GOVERNMENT NOTICE

DEPARTMENT OF TRANSPORT

No. R. 1317

28 December 2006

AVIATION ACT, 1962 (ACT NO 74 of 1962)

TWENTY-FOURTH AMENDMENT TO THE CIVIL AVIATION REGULATIONS, 1997

The Minister of Transport has under section 22(1) of the Aviation Act, 1962 (Act No 74 of 1962) made the regulations in the Schedule hereto.

SCHEDULE

Definition

1. In these regulations unless the context otherwise indicates "the Regulations" means the Civil Aviation Regulations, 1997, published by Government Notice Nos R.1219 of 26 September 1997 and R.1255 of 17 October 1997, as amended by Government Notice No R. 1735 of 24 December 1997, Government Notice No R. 1041 of 14 August 1998, Government Notice No R. 1148 of 18 September 1998, Government Notice No R. 1664 of 14 December 1998, Government Notice No R. 1701 of 31 December 1998, Government Notice No R.639 of 21 May 1999, Government Notice No R. 170 of 17 February 2000, Government Notice No R. 171 of 18 February 2000, Government Notice No R. 558 of 22 June 2001, Government Notice No R. 559 of 22 June 2001, Government Notice No R. 559 of 30 August 2002, Government Notice No R. 1367 of 15 November 2002, Government Notice No R. 1368 of 15 November 2002, Government Notice No 1369 of 15 November 2002, Government Notice No R. 1370 of 15 November 2002, Government Notice No R. 1371 of 15 November 2002, Government Notice No R. 1372 of 15 November 2002, Government Notice No R. 434 of 28 March 2003, Government Gazette No 435 of 28 March 2003 Government Gazette No R.1375 of 1 October 2003, Government Gazette No 1340 of 31 March 2004, and Government Gazette No 29091 of 4 August 2006.

2. Amendment of regulation 1.001 of Part 1 of the Regulations

Regulation 1.00.1 of the Regulations is herewith amended by-

(a) the insertion of the following definition after the definition of "accredited representative":

(b) the insertion of the following definition after the definition of "AIP Supplement":

"'airborne navigation database' refers to an electronic memory device containing information on aerodromes, navigation aids reporting points, standard instrument departures, standard instrument arrivals, instrument approaches, special-use airspace, and any other data of value to the pilot;";

(c) the insertion of the following definition after the definition of "area control service":

"'area navigation' refers to a method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals or within the limits of a self-contained system capability;";

(d) the insertion of the following definition after the definition of "automatic activation device":

"'availability' in relation to **GNSS** refers to an indication of the ability of the system to provide usable service within the specified coverage area and is defined as the portion of time during which –

(a) the system is to be used for navigation; and

(b) reliable navigation information is presented to the flight crew, autopilot or other system managing the flight *of* the aircraft;";

(e) the insertion of the following definition after the definition of "balloon":

"'BARO VNAV system' refers to a non-precision navigation system that presents computed vertical guidance to the pilot, associated to a specified Vertical Path Angle (VPA), nominally three degrees (3°), which is referenced to barometric altitude and which is specified as a VPA from a Reference Datum Height (RDH);";

(f) the insertion of the following definitions after the definition of "child":

(i) "'Class A **GNSS** equipment' means **GNSS** equipment incorporating both the **GNSS** sensor and navigation capability, including Receiver Autonomous Integrity Monitoring (RAIM):

(a) Class A I – *en route,* terminal and non-precision approach other than localiser, navigation capability;

(b) Class ***A2*** – *en route* and terminal navigation capability only;";

(ii) **"'Class B GNSS equipment'** means GNSS equipment consisting of a GNSS sensor, which provides data to an integrated navigation system:

(a) Class **B1** – *en route,* terminal and non-precision approach, other than localiser, navigation capability;

(b) Class **62** – *en route* and terminal navigation capability only, providing RAIM;

(c) Class **63** – *en route,* terminal and non-precision approach, other than localiser, which equipment requires the integrated navigation system to provide a level of GPS integrity equivalent to that provided by RAIM;

(d) Class 64 – *en route* and terminal navigation capability only, which equipment requires the integrated navigation system to provide a level of GPS integrity equivalent to that provided by RAIM;";

