

Appendix B



MODEL OF STATE Y2K CONTINGENCY PLAN

Version TF 3.2

(30 June 1999)

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

Plan Approval

Approval	This plan is subject to the approval of the State's corresponding relevant authority.
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Co-ordination	The State's relevant authority approving this National Plan will send the ICAO NACC Regional Office a copy of it to be distributed to all relevant States/international organizations.
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Revision/Testing	This plan should be reviewed, simulated and/or tested at appropriate intervals.
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Revision Conditions	Amendments and revisions are to be co-ordinated with affected States, organizations and ICAO.
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Contact Names and Numbers	Contact names and numbers of this Plan are included in Appendix for information of interested States/International organizations.
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State Authorization	This plan is authorized by:
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Signature.....

Name

Position

dd mmmm 1999

Overview

Introduction

This plan has been developed to detail contingency arrangements, which will permit the continuation of domestic and international air traffic in the event of a significant degradation of air traffic services and systems during the Y2K time period(s).

This plan is to be activated during the agreed 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 States and to minimize 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 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 traffic flows within the ()FIR.

Contingency Situation Contingency Situation: Significant degradation of ATS

Activation

Responsibilities

The activation of this National plan will take place in two phases, in order to transition in the most efficient and orderly manner.

Phase I will be activated 12 hours prior to midnight UTC on Dec. 31, 1999.

Phase II will start 2 hrs prior to midnight UTC on Dec. 31, 1999.

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

National Y2K Coordination and Information Centers/Units

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

Establishment of a National Y2K Coordination and Information Centers/Units

The National Y2K Coordination and Information Centers/Units of each state should be in operation at the activation of the regional plan. It's role is:

- a) To oversee the smooth implementation of the agreed Contingency Plan;
 - b) To be a point of contact with the CAR Y2K CIC, 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 States area of responsibility; and
 - d) to co-ordinate with adjacent States and the CAR Y2K CIC/Y2K NCIC when operations return to normal and contingency measures are no longer required.
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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 CIC.

* 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 areas where there is 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 is described in **Appendix 1**.

Airspace and Routes

Contingency Routes

A contingency route structure has been developed for use within the (*State's name*) FIR. This plan permits aircraft to flight plan and operate using these routes so as to minimize disruption to operations, should significant degradation of air traffic services occur as a result of Y2K induced system failures.

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 may continue to exist during the Y2K time period.

Where possible, ATS contingency routes should not impede international operations.

Arrival Procedures

When required by a State to facilitate traffic management, a description of contingency routes should include any terminal area procedures such as contingency SID/STARs for use by international aircraft arrivals or departures.

If a State elects to develop terminal area procedures such as contingency SID/STARs that will be used by aircraft only during the activation of this plan, such procedures shall be developed for dissemination by 1 August 1999.

**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.

Charts

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

- Contingency ATS route structure for both domestic and international operations
 - Contingency SIDs/STARs (if required)
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**Frequency
Management Plan**

A frequency management plan is to be developed which details the list of frequencies to be used during the contingency. **(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.

When a service is not available, if able, a NOTAM is to be issued providing the relevant information, including where possible, an expected date of restoration of such service.

**Landing and
Departure
Information**

Broadcasts containing this information will be available at the following aerodromes:

** To be advised by States*

** To be advised by States*

Broadcasts will be made either on the normal ATIS frequency or as part of a UNICOM broadcast.

Flight Information Service	Flight Information Service, such as Unicom, Aerodrome Flight Information Service (AFIS), etc. using limited broadcast facilities, will be available at the following aerodromes: • To be advised by States • To be advised by States The contingency UNICOM service may provide the following information: • Station identification - "(airport name) UNICOM" • Estimated times of arrival and departure • Landing and departure information • Weather information (including METAR/TTF/TAF as appropriate) • Amendments to slot times and any other flow management requirements Other location specific requirements shall be detailed in State FIR contingency plans
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.
Lateral Separation	Lateral separation shall be in accordance with Procedures for Air Navigation Services, Rules of the Air and Air Traffic Services, ICAO Doc. 4444 and Regional Supplementary Procedures, Doc. 7030
Vertical Separation	Vertical separation shall be in accordance with ICAO Annex 2 Appendix 3.
Level Restrictions Domestic Route Structure	For planning purposes, the upper limit of levels available for aircraft operating on domestic contingency routes that conflict with international contingency routes as defined in this plan, shall be flight level FL280
Level Restrictions International Route Structure	Whenever possible, the lower limit for aircraft operating on international long haul flights shall be afforded the priority of FL290 and above.

