GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP. SAFDARJUNG AIRPORT, NEW DELHI -110003

DRAFT

CIVIL AVIATION REQUIREMENTS
SECTION 5 - AIR SAFETY
SERIES 'C' PART I
Issue II, 20TH OCTOBER 2015 EFFECTIVE: FORTHWITH

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Subject: **Notification of Incidents and Investigation thereof.**

1. INTRODUCTION:

1.1 The objective of incident/occurrence reporting and investigation is to contribute to the improvement of aviation safety by ensuring that relevant information on safety is reported, collected, analysed, stored, protected and disseminated. The sole objective of occurrence reporting is the prevention of accidents and incidents and not to attribute blame or liability. Incident/Occurrence reporting is an essential part of the overall monitoring function of the operator. The detailed objectives of the incident/occurrence reporting systems are:

a) To enable assessment of safety implications of each occurrence, including previous similar occurrences, so that any necessary action is initiated to prevent similar occurrences in future.
b) To ensure dissemination of information.

A thorough and objective investigation of an aircraft incident would enable identifying where relevant deficiency in operational techniques, Air traffic control and human performance etc. lies. This in turn could lead to the formulation of appropriate corrective actions to obviate their recurrence. The aircraft accident prevention programme is a continuous search for detection and elimination of all such factors, which are hazard to safety of aircraft operation. One of the best and most effective methods for accident prevention is proper and systematic investigation of incidents and occurrences.

1.2 Rule 18 of Aircraft (Investigation of Accident and Incident) Rules 2012 provides for the reporting of the occurrences to DGCA and AAIB. Rule 13(1) of Aircraft Rules 2012 empowers the DGCA to institute investigation into incidents and in case of serious incidents wherein the aircraft AUW is below 2250 kg and is not a turbo-jet aircraft.

1.3 This Civil Aviation Requirements is issued under the provisions of Rule 133A of the Aircraft Rules, 1937 and Rule 4, Rule 5 (1) (c) & Rule 18 of Aircraft (Investigation of Accidents and Incidents) Rules, 2017. It prescribes the manner in which the occurrences are to be reported and investigated and the responsibilities of various organizations like the Operators and other Departments/ agencies at the airport etc. in providing assistance with regard to investigation.

1.4 ~~This CAR supersedes Air Safety Circular 5 of 1982, ASC 08 of 2009, ASC 5 of 2009, ASC 6 of 2013 & ASC 2 of 2011.~~

2. APPLICABILITY:

2.1 This CAR applies to all incidents/occurrences including Serious Incidents involving Civil Registered aircraft in India. It also applies to occurrences to foreign civil registered aircraft occurring in India and Indian Administered airspace.

2.2 This Civil Aviation requirements applies to All Scheduled, Non- Scheduled, Aerial work aircraft, State Government / BSF aircraft & private aircraft operators, flying clubs, aircraft manufacturer, Aerodrome operator, Air Navigation service provider, MROs, Ground handling agents, fuel vendors and service provider.

3. DEFINITIONS:

Accident: An occurrence associated with the operation of an aircraft which-

(i) in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked; or

(ii) in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which -

a) a person is fatally or seriously injured as a result of:

i. being in the aircraft, or

ii. direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

iii. direct exposure to jet blast,

except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

b) the aircraft sustains damage or structural failure which:

i. adversely affects the structural strength, performance or flight characteristics of the aircraft, and

ii. would normally require major repair or replacement of the affected component,

except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, tires, brakes, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes), or for minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike (including holes in the radome); or

c) the aircraft is missing or is completely inaccessible.

Note- The detailed guidelines for determination of aircraft damage are given in the Schedule B of Aircraft Rules 2017.

Accredited representative: A person designated by a state, on the basis of his or her qualifications, for the purpose of participating in an investigation conducted by another state and where the State has established an accident investigation authority, the designated accredited representative would normally be from that authority.

Adviser: A person appointed by a State, on the basis of his or her qualifications, for the purpose of assisting its accredited representative in an investigation.

Airprox (Aircraft Proximity) – A situation in which, in the opinion of a pilot or Air Traffic Services Personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

Causes: Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident but does not amount to assigning fault or determination of administrative, civil or criminal liability.

Communication Navigational and Surveillance (CNS) Incident –

Significant degradation or failure of the CNS facilities including VHF/ VOR/NDB/ ILS/Surveillance systems, ADS/CPDLC, A-SMGCS, ground-communication. Failure of any facility used in, available for use in, or designated for use in aid of air navigation, including landing areas, any apparatus or equipment, for signaling, for radio direction finding, or for radio or other electronic communication, and any other structure or mechanism having a similar purpose for guiding or controlling flight in the air or the landing or takeoff of aircraft.