(iii) **'"Class C GNSS equipment'** means GNSS equipment consisting of a GNSS sensor that provides data to an integrated navigation system that in turn provides guidance to an autopilot or flight director in order to reduce Flight Technical Error (FTE):

(a) Class C1 – *en route,* terminal and non-precision approach, other than localiser, navigation capability, providing RAIM;

(b) Class **C2** – *en route* and terminal navigation capability only, providing RAIM;

(c) Class **C3** – *en route,* terminal and non-precision approach, other than localiser, which equipment requires the integrated navigation system to provide a level of GPS integrity equivalent to that provided by RAIM;

(d) Class C4 – *en route* and terminal capability only, which equipment requires the integrated navigation system to provide a level of GPS integrity equivalent to that provided by RAIM;";

Note: Class C GNSS equipment shall be limited to installations in large aeroplanes approved for use in domestic and international commercial air transport operations.

(g) the insertion of the following definition after the definition of "close corporation":

'"***cloudbreak/ breakcloud*** procedure' means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, to a point at which visual contact with the surface may be made and from which a landing or circling approach can be completed and thereafter, if a landing is not completed, to a position at which holding or en route obstacle criteria apply;";

(h) the insertion of the following definition after the definition of ''contaminated runway":

"'continuity' in relation to GNSS refers to the capability of the total system, comprising all elements necessary to maintain aircraft position within the defined airspace, to perform its function without non-scheduled interruptions during the intended operation;";

(i) the insertion of the following definition after the definition of "flight visibility":

"'follow-on **GMSS** equipment' refers to equipment that has already received an initial airworthiness certification;";

(j) the insertion of the following definition after the definition of "glider":

"'**GNSS'** means Global Navigation Satellite System (GNSS). **A** worldwide position and time determination system that includes one or more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation;";

(k) the insertion of the following definition after the definition of "follow-on **GNSS** equipment":

"'**GNSS** incident' refers to an incident involving but not limited to, the malfunctioning of equipment, signals or human performance in the operation of a GNSS system;";

(l) the insertion of the following definition after the definition of ''glider":

"'**GNSS** sensor' refers to a single GNSS unit used for navigation within a flight management system;";

(m) the insertion of the following definition after the definition of "heliport operating minima":

"'ICAO flight plan form' refers to the International Civil Aviation Organisation flight plan form (MOT/AC 1565);";

(n) the insertion of the following definition after the definition of "integrated training":

"'integrity' in relation to GNSS refers to the ability of a system to provide timely warnings to users when the system performance has exceeded predetermined safe limitations and should not be used for navigation;";

(o) the insertion of the following definition after the definition of "landing distance available" :

"'lateral navigation' refers to azimuth navigation without positive vertical guidance associated with non-precision approach procedures or en-route;";

(p) the insertion of the following definition after the definition of "pressure altitude":

"'primary-means navigation system' refers to an air navigation system, approved by the Commissioner for a given operation or phase of flight, that meets accuracy and integrity requirements, but does not necessarily meet full availability and continuity requirements. Safety in a primary-means navigation system is inter alia achieved by limiting flights to specific time periods and through appropriate procedural restrictions;";

(q) the insertion of the following definitions after the definition of "public air transport service":

(i)"'RAIM warning' refers to a warning that the integrity of the navigation position solution derived from GNSS satellites signals may be unreliable;";

(r) the insertion of the following definition after the definition of "rating":

"'Receiver Autonomous Integrity Monitoring' **(RAIM)** refers to a technique whereby the airborne GNSS system determines the integrity of the GNSS navigation signals, using only GNSS signals or GNSS signals augmented with altitude. This determination is achieved by a consistency check among redundant pseudo-range measurements;":

(s) the insertion of the following definition after the definition of "restricted category":

"'**RNAV/BARO VNAV** procedures' refers to non-precision instrument approach procedure which utilises RNAV for lateral guidance and a computed, barometrically referenced glide path for vertical navigation providing a vertical glide path reference on a cockpit display and which is promulgated with a Decision Altitude/Height (DA/H) – for minima determination;";

(t) the insertion of the following definitions after the definition of runway "visual range":

