Proposal for a Directive of the European Parliament and of the Council on occurrence reporting in civil aviation

(2001/C 120 E/10)

(Text with EEA relevance)

COM(2000) 847 final — 2000/0343(COD)

(Submitted by the Commission on 19 December 2000)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 80(2) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the Economic and Social Committee,

Having regard to the opinion of the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Treaty,

Whereas:

(1) The rate of accidents in civil aviation has remained fairly constant in the last decade, generating concern that the forecasted traffic increase could lead to an unacceptable increase in the number of accidents in the near future.

(2) Council Directive 94/56/EC of 21 November 1994 establishing the fundamental principles governing the investigation of civil aviation accidents and incidents aims at preventing future accidents by facilitating the expeditious holding of investigations.

(3) Experience has shown that before an accident occurs, a number of incidents and numerous other deficiencies have shown the existence of safety hazards.

(4) The improvement of the safety of civil aviation requires a better knowledge of these occurrences to facilitate analysis and trend monitoring in order to initiate corrective actions.

(5) When these occurrences involve aircraft registered in a Member State or operated by an undertaking established in a Member State, this occurrence should be reported even when it happened outside the territory of the Community.

(6) Each Member State should set up mandatory reporting systems.

(7) Various categories of personnel working in civil aviation observe occurrences of interest for the prevention of accidents and should therefore report them.

(8) The efficiency of detection of potential hazard would be greatly enhanced by the exchange of information on occurrences.

(9) A supporting software for the exchange of information between different systems is necessary.

(10) Safety information shall be available to entities entrusted to regulate civil aviation safety or to investigate accidents and incidents within the Community and, as appropriate, to the people who may learn from it and take or initiate the necessary action to improve safety.

(11) The sensitive nature of safety information is such that the only way to ensure the gathering of such information is by ensuring its confidentiality, the protection of its source and the confidence of the personnel working in civil aviation.

(12) The public should be provided with general information on the level of aviation safety.

(13) Mandatory reporting systems shall be supplemented by confidential reporting schemes to collect mainly human factor related incidents.

(14) Legal measures should be put in place to enable the setting up of confidential reporting schemes.

(15) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission [1].

[1] OJ L 184, 17.7.1999, p. 23.

(16) Consistency should be ensured with the technical reporting requirements developed by national experts in Eurocontrol and the JAA, the list of reportable occurences takes into account the work of these two European organisations.

(17) In accordance with the principles of subsidiarity and proportionality as set out in Article 5 of the Treaty, the objective of the proposed action, improvement of air safety, cannot be sufficiently achieved by the Member States, because reporting systems operated by Member States in isolation are less efficient than a coordinated network with exchange of information enabling an earlier identification of possible safety problems, and can therefore be better achieved by the Community. This Directive confines itself to the minimum required in order to achieve this objective and does not go beyond what is necessary for that purpose,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Objective

The purpose of this directive is to contribute to the improvement of air safety by ensuring that safety critical information is reported, collected, stored, protected and disseminated in order to facilitate its effective analysis and monitoring.

The sole objective of occurrence reporting is the prevention of future accidents and incidents and not to attribute blame or liability.

Article 2

Scope

1. This directive shall apply to occurrences which have occurred in the territory of the Community.

2. This directive shall also apply outside the territory of the Community to occurrences involving aircraft registered in a Member State or operated by an undertaking established in a Member State.

Article 3

Definitions

For the purpose of this Directive:

'Disidentification' means removing from reports submitted all personal details pertaining to the reporter and technical details, which might lead to the identity of the reporter, or third parties, being inferred from the information.

'Occurrence' means accidents, incidents and serious incidents as defined in Article 3, point (a), (j) and (k), of Directive 94/56/EC as well as other defects or malfunctioning of an aircraft, its equipment, ground equipment and any element of the Air Navigation System which is used or intended to be used for the purpose or in connection with the operation of an aircraft or with the provision of an air traffic management service or navigational aid to an aircraft.

'Reportable occurrence' means an occurrence, endangering or, which if not corrected would endanger an aircraft, its occupants or any other person. A non-exhaustive list of examples of reportable occurrences can be found in Annex I and II.