Flight recorder: Any type of recorder installed in the aircraft for the purpose of complementing accident or incident investigation.

Ground Handling (RAMP) Incidents – Occurrences during (or as a result of) ground handling operations.

- Includes collisions that occur while servicing, boarding, loading, and deplaning the aircraft also during boarding and disembarking while helicopter is hovering.
- Includes injuries to people from propeller/main rotor/tail rotor/fan blade strikes.
- Includes pushback/powerback/towing events.
- Includes Jet Blast and Prop/rotor down wash ground handling occurrences.
- Includes aircraft external preflight configuration errors (examples: improper loading and improperly secured doors and latches) that lead to subsequent events.
- Includes all parking areas (ramp, gate, tie-downs).
- Except for powerback events
- Includes operations at aerodromes, heliports, helidecks, and unprepared operating sites.

Ground Collision incidents – Collision while taxiing to or from a runway in use.

- Includes collisions with an aircraft, person, animal, ground vehicle, obstacle, building, structure, etc. while on a surface other than the runway used for landing or intended for takeoff.

- Ground collisions resulting from events categorized under Runway Incursion (RI) or Ground Handling

NOTE: Taxiing includes ground and air taxiing for rotorcraft on designated taxiways.

Incident: An occurrence, other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operation.

Investigation: A process conducted for the purpose of prevention of accident which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes, contributory factors and, when appropriate, the making of safety recommendations.

Operator: A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

Preliminary Report: The communication used for the prompt dissemination of data obtained during the early stages of the investigation.

Reportable Occurrence: Any incident which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person.

Runway incursion: Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface, designated for the landing and take-off of aircraft.

Runway excursions: When an aircraft on the runway surface departs the end or the side of the runway surface. Runway excursions can occur on takeoff or landing. They consist of two types of events:

- **Veer-Off**: A runway excursion in which an aircraft departs the side of a runway.
- **Overrun:** A runway excursion in which an aircraft departs the end of a runway.

Safety recommendation:

I. A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accident or incident and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident;

II. Recommendations resulting from diverse sources and safety studies.

Serious incident: An incident involving circumstances indicating that there was a high probability of an accident and associated with the operation of an aircraft which,-

(i) in the case of manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or

(ii) in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time as it comes to rest at the end of the flight and the primary propulsion system is shut down, in which -

Significant Incident: An incident involving circumstances indicating that an accident or a serious incident could have occurred, if the risk had not been managed within safety margins.

4. NOTIFICATION

It is incumbent that the notice and information of occurrences as listed in Appendix "A" in the prescribed format shall be sent as soon as possible by the quickest means available and in any case within 24 hours by the person in command of the aircraft or if he be killed or incapacitated the owner, operator, the hirer or other persons on whose behalf he was in command of the aircraft/ Airport Director/ATC In charge/Communication In charge/Aerodrome In charge/Safety Investigation Coordinator (SIC) In charge to the Director General of Civil Aviation (Attn: Director Air Safety, HQ) and the concerned Regional Air Safety Office(s) where the Operator is based and where the location of the occurrence falls. In addition the information regarding incident / accident shall also be provided to Aircraft Accident Investigation Bureau (AAIB). Operator shall develop a procedure for reporting of occurrences and include in their Flight Safety Manual/Safety Management System Manual/Airport Emergency Planning Manual.

The reportable occurrences are listed in the Appendix 'A'. Occurrences which are likely to endanger the safety of aircraft operations would classify under the category of incidents.

To facilitate consistent reporting and subsequent storage and analysis of data, occurrences are to be notified as per the formats provided in Appendix 'B'.

5. PROCESSING OF OCCURRENCE/ INCIDENT REPORTS

5.1 DGCA will evaluate each occurrence report received to decide which occurrence require investigation by the DGCA or by the concerned operator / AAI through PIB/AIB under the supervision of the DGCA.

5.2 It may make such checks as is considered necessary to ensure that operators, manufacturers, maintenance, repair and overhaul organizations (MROs), air traffic control services, aerodrome operators and any other applicable organization as per para 2.2 are taking any necessary remedial

and preventative action in relation to reported occurrences and recommendations made in the investigation reports.

5.3 For occurrences concerning the foreign operators, DGCA will take such steps as are open to it to persuade foreign aviation authorities and organisations to take any necessary remedial and preventive action in relation to reported occurrences;

5.4 Occurrence data shall be assessed and analysed in order to detect safety hazards which may not be apparent to individual operators and where appropriate to issue specific advice or instructions to particular sections of the industry.