(i) **"'RVSM'** means the reduced separation above flight level 290 of aircraft to a 1000 feet in the opposite direction and 2000 feet in the same direction;";

(ii) **"'RVSM** airspace' means the airspace between flight level 290 and flight level 410;";

(iii) "'RVSM approval certificate means a certificate to show compliance for aircraft and flight crew to operate in RVSM airspace;";

(u) the insertion of the following definition after the definition of "simulator":

"'sole means navigation system' refers to a navigation system, approved by the Commissioner for a given operation or phase of flight, that allows the aircraft to meet, for that operation or phase of flight, the four navigation system performance requirements: accuracy, integrity, availability, and continuity;";

(v) the insertion of the following definition after the definition of "subsonic aeroplane":

"'supplemental-means navigation system' refers to air navigation system that is used in conjunction with a sole-means navigation system in order for the aircraft to meet the following four navigation system criteria: accuracy, integrity, reliability and continuity;";

(w) the insertion of the following definition after the definition of "variable-pitch propeller":

"'vertical navigation' refers to a method of navigation that permits aircraft operation on a vertical flight profile, using altimetry sources, external flight path references, or a combination thereof;";

(x) the insertion of the following definition after the definition of "visibility":

"'"visual approach' means an approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain;";

Amendment of regulation 1.00.2 of Part 1 of the Regulations

3. Regulation 1.00.2 of the Regulations is herewith amended by-

(a) the insertion of the following abbreviations after the abbreviation of "ACAS II":

(i) "'ADF 'means Automatic Direction Finder;"; and

(ii) "'AFM' means Aircraft Flight Manual;";

(b) the insertion of the following abbreviation after the abbreviation of "AIP":

"'AIRAC' means Aeronautical Information Regulation and Control;";

(c) the insertion of the following abbreviation after the abbreviation of "ÄTMS"

"ATS' means Air Traffic Service;";

(d) the insertion of the following abbreviation after the abbreviation of "ATZ":

"BARO' means barometric;";

(e) the insertion of the following abbreviation after the abbreviation of "BIFT"

"CDI 'means Course Deviation Indicator;";

(f) the insertion of the following abbreviation after the abbreviation of "CDL"

"CF' means Course to a Fix;";

(g) the insertion of the following abbreviations after the abbreviation of **"DAME"**

" ' DME' means Distance Measuring Equipment;";

"' DP' means departure procedure;";

"' DR' means dead reckoning; ";

"' DTK' means Desired Track;"; and

"' EFIS' means Electronic Flight Instrument System";

(h) the insertion of the following abbreviation after the abbreviation of "ELT":

"' EMC' means Electromagnetic Compatibility"

(i) the insertion of the following abbreviations after the abbreviation of **"ETOPS"**

"' FAF' means Final Approach Fix;";

" FAWP' means Final Approach Waypoint;";

(j) the insertion of the following abbreviation after the abbreviation of **"FL":**

"' FMS ' means Flight Management System;";

(k) the insertion of the following abbreviations after the abbreviation of **"FS":**

"' FTE' means Flight Technical Error;";

"' GNSS' means Global Navigation Satellite System;";

"' GPS ' means Global Positioning System;";

"' GS' means Ground Speed;"; and

"' IAF' means Initial Approach Fix;";

(l) the insertion of the following abbreviation after the abbreviation of **"IAIP":**

"' IAWP' means Intermediate Approach Waypoint;";

(m) the insertion of the following abbreviation after the abbreviation of " IMC":

" 'LNAV' means Lateral Navigation;"";

(n) the insertion of the following abbreviation after the abbreviation of "LOW':

"' MAWP ' means Missed Approach Waypoint";

(o) the insertion of the following abbreviations after the abbreviation of "RA":

"' RAIM 'means Receiver Autonomous Integrity Monitoring; ";

"' RDH' means Reference Datum Height;";

and

"'RNAV (GNSS)' means GNSS facilitated Area Navigation; ";

Amendment of regulation 12.02.1 of Part 12 of the Regulations

4. Regulation 12.02.1 of the Regulations is herewith amended by the substitution for sub-regulation (1) of the following sub-regulation:

"12.02.1 (1) The pilot-in-command of an aircraft involved in an accident within the Republic, or if he or she is killed or incapacitated, a flight crew member, or if there are no surviving flight crew members or if they are incapacitated, the operator or owner, as the case may be, shall, as soon as possible but at least within 24 hours since the time of the accident, notify –

(a) the Commissioner;

(b) an Air Traffic Service Unit; or

(c) the nearest Police Station,

of such accident.".