Article 4

Mandatory reporting

1. Member States shall require that reportable occurrences are reported to the competent authority referred to in Article 5(1) by every person who:

(a) is the operator or commander of a turbine powered aircraft or a public transport aircraft used or operated under the control of its competent civil aviation authority;

(b) carries on the business of manufacturing or maintaining such an aircraft, or any equipment or part thereof;

(c) signs a certificate of maintenance review, or of release to service in respect of such an aircraft, part or equipment;

(d) performs a function for which he requires to be a qualified air traffic controller;

(e) performs the function of manager of an aerodrome open to public transport aircraft;

(f) performs a function connected with the installation, modification, maintenance, repair, overhaul, flight checking or inspection of equipment on the ground which is used or intended to be used for the purpose or in connection with the provision of an air traffic control service or navigational aid to an aircraft;

(g) performs a function connected with the handling of aircraft on the ground, including fueling, servicing, loadsheet preparation, loading, de-icing and towing.

2. Member States shall encourage voluntary reporting by every person who exercise in other civil aviation operations, similar functions as those listed in paragraph 1.

3. The Commission may, in accordance with the procedure laid down in Article 10(2), decide on the addition to paragraph 1 of new categories of reporters and modify the Annexes in order to expand upon, or change, the examples.

Article 5

Collection and storage of information

1. Member States shall designate a competent authority to put in place a mechanism to collect, evaluate, process and store occurrence reports.

The following authorities may be entrusted with that responsibility:

(a) The national civil aviation provided that the independence of the exercise of this function from any other duty of that authority is duly assured.

(b) The investigating body or entity established under Article 6 of Directive 94/56/EC.

2. The reports collected under the provisions of Article 4 shall be stored in a database.

3. Member States shall ensure that safety relevant information deriving from the analysis of confidential reporting covered by Article 9 are also stored in that database.

Article 6

Exchange of information

1. Member States shall participate in a mutual exchange of information by making all relevant safety related information stored in the database mentioned in Article 5(2) available to the competent authorities of the other Member States and the Commission.

The database shall be compatible with the software described in paragraph 2.

2. The Commission shall develop a specific software for the purpose of this directive. Member States may use this software for running their own database.

3. The Commission may lay down appropriate measures to facilitate the exchange of information foreseen in paragraph 1 in accordance with the procedure set out in Article 10(2).

Article 7

Dissemination of information

1. Any entity entrusted to regulate civil aviation safety or to investigate civil aviation accidents and incidents within the Community shall have access to information on occurrences collected and exchanged in accordance with Articles 5 and 6 to enable it to draw the safety lessons from the reported occurrences.

2. The Commission may, in accordance with the procedure laid down in Article 10(2), decide on the release of selected information to the categories of reporters listed in Article 4(1) and to other interested parties. Such decisions, which can be generic or individual, shall be based on the need to:

— provide persons and/or organisations with the information they need to correct deficiencies in aviation safety and improve aviation safety, or

— allow the analysis of occurrences by bodies specialised in aviation safety or directly related matters.

The decision to disseminate information under this paragraph may be limited to what is strictly required for the purpose of its user, without prejudice to the provisions of Article 8.

3. Member States shall publish at least annually a safety review containing information on the types of occurrences collected by their national mandatory occurrence-reporting scheme to inform the public of the safety level of information. Member States may also publish disidentified reports.

Article 8

Protection of information

1. The information exchanged in accordance with Article 6 and disseminated in accordance with Article 7(1) and 7(2) shall be confidential and shall be used solely for the purpose covered by the activities of participants and addressees.

2. Regardless of type or classification of occurrence, names or addresses of individual persons shall never be recorded on the database mentionned in Article 5(2).

3. The competent authority shall not disclose the name of the person submitting a report or of a person to whom it relates unless required to do so in the context of judicial inquiries or unless the persons concerned authorise disclosure.

4. Member States shall refrain from instituting proceedings in respect of unpremeditated or inadvertent breaches of the law, which come to its attention only because they have been reported under the national mandatory occurrence-reporting scheme.

5. Member States shall adapt their laws, regulations and administrative provisions so as to ensure that employees who duly and accurately report incidents, of which they may have knowledge, are not subjected to any detriment by their employer.