6. INVESTIGATION

i. The sole objective of the investigation of an accident or incident shall be the prevention of accidents and incidents and not to apportion blame or liability.

ii. Any investigation conducted in accordance with the provisions of these rules shall be separate from any judicial or administrative proceedings to apportion blame or liability.

6.1 The Director-General may order the investigation of any **Incident/Serious incident** as under Rule 13 (1) of the Aircraft (Investigation of Accident and Incident) Rules 2017 involving an aircraft or a person associated with the maintenance and operation of aircraft, or both, and may, by general or special order, appoint a competent and duly qualified person as Inquiry Officer for the purpose of carrying out such investigation.

6.2 **Investigation by Permanent Investigation Board**

Incidents shall also be investigated by the Permanent Investigation Board of the air operator under supervision of Officer of the Regional Air Safety Offices.

6.2.1 Each air operator shall establish a Permanent Investigation Board (PIB) for investigation of incidents occurring to its aircraft. The board shall consist of Chief of flight safety/Dy. Chief of Flight Safety/personnel assigned with duties of flight safety activities (with fleet size of less than three), a senior pilot on type, preferable instructor/examiner and Manager Quality/Engineer qualified on type preferably not involved with the certification work. The board shall determine the frequency of its meetings on the basis of fleet size and average number of incidents. During the meeting all the occurrences for the intervening period be discussed and plan further action.

If occurrence is of nature that further investigation serves no purpose a summary investigation report may be prepared. However for all other investigations the PIB report shall be prepared as per the format in Appendix 'C'. Involved flight crew and maintenance crew if required be made available for the purpose of recording their account of the incident.CVR transcript/DFDR readout of the relevant parameters, site report, test report of the relevant system to the extent possible should be made available.

6.2.2 To ensure that the benefits of investigation are fully realized by each organisation, Chief of Flight Safety of concerned organisation will present flight safety data to the governing board members of the organisation. The flight safety data may include the following.

a) Details of Accident /Serious Incident/Incident occurred to the aircraft operated by the organisation, Findings recommendations and action taken on the recommendations.

b) Salient findings during Audit and Surveillance inspection.

c) Trends observed from the FOQA monitoring. d) Any other issue impacting the safety.

6.2.3 For incidents to aircraft other than as given in 6.2.1 investigation shall be carried out by DGCA.

All efforts should be made to complete the investigation within the time limits stipulate in Para 7.

All operators shall fill ADREP using ECCAIRS or compatible excel sheet for the incidents that are investigated by PIB and submit along with the PIB report to the Concerned Regional Air Safety Office and O/o DAS (DGCA HQ)

6.3 Investigation by Airprox Investigation Board

AIB will be constituted and notified at all Regional Offices of Air Safety Directorate i.e. Delhi, Mumbai, Kolkata, Chennai, and Hyderabad. Teams will investigate all Airprox incidents and any other occurrences as advised by DGCA HQ in their respective regions.

6.3.1 The Investigating Board shall have the following composition:

S.N.	Participants	Designation in the Board

1.	**Director General of Civil Aviation, DGCA :** Director Air Safety/Regional Controller of Air Safety or his representative	Convener
2.	**ANS service provider:** ATM - Joint General Manager / Deputy General Manager (ATM-SQMS)	Member Secretary
3.	**ANS service provider** **AAI (CNS)** Representative of CNS Directorate of AAI at Joint General Manager level for occurrences concerning Communication Incidents as and when required	Member

- AIB may opt any other member if felt necessary. In case Air Force pilots or Air Force ATCO are involved in an incident matter be referred to DGCA. DGCA (HQ) will co-ordination for participation of IAF representative in the investigating team.
- Investigating Board will review all evidence including transcript, DFDR Read out (whenever required), statements of all concerned etc.
- Investigating Board if required will seek clarification from ATCO, CNS/Airport Personnel, pilots or any other concerned person.
- After due deliberation by Investigation Team, an Investigation Report will be made by Member Secretary in coordination with the Convener and other Members. Investigation Report shall be made as per format Appendix Ç'.
- ***Investigation Report will be finalized as per para 7.*** In case of any likely delay, DGCA HQ will be kept informed by Member Secretary the reasons for such delay.

6.3.2 Convener shall forward two copies of Investigation Report to Director Air Safety (DGCA HQ). The report shall be accompanied with relevant evidences, dissent note, if any, and views of the convener if any.