Amendment of regulation 12.02.2 of Part 12 of the Regulations

5. Regulation 12.02.2 of the Regulations is herewith amended by the substitution for sub-regulation (1) of the following sub-regulation:

"12.02.2(1) The pilot-in-command of an aircraft and any other, a flight crew member, operator or owner, as the case may be, of an aircraft involved in any incident (including a serious incident), other than a an air service incident within the Republic, shall, as soon as possible but at least within **24** hours since the time of such incident, notify –

(a) the Commissioner;

(b) an Air Traffic Service Unit; or

(c) the nearest Police Station,

of such incident."

Insertion of regulation 21.08.8A into Part 21 of the Regulations

6. The following Regulation is herewith inserted after regulation 21.08.8 of the Regulations:

"'RWSM Approval

"21.08.8A (1) For aircraft, that are to be operated within airspace where Reduced Vertical Separation Minima (RVSM) apply, an airworthiness approval certificate is required.

(2) The requirements for such RVSM airworthiness approval certificate are contained in Section ***6*** of Technical Standard 91.07.31 of Document SA-CATS-OPS 91.

(3) Paragraph 8 of the aforementioned Section 6 provides for any variation or modification from the initial installation that affects RVSM approval.

(4) An application for the issuing of an RVSM approval certificate shall be made to the Commissioner as prescribed in regulation 91.07.31(3).".

Insertion of Regulation 43.02.19A into Part 43 of the Regulations

7. The following regulation is herewith inserted after regulation 43.02.19 of the Regulations

"RVSM Operations

"43.02.19A The additional maintenance requirements for aircraft holding an RVSM approval certificate shall be as prescribed in Document SA-CATS-GMR.".

Amendment of Regulation 91.02.7 of Part 91 of the Regulations

8. Regulation 91.02.7 of the Regulations is herewith amended by the addition of the following paragraph after paragraph (t) to the said regulation:

"(u) if flight in RVSM airspace is contemplated –

(i) the aircraft has been approved by the Commissioner for RVSM operations;

(ii) the minimum required equipment pertaining to height keeping and alerting systems is installed and serviceable; and

(iii) no airframe or operating restrictions prevent operation in the particular RVSM airspace.".

Amendment of Regulation 91.02.8 of Part 91 of the Regulations

9. Regulation 91.02.8 of the Regulations is herewith amended by:

(a) the addition of the following paragraph after paragraph (j) of sub-regulation (4) to the said sub-regulation:

"(k) report any occurrence of height keeping errors encountered in an RVSM environment, as prescribed in paragraph (7) of Section 8 of Technical Standard 91.07.31 in Document SA-CATS-OPS 91; "; and

(b) the insertion of the following sub-regulation after sub-regulation (7)

"91.02.8 (8) The pilot in command of an aircraft, that is equipped with a flight deck door, shall ensure that at all times from the moment the passenger entry doors are closed in preparation for departure until they are opened on arrival, that the flight deck door is closed and locked from within the flight deck.".

Amendment of Regulation **91.03.1** of Part **91** of the Regulations

10. Regulation **91.03.1** of the Regulations is herewith amended by:

(a) the substitution for sub-paragraph (x) of paragraph (a) of the said regulation:

"(x) the aircraft flight manual, referred to in regulation 91.03.2, or an equivalent document, which document shall include the statements referred to in paragraph (5) of Section 5 of Technical Standard 91.07.31 of Document SA-CATS-OPS 91, if flight in RVSM airspace is contemplated;"; and

(b) the addition of the following sub-paragraph after sub-paragraph (xv) of paragraph (a) of the said regulation to the said regulation:

"(xvi) if a flight in RVSM airspace is contemplated-

(aa) a valid RVSM approval Certificate issued by the Commissioner; and

(bb) if applicable, a valid RVSM operational approval for the particular RVSM airspace.".