6. This Article applies without prejudice to national rules related to access to information by judicial authorities.

Article 9

Confidential reporting

Member States shall adapt their laws, regulations and administrative provisions to permit the disidentification of voluntary reports of non-reportable occurrences by bodies created to collect, analyse and disseminate to parties able to use it for improving aviation safety, information on observed deficiencies in the aviation system perceived by the reporter as an actual or potential hazard.

Article 10

Committee

1. The Commission shall be assisted by the committee instituted by Article 12 of Council Regulation (EEC) Nº 3922/91 of 16 December 1991 on the harmonisation of technical requirements and administrative procedures in the field of civil aviation ([1]).

2. Where reference is made to this paragraph, Article 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

3. The period provided for in Article 5(6) of Decision 1999/468/EC shall be set at three months.

Article 11

Implementation

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by at the latest. They shall forthwith inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. The Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field governed by this Directive.

Article 12

Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Communities*.

Article 13

Addressees

This Directive is addressed to the Member States.

([1]) OJ L 373, 31.12.1991, p. 4.

ANNEX I

LIST OF EXAMPLES OF REPORTABLE OCCURRENCES

Note: Although this Annex lists the majority of occurrences which should be reported it cannot be completely comprehensive and any other occurrences judged by those involved, to meet the criteria should be reported.

A. AIRCRAFT FLIGHT OPERATIONS

(i) **Operation of the aircraft**

(a) An avoidance manoeuvre required to avoid a collision with an aircraft, terrain or other object or an unsafe situation, or when avoidance action would have been appropriate.

(b) Take-off or landing incidents, including precautionary or forced landings. Incidents such as undershooting, overrunning or running off the side of runways. Take-offs, aborted take-offs, landings or attempted landings on a closed, occupied or incorrect runway.

(c) Gross failures to achieve predicted performance during take-off or initial climb.

(d) Critically low fuel quantity or inability to transfer fuel or use total quantity of usable fuel.

(e) Loss of control (including partial or temporary loss of control) from any cause.

(f) Occurrences close to or above V_1 resulting from or producing a hazardous or potentially hazardous situation (e.g. rejected take-off, tail strike, engine power loss etc.).

(g) Go-around producing a hazardous or potentially hazardous situation.

(h) Unintentional significant deviation from airspeed, intended track or altitude. (more than 300 ft in non-RVSM airspace) from any cause.

(i) Descent below decision height/altitude or minimum descent height/altitude without the required visual reference.

(j) Heavy landing — a landing deemed to require a 'heavy landing check'.

(k) Exceedance of fuel imbalance limits.

(l) Incorrect setting of an SSR code or of an altimeter subscale resulting in, or could result in, a hazardous situation.

(m) Incorrect programming of, or erroneous entries into, equipment used for navigation or performance calculations, or use of incorrect data, which resulted in, or could have resulted in, a hazardous situation.

(n) Incorrect receipt or interpretation of radiotelephony messages which resulted in, or could have resulted in, a hazardous situation.

(o) Fuel system malfunctions or defects, which had a significant effect on fuel supply and/or distribution.

(p) Aircraft leaving a paved surface which results in, or could have resulted in, a hazard.

(q) Inadvertent incorrect operation of any controls which resulted in, or could have resulted in, a significant hazard.

(r) Inability to achieve the intended aircraft configuration for any flight phase (e.g. landing gear and doors, flaps, stabilisers, slats etc.).

(s) A hazard or potential hazard which arises as a consequence of any deliberate simulation of failure conditions for training, system checks or training purposes.

(t) Abnormal vibration felt by the crew.

(u) abnormal ice accumulation leading to significant effects on performance or handling qualities.

(v) Operation of any primary warning system associated with manoeuvring of the aircraft, e.g. configuration warning, stall warning (stick shake), over speed warning etc. unless:

(w) the crew conclusively established that the indication was false. Provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning,

(x) unless operated for training or test purposes.

(y) GPWS 'warning' when:

1. the aircraft comes into closer proximity to the ground than had been planned or anticipated; or

2. the warning is experienced in IMC or at night and is established as having been triggered by a high rate of descent (Mode 1); or

3. the warning results from failure to select landing gear or land flap by the appropriate point on the approach (Mode 4); or

4. any difficulty or hazard arises or might have arisen as a result of crew response to the 'warning' e.g. possible reduced separation from other traffic. This could include warning of any Mode or Type, i.e. genuine, nuisance or false.