6.4 Investigation of Runway Incursions

Various defense strategies exist to help prevent a runway incursion which include ATS clearance and read back protocols to taxi and/or enter an active runway, airport signs and lights, obligations by ATS personal and aircrew to visually scan a runway before entering and direct intervention by ATS personnel, aircrew or vehicle operators to avert an impending collision. A runway incursion occurs when one or more of these defenses is breached. The severity of a runway incursion depends on the circumstances surrounding the event and may be related to the number of defenses that failed in allowing the runway incursion.

Severity and frequency are the two components necessary to calculate risk. Whereas the frequency of occurrence can be derived directly from the occurrence data, the severity of each occurrence must be inferred by assessing the circumstances surrounding the event.

Runway incursion incidents are to be reported as per the format prescribed in Appendix A & B to CAR Section 4 Series X Part I. All runway incursion incidents will be investigated by the DGCA.

6.5 Investigation of ground handling Incidents/Ground Collision Incidents

6.5.1 Vehicular incident not involving aircraft will be investigated by a team consisting of representative from involved airline flight Safety department & Safety Investigation Coordinator/GSD department of the Aerodrome operator. The report is to be submitted to Regional Air Safety Department for final acceptance. DGCA may at its discretion order a separate enquiry of any incident.

6.5.2 Incidents involving aircrafts will be investigated by the respective airlines. Depending upon the injury to personnel / damage to the equipment / aircraft / structure, the investigation will be conducted by Air Safety Directorate. The criteria for investigation by DGCA will depend upon the serious injury / fatality or substantial damage to the aircraft and equipment / structure associated with the aircraft.

7. TIMELINE FOR THE COMPLETION OF INVESTIGATION

Actual time required for investigation will depend on the complexity of each case. However, to ensure completion of investigation at the earliest, following time limits for investigation of various types of incidents will be adhered to

a) An engineering incident involving of maintenance procedures – 02 weeks
b) An operation incident involving of procedures by Operating crew – 02 weeks

c) If operation incident is accompanied with the failure of Aircraft system/component- operation report should be submitted within 10 days to allow corrective action to be taken immediately. All efforts should be made to submit the Final investigation within four weeks.
d) Investigation of an incident which involves failure of component or system and where the component investigation report is essential to determine the cause of the incident should be completed within 3 months or as much time as taken by the equipment manufacturer / Overhaul –maintenance shop / Laboratory.
e) Incident involving consultation of external experts / manufacturer participation – 03 months.
f) Ground incidents involving collision between aircraft and vehicle; aircraft and aircraft should be investigated in 02 weeks
g) Investigation of Runway incursions – 02 weeks
h) Investigation of Runway excursions – 30 days
i) Investigation of ATC incidents – 30 days

8. ACTION ON RECOMMENDATIONS

Action taken report on recommendations made in the investigation reports mentioned in para 6 shall be submitted by all concerned to Regional Air Safety Offices and Director Air Safety (DGCA HQ).

9. REMOVAL OF CVR FOR THE PURPOSE OF INVESTIGATION

9.1 In case of the accident/serious incidents CVR shall be removed from the aircraft at the earliest opportunity.

9.2 CVR shall be removed in case of the following incidents

- Any failure of aircraft primary structure.
- Damage which necessitates repair before further flight due to ingestion, collision, meteorological conditions, hard or overweight landing, overheating, incorrect technique or practices etc.
- Any incident where any minor injury is sustained by a passenger or member of the crew while on board the aircraft e.g. injury to a passenger as a result of turbulence, scalding of a member of the cabin staff as a result of faulty design, inadequate servicing or the in correct handling of galley equipment.
- Declaration of an emergency situation.
- An emergency evacuation of the aircraft.
- Fire or Explosion.
- Fire or Smoke warning
- In-flight engine shut-down or significant loss of power.
- Significant leakage of fuel, hydraulic fluid or oil.
- Smoke toxic or noxious fumes in crew, passengers or freight compartments.

- Abandoned take-off.
- Unintentional deviation from the intended track or attitude, caused by a procedural, systems or equipment defect.
- Precautionary or forced landing.
- Balked landing and Bounced Landing
- Unintentional contact with the ground, including touch down before the runway threshold.
- Over-running the ends or sides of the runway or landing strip.
- The separation between the aircraft was less than prescribed for the situation.
- Runway obstructed by foreign objects.
- All undershoots/overshoots or aircraft leaving the runway paved areas.
- Collision between moving aircraft and vehicles or any other ground equipments.
- Difficulty in controlling intoxicated, violent or armed passengers.

9.3 Besides the above occurrences, Director Air Safety, DGCA (HQ) may direct for removal of Cockpit Voice Recorder on any other occasion.