Amendment of regulation **91.03.4** of Part **91** of the Regulations

11. Regulation **91.03.4** of the Regulations is herewith amended by the insertion of the following sub-regulations after sub-regulation (11):

"(12) A pilot shall only operate an aircraft under IFR using **GNSS** equipment as a primary means navigation system if the letter "G" has been inserted in the block item 10 on the ICAO flight plan form.

(13) No person shall enter the letter "G" in the block item 10 on the ICAO flight plan form unless the requirements prescribed in this regulation have been complied with.".

Amendment of Regulation **91.04.5** of Part **91** of the Regulations

12. Regulation **91.04.5** of the Regulations is herewith amended by:

(a) the renumbering of the said regulation as regulation **91.04.5(1);** and

(b) the addition of the following sub-regulation after sub-regulation **(1)** to the said regulation:

"(2) **If** flight in RVSM airspace is contemplated, the aircraft has to be equipped with-

(a) two independent altitude measurement systems;

(b) equipment for measuring static pressure sensed by the static source, converting it to pressure altitude and displaying the pressure altitude to the flight crew;

(c) equipment for providing a digitally encoded signal corresponding to the displayed pressure altitude, for automatic altitude reporting purposes;

(d) static source error correction; and

(e) signals references to a pilot-selected altitude for automatic control and alerting; as contemplated in Section 5 of Technical Standard 91.07.31 of Document SA-CATS-OPS **91.**"

Amendment of regulation 91.05.2 *of* Part 91 of the Regulations

13. Regulation 91.05.2 of the Regulations is herewith amended by the insertion of the following sub-regulation after sub-regulation (7):

"**(8)** Whenever **GNSS** equipment is used for air navigation purposes, such equipment shall meet the airworthiness criteria prescribed in Document SA-CATS-OPS 91.".

Amendment of regulation 91.06.34 of Part 91 of the Regulations

14. Regulation 91.06.34 of the Regulations is herewith amended by:

(a) the renumbering of the existing regulation as sub-regulation (1): and

(b) the insertion of the following sub-regulations after sub-regulation (1)

"(2) No pilot-in-command of an aircraft may execute, or endeavour to execute an instrument approach or instrument departure at an aerodrome unless—

(a) the provisions of Regulation **91.06.25** are complied with;

(b) the flight is conducted in accordance with procedures for instrument approach or instrument departure authorised by the Commissioner for the specific aerodrome and manoeuvre to be executed; and

(c) the requirements for flights conducted under IMC authorised by the Commissioner are complied with.

(3) No pilot-in-command of an aircraft may nominate an aerodrome as an alternate aerodrome unless there is a procedure for an instrument approach authorised by the Commissioner, and the aircraft complies with the requirements for Regulation 91.06.25, and there is reasonable certainty that the requirements for flights conducted under IMC authorised by the Commissioner will be complied with. ".

Addition of Regulation 91.07.31 to Part 91 of the Regulations

15. The following Regulation is herewith added to the Regulations after regulation 91.07.30:

"Reduced Vertical Separation Minima (RVSM) Operations

Note: For the purpose of this regulation, any reference to RVSM shall be deemed to include a reference to MNPS (Minimum Navigation Performance Specification) and to RNP (Required Navigation Performance), as applicable.

91.07.31 (1) No pilot-in-command shall enter airspace in which reduced vertical separate minima (RVSM) are applied, unless –

(a) for such aircraft a valid RVSM approval Certificate has been issued by the Commissioner; .

(b) the prescribed minimum equipment is serviceable; and

(c) the flight crew has completed and passed the RVSM training prescribed by the regulation.

(2) The requirements for the issue of an RVSM approval Certificate, including minimum equipment, maintenance and crew training requirements, are those as specified in Documents SA-CATS-OPS 91.

(3) An application for an RVSM approval Certificate for a South African registered aircraft shall be made to the Commissioner in the format prescribed in Document **SA-**CATS-OPS 91, and shall be accompanied by –

(a) in the case of a commercial air transport operator, two copies of the proposed relevant amendments to –

(i) the operations manual;

(ii) the aircraft maintenance schedule; and

(iii) the maintenance control manual.