(z) GPWS 'alert' when any difficulty or hazard arises or might have arisen as a result of crew response to the 'alert'.

(aa) ACAS RAs.

(bb) Jet or prop blast incidents resulting in significant damage or serious injury.

(ii) **Emergencies**

(a) Fire, explosion, smoke or toxic or noxious fumes, even though fires were extinguished.

(b) The use of any non-standard procedure by the flight or cabin crew to deal with an emergency.

(c) Inadequacy of any procedures designed to be used in an emergency, including when being used for maintenance, training or test purposes.

(d) An emergency evacuation.

(e) Depressurisation

(f) The use in flight or on the ground of any emergency equipment or prescribed emergency procedures in order to deal with a situation.

(g) The declaration of an emergency ('Mayday' or 'Pan').

(h) Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance, training or test purposes.

(i) Events requiring the emergency use of oxygen by the flight crew.

(iii) **Crew incapacitation**

(a) Incapacitation of any member of the flight crew, including that which occurs prior to departure if it is considered that it could have resulted in incapacitation after take-off.

(b) Incapacitation of any member of the cabin crew which renders them unable to perform essential emergency duties.

(iv) **Injury**

Occurrences, which have or could have led to significant injury to passengers or crew but which are not considered reportable as an accident.

(v) **Meteorology**

(a) A lightning strike which resulted in significant damage to the aircraft or loss or malfunction of any essential service.

(b) A hail strike which resulted in significant damage to the aircraft or loss or malfunction of any essential service.

(c) Severe turbulence encounter — an encounter resulting in injury to occupants or deemed to require a 'turbulence check' of the aircraft.

(d) Windshear encounter resulting in significant handling difficulties.

(vi) **Security**

(a) Unlawful interference of the aircraft including a bomb threat or hijack.

(b) Difficulty in controlling intoxicated, violent or unruly passengers which resulted in a hazardous situation.

(c) Discovery of a stowaway.

(vii) **Other occurrences**

(a) Repetitive instances of a specific type of occurrence which in isolation would not be considered 'reportable' but which due to the frequency at which they arise form a potential hazard.

(b) A bird strike which resulted in significant damage to the aircraft or loss or malfunction of any essential service.

(c) Wake turbulence encounters resulting in significant handling difficulties.

(d) Any other occurrence of any type considered to have endangered or which might have endangered the aircraft or its occupants.

B. AIRCRAFT TECHNICAL

(viii) **Structural**

Aircraft structural failures not classified as an accident.

Note: Not all structural failures need to be reported. Engineering judgment is required to decide whether a failure is serious enough to be reported. The following examples can be taken into consideration:

1. Damage to a Principal Structural Element that has not been qualified as damage tolerant (life limited element). Principal Structural Elements are those which contribute significantly to carrying flight, ground, and pressurisation loads, and whose failure could result in a catastrophic failure of the aircraft.

2. Typical examples of such elements are listed for large aeroplanes in AC/ACJ 25.571(a) 'damage tolerance and fatigue evaluation of structure', and in the equivalent ACJ material for rotorcraft.

3. Defect or damage exceeding admissible damages to a Principal Structural Element that has been qualified as damage tolerant, found during scheduled inspections.

4. Damage to or defect exceeding allowed tolerances of a structural element which failure could reduce the structural stiffness to such an extent that the required flutter, divergence or control reversal margins are no longer achieved.

5. Damage to or defect of a structural element which could result in the liberation of items of mass that may injure occupants of the aircraft.

6. Damage to or defect of a structural element, which could jeopardise proper operation of systems.

7. Loss of any part of the aircraft structure in flight.

(ix) **Systems**

The following generic criteria applicable to all systems are proposed:

(a) Loss, significant malfunction or defect of any system, subsystem or set of equipment when standard-operating procedures, drills etc. could not be satisfactorily accomplished.

(b) Inability of the crew to control the system: e.g.

1. uncommented actions

2. incorrect and or incomplete response, including limitation of movement or stiffness

3. Runaway

4. Mechanical disconnection or failure.

(c) Failure or malfunction of the exclusive(s) functions of the system (one system could integrate several functions).

(d) Interference within or between systems.

(e) Failure or malfunction of the protection device or emergency system associated with the system.

(f) Loss of redundancy of the system outside the limits.