9.4 Director of Air Safety/Regional Controller of Air Safety in Consultation with DAS (HQ) may exempt the removal of CVR in extraordinary situations. Record of such cases shall be maintained by the respective Regional Offices.

9.5 Approved Chief of Safety may take decision regarding removal of CVR in ~~following~~ cases of low speed abandoned take off due ATC instructions, wildlife incursion and bird hit.

10. REPORTS

A monthly, quarterly and yearly report, (as per format given in Appendix "D"), of the reportable occurrences occurred during the previous month/quarter/year including status of their investigation and status of recommendations shall be submitted by all operators to DAS HQ and to the concerned regional air safety offices and, in soft as well as hard copy.

(B.S Bhullar)
Director General of Civil Aviation

Appendix A

REPORTABLE OCCURRENCES

I. AIRCRAFT TECHNICAL

A) Structural

- 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.
- Damage or defect (exceeding allowed tolerances) to a structural element whose failure could reduce the structural stiffness to such an extent that the required aeroelastic characteristics are no longer achieved.
- 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.
- Damage to or defect of a structural element, which could jeopardise proper operation of systems.
- Loss of any part of the aircraft structure in flight.

B) Systems

- Loss, significant malfunction or defect of any system, sub-system, equipment, etc. when standard operating procedures, could not be satisfactorily accomplished.
- Inability of the crew to control the system e.g. uncommanded actions, incorrect and/or incomplete response, etc.
- Failure or malfunction of the protection device or emergency system associated with the system.
- Loss of redundancy of the system.
- Operation of any primary warning system associated with aircraft systems or equipment unless the crew conclusively establishes that the indication is false provided that the false warning did not result in a hazard arising from the crew response to the warning.
- Leakage of hydraulic fluids, fuel, oil or other fluids which may result in a fire hazard or possible hazardous contamination of aircraft structure, systems or equipment or risk to occupants.

- Malfunction or defect of any indication system which results in a possibility of misleading indications to the crew.
- Any failure, malfunction or defect in a system during critical phase of flight.
- Flight controls malfunction.

Examples of reportable occurrences resulting from the application of these generic criteria to specific systems are as follows:

1. Air conditioning/ventilation

a) Complete loss of avionics cooling.
b) Depressurization.

2. Auto-flight system

a) Failure of auto-flight system to achieve the intended operation while engaged.
b) Difficulty to control the aircraft linked to autoflight system functioning.
c) Failure of any auto-flight system disconnect device.
d) Uncommanded auto-flight 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/DC).
b) Total loss or loss of more than one electrical generation system.
c) Failure of the backup (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, 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 or smoke.

7. Flight controls

a) Asymmetry of flaps, slats, spoilers etc.
b) Limitation of movement, stiffness or poor/delayed response in the operation of primary flight control systems or their associated sub-systems.
c) Flight control surface runaway.
d) Flight control surface vibration.

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 resulting in loss, fire hazard, significant contamination.
c) Malfunction or defects of the fuel jettisoning system resulting in inadvertent loss of significant quantity, fire hazard, hazardous contamination of aircraft equipment or inability to jettison fuel.
d) Fuel system malfunctions or defects having significant effect on fuel supply and/or distribution.
e) Inability to transfer or use total quantity of usable fuel.

9. Hydraulics

a) Loss of hydraulic system.
b) Leakage of hydraulic fluid.
c) Loss of more than one hydraulic circuits.
d) Failure of backup hydraulic system.
e) Inadvertent Ram Air Turbine (RAT) 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 with a possibility of misleading indications to the crew.
b) Loss or malfunction of more than one display unit or computer display/warning function in a glass cockpit environment.

12. **Landing gear system /brakes/tyres**

a) Brake fire.
b) Significant loss of braking action.
c) Unsymmetrical braking.
d) Failure of landing gear free fall extension system.
e) Unwanted gear or gear doors extension/retraction.
f) Tyre burst.

13. Navigation systems

a) Total loss or multiple navigation equipment failures.
b) Total loss or multiple air data system equipment failures.
c) Significant misleading indication.
d) Significant navigation errors attributed to incorrect data.
e) Unexpected deviations in lateral or vertical path not caused by pilot input.

14. Oxygen

a) For pressurized aircraft: loss of oxygen supply in the cockpit.
b) Loss of oxygen supply to a significant number of passengers (more than 10%).

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.