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 CIC.
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 CIC. 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.

Co-ordination

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, 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, Traffic Information Broadcast by Aircraft (TIBA) procedures would apply (ICAO Annex 11, Attachment C), 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 TIBA procedures as defined in ICAO Annex 11 Attachment C.

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).

**Contingency
Communication
Systems and
Priority**

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

In respect of failure of direct speech links, States are to prioritise alternate forms of contact with adjacent ACCS, CAR Y2K CIC and other ATC Units.

If purchasing alternate communication equipment, States should consider co-ordinating such purchase with adjacent ACCs and the CAR Y2K CIC to ensure commonality of equipment.

**Alternate
Communications**

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

Unless agreed between States, control responsibilities will continue to remain with the State affected by the air-ground communication outage. States who assume air-ground communication responsibilities shall relay all relevant information received by aircraft back to the affected State by whatever means possible.

SAR and Emergencies

**SAR and
Responsibilities**

Appendix 6 (*States to complete*) 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.

The State Plan is to show either:

1. The following military airports and/or facilities are available during the period of the contingency:

a.

b.

or

Military airports/facilities are not available for use during the contingency.

Pilot and Operator Procedures

Changes to In-flight Procedures

- Transponders should remain active at all times.
- Flight Crews should be familiarized with TIBA procedures in ICAO Annex 11 and reproduced 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 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.

Arrival Procedures

Each State shall define the specific procedures to be used in terminal contingency airspace at which international aircraft may operate within the traffic flow area covered by this plan.

These procedures shall be included as **Appendix 10** to this plan and shall be published prior to the Y2K critical period. Terminal area contingency procedures developed for the purposes of this plan shall assume that a significant level of degradation to ATS has occurred.

Pilot Procedures

Full control services shall be provided where possible to aircraft on contingency routes. Where these services become unavailable during the critical period pilots will contact designated contingency service provision frequencies for control and/or flight monitoring services.

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.

TIBA

Traffic information broadcasts by aircraft (TIBA)* established in ICAO Annex 11, Attachment C, and 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

Appendix 9 contains any additional information required in the Flight Plan, such as indicating that contingency routes are being adhered to, and any changes to addresses.

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 CIC in **Appendix 10** should be generated.

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

Stage 2 Each Y2K NCIC will prepare a final status report based on stage one 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 CIC that they are ready to resume normal services.
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Stage 3 The CAR Y2K CIC will facilitate co-ordination among the Y2K NCICs within the CAR Region that have passed stage 2 and the Y2K CIC from adjacent regions to determine a mutually acceptable time to discontinue the Regional Y2K Contingency Plan, either in part or complete deactivation.

- 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 CIC shall remain activated through stage 4 of this deactivation process.

Appendices

Appendix 1	Implementation Strategy and Contingency Situation
Appendix 2	Chart of <i>(State)</i> Y2K Contingency Route (International & Domestic)
Appendix 3	<i>(State)</i> International and Domestic route structure
Appendix 4	VHF and HF frequencies to be used for air-ground and TIBA
Appendix 5	The Y2K Communication, Navigation, Surveillance (CNS) and Automation Systems for Contingency Planning of the CAR Region
Appendix 6	SAR and Emergencies
Appendix 7	Changes to In-flight Procedures
Appendix 8	Pilot Procedures
Appendix 9	Flight Planning Requirements
Appendix 10	Contingency Procedures, SIDs/STARs to be used - Terminal Airspace
Appendix 11	Contact Names and Numbers
Appendix 12	Contingency Planning for Exchange of OPMET Information
Appendix 13	AIS Y2K Contingency Measures