(g) Any occurrence resulting from unforeseen behaviour of a system.

(h) For aircraft types with single main systems, subsystems or sets of equipment

Loss, significant malfunction or defect in any main system, subsystem or set of equipment.

(i) For aircraft types with multiple independent main systems, subsystems or sets of equipment

The loss, significant malfunction or defect of more than one main system, subsystem or set of equipment.

(j) Operation of any primary warning system associated with aircraft systems or equipment unless the crew conclusively established that the indication was false provided that the false warning did not result in difficulty or hazard arising from the crew response to the warning.

(k) Leakage of hydraulic fluids, fuel, oil or other fluids which resulted in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment, or risk to occupants.

(l) Malfunction or defect of any indication system when this results in the possibility of misleading indications to the crew.

(m) Any failure, malfunction or defect if it occurs at a critical phase of flight and relevant to the operation of that system.

(n) Occurrences of significant shortfall of the actual performances compared to the approved performance which resulted in a hazardous situation (taking into account the accuracy of the performance calculation method) including braking action, fuel consumption etc.

(o) Asymmetry of flight controls; e.g. flaps, slats, spoilers etc.

Annex II gives a list of examples of reportable occurrences resulting from the application of these generic criteria to specific systems.

(x) **Propulsion and APU systems (including engines, propellers, rotor systems and APUs)**

(a) *Engines*

Aircraft types with one or two engines

(a) flameout, shutdown or significant malfunction of any engine

Aircraft types with three or more engines

(b) flameout, shutdown or significant malfunction of more than one engine

Engines: All aircraft types:

(c) flameout, shutdown or significant malfunction of any engine when: it occurs at a critical phase of flight (e.g. V_1, or during approach/landing) or exceptional circumstances exist or unforeseen consequences arise (e.g. uncontained failure, fire, aircraft handling problems etc)

(d) uncontained failure, significant overspeed or inability to control the speed of any high-speed-rotating component (for example: auxiliary power unit, air starter, air cycle machine, air turbine motor, propeller or rotor)

(e) failure or malfunction of any part of an engine or powerplant resulting in any one or more of the following:

1. non-containment of high energy debris

2. sustained internal or external fire, or hot gas breakout

3. break up of the engine structure or mountings, or partial or complete loss of a major part of the powerplant

4. engine defect causing visible fumes or any sort of invisible noxious or toxic fumes in the cabin conditioning air

(f) an uncommanded thrust/power loss, change or oscillation where:

1. this could affect more than one engine in a multi-engine aircraft, particularly in the case of a twin engined aircraft, or

2. it is considered excessive for a single engine aircraft application, or

3. it involves a multi-engine aircraft where the same, or similar, engine type is used in a single engine aircraft application.

(g) any defect causing part retirement found in a life-controlled part before completion of the full life of the part

(h) defects of common origin which could cause an in flight shut down rate so high that there is the possibility of more than one engine being shut down on the same flight

(i) thrust in a different direction from that demanded by the pilot, or a thrust reversing system failing to operate or operating inadvertently

(j) significant lack of response to pilot's throttle lever movement for a single engine application

(k) an engine limiter or control device failing to operate when required or operating inadvertently

(l) significant exceedance of engine parameters

(m) inability, by use of normal procedures, to shutdown an engine or to control power, thrust or rpm

(n) inability to restart a serviceable engine

(b) *Propellers and transmissions*

1. damage or defect which could lead to complete or partial blade separation, and or significant vibrations

2. damage or defect of propeller gearbox/attachment which could lead to in-flight separation of the propeller assembly, and/or malfunctions of propeller control

3. untimely reverse thrust activation

4. untimely auto feather or pitch change

5. significant overspeed

6. loss of ability to control the pitch

(c) *APUs*

1. shut down when APU is used in accordance with the MEL

2. inability to shut down the APU

3. significant overspeed

4. inability to start the APU when needed for operational reasons.

(xi) **ETOPS**

(a) Loss of one hydraulic system

(b) Loss of one bleed air system

(c) Any failure or malfunction that could affect the integrity of ETOPS operations.