16. Propulsion system

- Flameout, shutdown or malfunction of any engine.
- Over speed or inability to control the speed of any high speed rotating component.
- Failure or malfunction of any part of an engine or power plant resulting in any one or more of the following:
  - Non-containment of components/debris
  - Uncontrolled internal or external fire
  - Thrust in a different direction from that demanded by the pilot
  - Thrust reversing system failing to operate or operating inadvertently
  - Inability to control power, thrust or rpm
  - Failure of the engine mount structure
  - Partial or complete loss of a major part of the powerplant
  - Dense visible fumes or concentrations of toxic products sufficient to incapacitate crew or passengers
  - Inability to shutdown an engine by use of normal procedures
  - Inability to restart a serviceable engine
- An uncommanded thrust/power loss, change, etc. classified as a loss of thrust or power control.
- Any defect in a life controlled part causing retirement before completion of its full life.
- Defects of common origin resulting in in-flight engine shut down.
- An engine limiter or control device failing to operate when required or operating inadvertently.

- Exceedance of engine parameters.
- FOD resulting in damage.
- Failure or malfunction of any part of a propeller or powerplant resulting in any one or more of the following:
  - Overspeed of the propeller
  - Development of excessive drag
  - Thrust in the opposite direction to that commanded by the pilot
  - Release of the propeller or any major portion of the propeller
  - Failure that results in excessive imbalance
  - Unintended movement of propeller blades below the established minimum in-flight low-pitch position
  - Inability to feather the propeller
  - Inability to command a change in propeller pitch
  - Uncommanded change in pitch
  - Uncontrollable torque or speed fluctuation
- Damage or defect of main rotor gearbox/attachment resulting into in-flight separation of the rotor assembly and /or malfunctions of the rotor control.
- Damage to tail rotor, transmission and equivalent systems.
- Shut down or failure when the APU is required to be available by operational requirements.
- Inability to shut down the APU.
- Overspeed of APU.
- Inability to start the APU when needed for operational reasons.

C) Human Factors

- Any incident where any feature or inadequacy of the aircraft design contributes to a hazardous or catastrophic effect.

II. AIRCRAFT FLIGHT OPERATIONS

A) Operation of Aircraft

- Risk of collision with an aircraft, terrain or other object or an unsafe situation when avoidance action would have been appropriate.
- Avoidance manoeuvre required to avoid a collision with an aircraft, terrain or other object.
- Avoidance manoeuvre to avoid other unsafe situations.
- Take-off or landing incidents, including precautionary or forced landings. Incidents such as under-shooting, overrunning or running off the side of runways. Take-offs, rejected take-offs, landings or attempted landings on a closed, occupied or incorrect runway. Runway incursions.
- Inability to achieve predicted performance during take-off or initial climb.
- Critically low fuel quantity or inability to transfer fuel or use total quantity of usable fuel.

- Loss of control (partial or temporary) from any cause.
- Occurrences close to or above V1 resulting from or producing a hazardous or potentially hazardous situation (e.g. rejected take-off, tail strike, engine power loss etc.).
- Unintentional significant deviation from airspeed, intended track or altitude.
- Descent below decision height/altitude or minimum descent height/altitude without the required visual reference.
- Loss of position awareness relative to actual position or to other aircraft.
- Breakdown in communication between flight crew or between flight crew and others (cabin crew, ATC, engineering).
- Abnormal Runway contact of the aircraft.
- Exceedance of fuel imbalance limits.
- Incorrect receipt or interpretation of radiotelephony messages.
- Fuel system malfunctions or defects, which had an effect on fuel supply and/or distribution.
- Aircraft unintentionally departing a paved surface.
- Collision between an aircraft and any other aircraft, vehicle or other ground object.
- Inadvertent and/or incorrect operation of any controls.
- Inability to achieve the intended aircraft configuration for any flight phase (e.g. landing gear and doors, flaps, stabilisers, slats etc).
- Abnormal vibration.
- 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 the crew conclusively establishes that the indication is false provided that the false warning did not result in a hazard arising from the crew response to the warning.
- GPWS warning.
- ACAS/TCAS RAs.
- Jet or prop blast incidents resulting in significant damage or serious injury.

B) Emergencies

- Fire, explosion, smoke or toxic or noxious fumes.
- Use of any non-standard procedure by the flight or cabin crew to deal with an emergency.
- Event leading to an emergency evacuation.
- Depressurisation.
- Use of any emergency equipment or prescribed emergency procedures in order to deal with a situation.
- Event leading to the declaration of an emergency.
- Failure of any emergency system or equipment, including exit doors, etc.
- Events requiring any emergency use of oxygen by any crew member.

C) Crew Incapacitation

- Incapacitation of any member of the flight crew.
- Incapacitation of any member of the cabin crew which renders them unable to perform essential emergency duties.