(4) In considering an application, contemplated in sub-regulation (3), the commissioner may conduct the investigation deemed necessary to ascertain that the applicant has complied with the requirements prescribed in Document SA-CATS-OPS 91 for **RVSM** operations.

(5) If the Commissioner is not so satisfied, he or she shall notify the applicant thereof, stating the reasons in the notification, and grant the applicant the opportunity to rectify any shortcoming within the period determined by the Commissioner, after which period the Commissioner shall grant or refuse the application concerned.

(6) If the Commissioner is satisfied that the applicant has complied with the relevant requirements, the **RVSM** approval Certificate shall be issued in the format as prescribed in Document SA-CATS-OPS 91.

(7) (a) The Commissioner shall maintain a register of all **RVSM** approval Certificates issued in terms of this regulation.

(b) The register shall contain the following particulars:

(i) The make, model and registration marks of the aircraft;

(ii) The full name of the owner of the aircraft, or if a licensed, the air service operator – the name of the licence holder and the air service licence number;

(iii) The postal address of the certificate holder; and

(iv) The date on which the certificate was issued.

(c) The particulars, referred to in paragraph (b), shall be recorded in the register within 30 days from the date on which the certificate is issued by the Commissioner.

(d) The register shall be kept in a safe place at the office of the Commissioner or location he or she may approve.

(e) A copy of the register may be furnished by the Commissioner, on payment of the appropriate fee as prescribed in Part 187, to any person who requests the copy.

(8) (a) If a RVSM approval Certificate is lost, stolen, damaged or destroyed, the holder thereof, or an aircraft maintenance organisation approved under Part 145 and responsible for the servicing and maintenance of the aircraft, may apply to the Commissioner for the issue of a duplicate of the RVSM approval Certificate.

(b) An application, referred to in sub-regulation (a), shall –

(i) be made in the appropriate form as prescribed in Document SA-CATS-OPS 91; and

(ii) be accompanied by –

(aa) the data package referred to in Section 6 of TS 01.07.31 in Document SA-CATS-OPS 91; and

(bb) 'the appropriate fee as prescribed in Part 187.

(9) A duplicate of the RVSM approval Certificate shall be reissued on the appropriate form as prescribed in Document SA-CATS-OPS 91.".

Insertion of Subpart 11 into Part 91 of the Regulations

16. The following Subpart is herewith inserted after Subpart 10 into the Regulations

"SUBPART 11: GLOBAL NAVIGATION SATELLITE SYSTEM

"91.11.1. Departures, arrivals, and instrument departure and arrival procedures

1. (a) In order to fly published GNSS arrivals, GNNS departures, and GNSS approach procedures; the pilot in command shall ensure that –

(i) the GNSS system is set to terminal Course Deviation indicator (CDI) sensitivity; and

(ii) the air navigation routes to be flown are contained in the database of the aircraft.

(iii) the information contained in the aircraft database is current

(b) The pilot in command shall fly the instrument departure of a Flight Management System **(FMS)** equipped aircraft without the capability of manually setting the CDI, with the aid of a flight director.

(c) Helicopter-only GNSS departure procedures shall be flown at 70 knots or less.

(d) Upon clearance for the approach by the appropriate Air Traffic Service Unit (ATSU), the pilot shall select the appropriate aerodrome, the runway approach procedure and the initial approach fix on the GNSS receiver to determine the validity of the RAIM for such approach

91.11.2 Operational criteria for the use of RNAV/BARO VNAV systems

(1) An aircraft equipped with a RNAV/BARO VNAV navigation system approved by the Commissioner for the appropriate level of RNAV/ BARO VNAV operations may be used to improve RNAV/BARO VNAV approaches if:

(a) The air navigation system has a certified RNAV performance equal to or less than 0.3 **NM** (95 percent probability) that includes:

(i) a GNSS navigation systems that is properly certified for approach operations; and

(ii) a multi-sensor system that uses inertial reference unit(s) in combination with a certified DME/DME or **GNSS;**

(b) the RNAV/BARO VNAV equipment is serviceable;

(c) the aircraft and aircraft systems are appropriately certified for the intended RNAV/BARO VNAV approach operations and the aircraft is equipped with an integrated Lateral Navigation (LNAV) system with an accurate source of barometric altitude; and

(d) the VNAV altitudes and all relevant procedural and navigational information are retrieved from a navigation database whose integrity is supported by ICAO approved appropriate quality assurance measures.