(xii) **Other occurrences**

(a) An occurrence not normally considered as reportable (for example, furnishing and cabin equipment, water systems, items included in the Minimum Equipment List), where the circumstances resulted in endangering of the aircraft or its occupants

(b) A fire, explosion, smoke or toxic or noxious fumes

(c) Any other event which could hazard the aircraft, or affect the safety of the occupants of the aircraft, or people or property in the vicinity of the aircraft or on the ground

(d) Failure or defect of passenger address system resulting in loss or inaudible passenger address system

(e) Loss of pilots seat control during flight.

C. AIRCRAFT MAINTENANCE AND REPAIR

(xiii) Incorrect assembly of parts or components of the aircraft found at the opportunity of an inspection or test procedure not intended for that specific purpose.

(xiv) Hot bleed air leak resulting in structural damage.

(xv) Any defect causing part retirement found in a life controlled part before completion of the full life of the part.

(xvi) Any damage or deterioration (i.e. fractures, cracks, corrosion, delamination, disbonding etc) resulting from any cause (such as flutter, loss of stiffness or structural failure) to:

(a) primary structure or a principle structural element (as defined in the manufacturers' Repair Manual) where such damage or deterioration exceeds allowable limits specified in the Repair Manual and requires a repair or complete or partial replacement of the element

(b) secondary structure which consequently has or may have endangered the aircraft

(c) the engine, propeller or helicopter rotor system.

(xvii) Any failure, malfunction or defect of any system or equipment, or damage or deterioration found as a result of compliance with an Airworthiness Directive or other mandatory instruction issued by a Regulatory Authority, when:

(a) it is detected for the first time by each operator or organisation implementing compliance

(b) on any subsequent compliance where it exceeds the permissible limits quoted in the instruction and/or published repair/rectification procedures are not available. For example, a report is required if the condition found necessitates a request to the Design Authority or Regulatory Authority for an extension of limits and/or special repair/rectification schemes or procedures.

(xviii) Failures or defects to any part subject to a finite life or any rotorcraft 'critical parts' (as defined in Manufacturers Manuals).

(xix) Failure of any emergency system or equipment, including all exit doors and lighting, to perform satisfactorily, including when being used for maintenance or test purposes.

(xx) Non-compliance or significant errors in compliance with required maintenance procedures.

D. AIR TRAFFIC SERVICES, FACILITIES AND GROUND SERVICES

(xxi) **Air Traffic Services**

(a) Provision of significantly incorrect, inadequate or misleading information from any ground sources, e.g. ATC, ATIS, meteorological services, navigation databases, maps, charts, manuals, etc.

(b) Provision of less than prescribed terrain clearance.

(c) Provision of incorrect altimeter setting.

(d) Incorrect transmission, receipt or interpretation of significant messages when this results in a hazardous situation.

(e) Separation between aircraft less than that prescribed for the situation.

(f) Unauthorised infringement of any form of regulated airspace.

(g) Unauthorised or illegal RTF transmissions.

(h) Failure of ATS ground or satellite facilities.

(i) Major failure or significant deterioration of aerodrome movement area surfaces.

(j) Aerodrome movement areas obstructed by aircraft, vehicles, animals or foreign objects, resulting in a hazardous or potentially hazardous situation.

(k) Errors or inadequacies in marking of obstructions or hazards on aerodrome movement areas resulting in a hazardous situation.

(xxii) **Aerodrome and aerodrome facilities**

(a) Failure, significant malfunction or unavailability of airfield lighting.

(b) Significant contamination of aircraft structure, or systems and equipment arising from the carriage of baggage or cargo.

(c) Incorrect loading of passengers, baggage or cargo, likely to have a significant effect on aircraft mass and/or balance.

(d) Incorrect stowage of baggage or cargo (including hand baggage) likely in any way to hazard the aircraft, its equipment or occupants or to impede emergency evacuation.

(e) Inadequate stowage of cargo containers or other substantial items of cargo.

(f) Carriage or proposed carriage of dangerous goods in contravention of applicable regulations including incorrect labelling and packaging of dangerous goods.

(xxiii) **Passenger handling, baggage and cargo**

(a) Collision between a moving aircraft during flight and any other aircraft, vehicle or other ground object.

(b) Significant spillage during fuelling operations.

(c) Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength.

(d) Loading of contaminated or incorrect type of fuel or other essential fluids (including oxygen and potable water).