D) Meteorology

- Lightning strike which resulted in damage to the aircraft or loss or malfunction of any essential service.
- Hail strike which resulted in damage to the aircraft or loss or malfunction of any essential service.
- Severe turbulence resulting in injury to occupants or deemed to require a 'turbulence check' of the aircraft.
- Windshear encounter.
- Icing encounter resulting in handling difficulties, damage to the aircraft or loss or malfunction of any essential service.

III. AIRCRAFT MAINTENANCE AND REPAIR

- Incorrect assembly of aircraft parts or components found during inspection or test procedure.
- Hot bleed air leak resulting in structural damage.
- Any defect in a life controlled part causing retirement before completion of its full life.
- 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:
  - Primary structure or a principal structural element requiring repair/complete or partial replacement of the element
  - Secondary structure which may have endangered the aircraft
  - Engine, propeller or rotorcraft rotor system.
- Products, parts, appliances and materials of unknown or suspect origin.
- Misleading, incorrect or insufficient maintenance data or procedures that could lead to maintenance errors.

IV. AIR NAVIGATION SERVICES, FACILITIES AND GROUND SERVICES

A) Air Navigation Services

- Provision of significantly incorrect, inadequate or misleading information from any ground sources, e.g. Air Traffic Control (ATC), Automatic Terminal Information Service (ATIS), Meteorological Services, navigation databases, maps, charts, manuals, etc.
- Provision of less than prescribed terrain clearance.
- Provision of incorrect pressure reference data (i.e. altimeter setting).
- Incorrect transmission, receipt or interpretation of significant messages when this results in a hazardous situation.
- Separation minima infringement.
- Unauthorised penetration of airspace.
- Unlawful radio communication transmission.
- Significant degradation / failure of CNS facilities.
- Aerodrome movement areas obstructed by aircraft, vehicles, animals or foreign objects, resulting in a hazardous or potentially hazardous situation.
- Errors or inadequacies in marking of obstructions or hazards on aerodrome movement areas resulting in a hazardous situation.
- Failure, significant malfunction or unavailability of airfield lighting.

B) Aerodrome and Aerodrome Facilities

- Significant spillage during fueling operations.
- Loading of incorrect fuel quantities likely to have a significant effect on aircraft endurance, performance, balance or structural strength.
- unsatisfactory ground de-icing / anti-icing

C) Passenger Handling, Baggage and Cargo

- Significant contamination of aircraft structure, or systems and equipment arising from the carriage of baggage or cargo.
- Incorrect loading of passengers, baggage or cargo, likely to have a significant effect on aircraft mass and/or balance.
- Incorrect stowage of baggage or cargo (including hand baggage) likely to create a hazardous situation in the aircraft or to impede emergency evacuation.
- Inadequate stowage of cargo containers or other substantial items of cargo.
- Dangerous goods incidents.

D) Aircraft Ground Handling and Servicing

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

V. MAINTENANCE ORGANIZATION

- Any airframe, engine, propeller, component or system defect/malfunction/damage found during scheduled or unscheduled aircraft (airframe/engines/components) maintenance activities which could possibly lead to an aircraft operational accident or serious incident (if not properly rectified.

VI. DESIGN AND MANUFACTURING ORGANIZATIONS

- Any design- or manufacturing-related deficiency/defect/malfunction of product or services discovered by or brought to the attention of the design/manufacturing organization which is deemed to warrant the possible issue of an emergency airworthiness directive (EAD), airworthiness directive (AD) or alert service bulletin (ASB);

VII. WILDLIFE ACTIVITY

- All Wildlife Strikes and wildlife movement is required to be reported in the enclosed performa at Appendix “E”.

VIII. Ground Collison Incidents : – Collision while taxiing to or from a runway in use.

IX. Ground Handling (RAMP) incidents.

Appendix B

Directorate General of Civil Aviation

OCCURRENCE REPORT

Complete all sections where information is relevant. For multi-choice boxes, indicate which entry is appropriate.	Date received by DGCA	DGCA Occurrence No.

