The aeronautical information concerning ATS, airports and air transport operators requires tight coordination with the AIS services.
2. Demand the manufactures to give a Y2K compliance certificate of the product.
3. The administrators of the NOTAM Database might undertake different tests to prove that their Database is Y2K compliant.
4. It will be necessary to carry out simulation tests.
5. All tests that simulate to work in the year 2000 should be backed up in some sort of storage system that allows to restore the information.
6. Tests must be made by specialized technician on the matter

Actions to reduce the Y2K impact in the NOTAM Service

1. It is recommended that NOTAMs with expiry date after the 1st January 2000, be transferred to supplements before 31st October 1999.
2. It is recommended that after October 31st, 1999, NOTAM messages that have a termination date subsequent to January 1st, 2000, are published from the beginning in two NOTAM messages, both with the same text and with the characteristics of new messages.
3. The first one with December 31st, 1999 at 2400 hrs as the termination date, and the other one with commencement date of January 1st, 2000 at 0000 hrs.
4. The above action is to minimize, during the first days of January 2000, NOTAM messages that replace in force NOTAM messages that have a 1999 commencement date.
5. The publication of two NOTAM messages that have the same text but different commencement/termination dates, must be adopted as an operational procedure to be followed by the International NOTAM Offices.
6. It could be applicable for both automated NOF and non-automated NOF.

7. During the last trimester of 1999, to limit the number of NOTAM messages with termination date in terms of EST or PERM, besides of the originating services efforts to replace and/or cancel the NOTAM EST that are available, as well as to convert the existing NOTAM PERM into Supplements or Amendments to the AIP.
8. To publish a Contingency Verification List of NOTAMs in force on December 30, 1999 and subsequent to January 1st, 2000 the Verification List corresponding to January.
9. To know ahead of time the year 2000 compliance of every NOTAM Database in the CAR/SAM Regions by a NOTAM publication.
10. To make interrogation tests between NOTAM Databases in order to know the functioning status prior to January 2000.
11. That messages and interrogations, that are not considered urgent, are not published during the first days of January 2000, since a great traffic of information in the AFTN is foreseen in this period.

Alternative Means for AFTN Failures

1. Fax capacity.
2. Internet to telephone.
3. Telex.
4. SITA or ARINC network.
5. International direct dialing phone (IDD).

Administrative Measures

1. An AIS liaison should be included in the CAR Y2K Coordination Unit in order to assist States in the planning processes for production and publication of the information that will be disseminated during the contingency phases.
2. An AIS liaison should be included in the Y2K National Coordination and Information Centers/Units in order to assist AIS National Services in the planning processes for production and publication of the information that will be disseminated during the contingency phases.

3. States are advised to ensure that they:

- train the AIS personnel in the Y2K contingency plan so they will be aware of situations that have to be published.
- revise or establish coordination procedures between the AIS and other related services for the timely dissemination of information.
- establish procedures to operate the AIS services during the contingency phases.
- designate suitable trained AIS staff, in sufficient number, that will be on duty during contingency phases.
- establish an alternative procedure in case telecommunications fails.
- establish coordination procedures between the International NOTAM Offices
- To establish dates to conduct simulation exercises and therefore to familiarize the staff with situations that could happen eventually.
- It must be taken into account that the contingency plan has to be active 24 hours a day.