(xxiv) **Aircraft ground handling and servicing**

(a) Failure, malfunction or defect of ground equipment used for test or checking of aircraft systems and equipment when the required routine inspection and test procedures did not clearly identify the problem when this results in a hazardous situation.

(b) Non-compliance or significant errors in compliance with required servicing procedures.

ANNEX II

The following subparagraphs give examples of reportable occurrences resulting from the application of the generic criteria to specific systems listed in Annex I, point B., (x).

1. Air conditioning/ventilation

   (a) complete loss of avionics cooling

   (b) depressurisation

2. Autoflight system

   (a) failure of the autoflight system to achieve the intended operation while engaged

   (b) significant reported crew difficulty to control the aircraft linked to autoflight system functioning

   (c) failure of any autoflight system disconnect device

   (d) unexpected autoflight mode change

3. Communications

   (a) failure or defect of passenger address system resulting in loss or inaudible passenger address

   (b) total loss of communication in flight

4. Electrical system

   (a) loss of one electrical system distribution system (AC or DC)

   (b) total loss or loss or more than one electrical generation system

   (c) failure of the back up (emergency) electrical generating system

5. Cockpit/cabin/cargo

   (a) pilot seat control loss during flight

   (b) failure of any emergency system or equipment, including emergency evacuation signalling system, all exit doors, emergency lighting, etc.

   (c) loss of retention capability of the cargo loading system

6. Fire protection system

   (a) fire warnings, except those immediately confirmed as false

   (b) undetected failure or defect of fire/smoke detection/protection system, which could lead to loss or reduced fire detection/protection

   (c) absence of warning in case of actual fire

7. Flight controls

   (a) asymmetry of flaps, slats, spoilers etc.

   (b) limitation of movement, stiffness or poor or delayed response in the operation of primary flight control systems or their associated tab and lock systems

   (c) flight control surface run away

   (d) flight control surface vibration felt by the crew

(e) mechanical flight control disconnection or failure

(f) significant interference with normal control of the aircraft or degradation of flying qualities

8. Fuel system

(a) fuel quantity indicating system malfunction resulting in total loss or erroneous indicated fuel quantity on board

(b) leakage of fuel which resulted in major loss, fire hazard, significant contamination

(c) malfunction or defects of the fuel jettisoning system which resulted in inadvertent loss of significant quantity, fire hazard, hazardous contamination of aircraft equipment or inability to jettison fuel

(d) fuel system malfunctions or defects which had a significant effect on fuel supply and/or distribution

(e) inability to transfer or use total quantity of usable fuel

9. Hydraulics

(a) loss of one hydraulic system (ETOPS only)

(b) failure of the isolation system to operate

(c) loss of more than one hydraulic circuit

(d) failure of the back up hydraulic system

(e) inadvertent Ram Air Turbine extension

10. Ice detection/protection system

(a) undetected loss or reduced performance of the anti-ice/de-ice system

(b) loss of more than one of the probe heating systems

(c) inability to obtain symmetrical wing de-icing

(d) abnormal ice accumulation leading to significant effects on performance or handling qualities

(e) crew vision significantly affected

11. Indicating/warning/recording systems

(a) malfunction or defect of any indicating system when the possibility of significant misleading indications to the crew could result in an inappropriate crew action on an essential system

(b) loss of a red warning function on a system

(c) failure or malfunction of recording systems (FDR, CVR)

(d) for glass cockpits: loss or malfunction of more than one display unit or computer involved in the display/warning function

12. Landing gear system/brakes/tyres

(a) brake fire

(b) significant loss of braking action

(c) unsymmetrical braking leading to significant path deviation

(d) failure of the L/G free-fall extension system (including during scheduled tests)

(e) unwanted gear or gear doors extension/retraction

(f) multiple tyres burst

13. Navigation systems (including precision approaches system) and air data systems

(a) loss or multiple navigation equipment failures

(b) total failure or multiple air data system equipment failures

(c) significant misleading indication

14. Oxygen

(a) for pressurised aircraft: loss of oxygen supply in the cockpit

(b) loss of oxygen supply to a significant number of passengers (more than 10 %), including when found during maintenance or training or test purposes

15. Bleed air system

(a) hot bleed air leak resulting in fire warning or structural damage

(b) loss of all bleed air systems

(c) failure of bleed air leak detection system