(2) The following factors upon which the vertical navigational performance of the BARO VNAV procedure depends, shall be taken into account:

(a) Atmospheric effects – atmospheric errors associated with non-standard temperatures;

(b) along-track position uncertainty – along-track error that may result in an error in the vertical path;

(c) FTE;

(d) other system errors – errors such as static source error, non-homogenous weather phenomena and latency defects; and

(e) blunder errors – errors such as the application of an in correct or out-of- date altimeter setting either by the ATS unit or the pilot.

(3) The pilot shall be responsible for performing and verifying any cold temperature correction that is required for all published minimum altitudes/heights, including the preceding initial and intermediate segments, Decision Attitude/Height (DA/H) and subsequent missed approach heights/altitudes.

(4) No pilot in command may perform BARO VNAV IAP procedures if the aerodrome temperature is below the promulgated minimum aerodrome temperature for the procedure. If the aerodrome temperature is below the promulgated minimum aerodrome temperature for the procedure, a LNAV procedure may still be used if:

(a) A RNAV non-precision procedure and RNAV/LNAV Obstacle Clearance Altitude/Height (OCA/H) is promulgated for the approach; and

(b) the pilot in command applies the appropriate cold temperature altimeter correction to all minimum promulgated altitudes/heights.

(5) The pilot in command shall have current knowledge of operation of the RNAV/BARO VNAV equipment to achieve the optimum level of navigation accuracy.

(6) BARO VNAV procedures shall only be flown with a current local altimeter setting and the QNH/QFE, as appropriate, set on the altimeter of the aircraft.

(7) The pilot in command shall ensure obstacle clearance by limiting vertical path excursions to a range of less than +30 m (+100 ft) and over -15m (-50 ft) from the VPA.

(8) The operator of an aircraft approved for use in commercial air transport operations, shall, in addition to the operational requirements prescribed in this regulation, comply with the appropriate provisions of its approved Operations specifications.".

Insertion of Regulation 121.03.4A of Part 91 of the Regulations

17. The following regulation is herewith inserted after regulation 121.03.4 of the Regulations:

"RVSM training

121.03.4A The operator of a large commercial air transport aeroplane who intends to operate such aeroplane in RVSM airspace shall ensure that the flight crew to operate such aeroplane shall have undergone the training specified in Document SA-CATS-OPS 121."

Amendment of Regulation 121.04.4 of Part 121 of the Regulations

18. Regulation 121.04.4 of the Regulations is herewith amended by:

(a) the renumbering of the said regulation as regulation 121.04.4(1); and

(b) the insertion of the following sub-regulation after sub-regulation (1):

"(2) The aeroplane flight manual of an aeroplane, certified for operations in RVSM airspace, shall contain the data prescribed in Document SA-CATS-OPS 121.".

Amendment of Regulation 121.06.7 of Part 121.06.7 of the Regulations

19. Regulation 121.06.7 of the Regulations is herewith amended by:

(a) the renumbering of the said regulation as regulation **121.06.7(1);** and

(b) the insertion of the following sub-regutation after sub-regulation **(1):**

"(2) The holder of an RVSM approval Certificate endorsed for operations within RVSM airspace shall –

(a) report within 24 hours to the Commissioner any occurrence involving poor height-keeping in an RVSM environment, as specified in Document SA-CATS-OPS 121; and

(b) make an effective, timely response to each height-keeping error.".

Note: The tolerable level of collision risk in RVSM airspace would be exceeded if an operator consistently experienced errors."

Amendment of Regulation 121.07.2 of Part 121 of the Regulations

20. Regulation 121.07.2 of the Regulations is herewith amended by:

(a) the renumbering of regulation 121.07.2 as regulation **121.07.2(1).**

(b) the insertion of the following sub-regulation after sub-regulation **(1):**

"(2) The minimum requirements for RVSM airspace procedures are contained in Document SA-CATS-OPS 121**.".**

Insertion of Regulation 135.03.4A into Part 121 of the Regulations

21. The following regulation is herewith inserted after regulation 135.03.4

"RVSM training

135.03.4A The operator of a small commercial air transport aeroplane who intends to operate such aeroplane in RVSM airspace shall ensure that the flight crew to operate such aeroplane shall have undergone the training specified in Document SA-CATS-OPS 135.".

Amendment of Regulation 135.04.4 of Part 121 of the Regulations

22. Regulation 135.04.4 of the Regulations is herewith amended by-

(a) the renumbering of regulation 135.04.4 as regulation 35.04.4(1); and.

(b) the insertion of the following sub-regulation after sub-regulation (1):

"(2) The aeroplane flight manual of an aeroplane, certified for operations in RVSM airspace, shall contain the data prescribed in Document OPS 135.".

Amendment of Regulation 135.06.7 of Part 135 of the Regulations

23. Regulation 135.06.7 of the Regulations is herewith amended by:

(a) the renumbering of regulation 135.06.7 as regulation 135.06.7(1); and

(b) the insertion of the following sub-regulation after sub-regulation (1):

"(2) The holder of an operating certificate endorsed for operations within RVSM airspace shall –

(a) report within 24 hours to the Commissioner any occurrence involving poor height-keeping in an RVSM environment, as specified in Document SA-CATS-OPS 135; and

(b) make an effective, timely response to each height-keeping error.".

Note: The tolerable level of collision risk in RVSM airspace would be exceeded if an operator consistently experienced errors.".

Amendment of Regulation 135.07.2 of Part 135 of the Regulations

24. Regulation 135.07.2 of the Regulations is herewith amended by:

(a) the renumbering of regulation 135.07.2 as regulation 135.07.2(1); and,

(b) the insertion of the following sub-regulation after sub-regulation (1):

"(2) The minimum requirements for RVSM airspace procedures are contained in Document SA-CATS-OPS 135.".

Insertion of Regulation 145.01.12 into Part 145 of the Regulations

25. The following regulation is herewith inserted after regulation 145.01.11:

"Training and checking

145.01.12 (1) The holder of an aircraft maintenance approval, issued in terms of this Part, shall establish and maintain a training programme for aircraft maintenance personnel in his or her employ.

(2) The approval holder shall ensure that aircraft maintenance personnel–

(a) receive or has received type- or model-specific training in respect of the aircraft or aircraft components for which the organisation has received maintenance approval; and

(b) receive periodically recurrent training with specific attention to new technologies and maintenance techniques;

as prescribed in Document SA-CATS-AMO.

(3) The training programme, contemplated in sub-regulation (1), shall be part of the organisation's manual of procedure.

(4) Initial and recurrent training may be provided only by the holder of an Aviation training organisation approval issued in terms of Part 141, or by or on behalf of the original equipment manufacturer.".

Amendment of Part 172 (Airspace and Air Traffic Services by the insertion of Subpart 4

26. The following Subpart is herewith inserted after Subpart 3

"SUBPART 172.04 GNSS ATS PROVISIONS

172.04.1 ATS requirements for GNSS operations are prescribed in SA-CATS-ATS **172.04."**

Insertion of new Part 177 (Instrument Flight Procedures and ICAO Aeronautical Charts after Part 175:"

27. The following Part is herewith inserted after Part 175 of the Regulations:

"PART 177

INSTRUMENT FLIGHT PROCEDURES AND ICAO AERONAUTICAL CHARTS

CONTENTS

Applicability

177.00.1 This part shall apply to the provision of instrument flight procedures and ICAO aeronautical charts.

Provision of instrument flight procedures

177.00.2 The Commissioner shall be responsible for the provision of instrument flight procedures and ICAO aeronautical charts in accordance with Document *SA-CATS-PANS*

Minimum standards for the provision of instrument flight procedures and ICAO aeronautical charts

177.00.3 (1) The conditions, requirements, rules, procedures and standards for the design, approval and provision of instrument flight procedures and ICAO aeronautical charts, shall be prescribed in Document *SA-CATS-PANS.".*

Short title and commencement

28. This Amendment shall be called the Twenty-Fourth Amendment of the Civil Aviation Regulations, 1997, and shall come into operation on the date of publicatcn hereof.