NATIONALITY	REGISTRATION	OWNER/OPERATOR/HIRER	DATE OF OCCURRENCE

FLIGHT AND WEATHER DETAILS

AIRCRAFT MANUFACTURER	STATE OF REGISTRY	AIRCRAFT MODEL	AIRCRAFT TYPE AND SERIES

FLIGHT NO	Day		WIND	RUNWAY USED	PRECIPITATION	ICING	TURBULENCE
	Night				Rain	Light	Light
FROM	Twilight		IAS	STATE	Snow	Mod	Mod
				Dry	Sleet	Heavy	Severe
TO	Time of Occurrence		Ht/Alt/FL	Wet	Hail		Extreme
	Visibility			Ice	Light		
LOCATION OF THE AIRCRAFT	DURATION OF FLIGHT		OAT	Snow	Mod		
				Slush	Heavy		

GEO POSITION		Cloud Type	
Latitude	Longitude	Height/Ft	
		Amount/8ths	

FLIGHT PHASE		NATURE OF FLIGHT	
Parked		Pax	
Taxying		Freight	
Take off		Survey	
Int climb		Pleasure	
Climb		Agricultural	
Cruise		Business	
Descent		Club/group	
Holding		Private	
Approach		Positioning	
Landing		Ferry	
Circuit		Test	
Hover		Training	
IN CASE OF GROUND INCIDENTS		Towing	
		Aerobatics	
Maintenance			
Ground Handling			
Taxy			
Unattended			

Crew composition, Qualification and Nationality

No. of Passengers	Number of CREW and PASSENGERS; killed and seriously injured; OTHERS; killed and seriously injured

NARRATIVE

ENGINEERING DETAILS

ATA Chapter No.	Serial No. of Aircraft	Engine Type & Series	Maintenance Organization

Component/Part	Location on the aircraft	Manual Reference	Tel No and email id of MRO

Manufacturer	Part No	Serial No

Is there any published Airworthiness Information or control procedures (e.g. AD, SB etc.) relevant to occurrence	YES / NO

Details of SB , AD etc.

	Maintenance Prog.			
		O.C.	C.M.	H.T.
	TOTAL	Since O/H or repair	Since Inspection	Manufacturer Advised
HOURS				YES
CYCLES				
LANDINGS				NO

Reference No and Compliance Status of Aircraft or Equipment

Rectification Details

NOTE:

1. Geographical Position Information to be provided in case of accident/serious incident/landing at places other than airports.
2. "Narrative" should include the following information, if applicable
   a. Position of the aircraft with reference to some easily defined geographical point to be provided in case of accident/serious incident/landing at places other than airports.
   b. Description of any system generated warning
   c. Information regarding Dangerous good on-board the aircraft, if any
   d. Physical characteristics of the accident or serious incident area, as well as an indication of access difficulties or special requirements to reach the site.
   e. Nationality of the passengers to be indicated in case of accidents, fatality or injury.
   f. Extent of damage to the aircraft so far as is known.
   g. Description and position of other aircraft in case of Airprox incident
3. Photographs of the damaged aircraft and of the site may be appended with the form to the extent possible.

Appendix "C"

Format for the Investigation Report

Synopsis:

1. Factual Information

1.1 History of the Flight
1.2 Injuries to persons
1.3 Damage to aircraft
1.4 Other damage
1.5 Personnel information
1.6 Aircraft information
1.7 Meteorological information
1.8 Aids to Navigation
1.9 Communication
1.10 Aerodrome information
1.11 Flight recorders
1.12 Wreckage and impact information
1.13 Medical and pathological information
1.14 Fire
1.15 Survival aspects
1.16 Tests and Research
1.17 Additional information
1.18 New investigation techniques

2. ANALYSIS

3. CONCLUSIONS

3,1 Findings:
3.2 Causes:

4 SAFETY RECOMMENDATONS

Appendix "D"

S/N	Date	Airport / Place of occurrence	Operator	Aircraft			Sector	Phase of flight	Brief Description	Classification of Occurrence (Operational/Engineering/RA/Ground Incident/ Wildlife Strike/Misc)	CICTT	ATA chapter	Findings in Investigation report	Probable Cause as per Investigation report	Recommendations made in the Investigation report	ATR of the Recommendations	Status of Investigation (Open/Closed)
				Type	Registration	Flight No.											

Appendix "E"

WILDLIFE (BIRD/ANIMAL) STRIKE FORM – DGCA India (Amended 01/2011)

To be completed on discovering evidence that a Wildlife (Bird/Animal) strike has, or may have, occurred.
To be completed for all bird/wild life strikes, whether or not damage has been caused.
Copies of this form should be sent as indicated at note 1 below.

F.N.AV.15023/02/2011-AS, 11th September, 2011

Aircraft Operator .....
Aircraft Type & Series .....
Aircraft Reg.....**Flight No**.....
Engine Make / Model .....

Date of Occurrence (dd/mm/yy) ...../...../.....
Time of Occurrence (Local) .....Hrs (24hr)
Dawn ☐ Day ☐ Dusk ☐ Night ☐
Aerodrome of Departure .....
Aerodrome of Intended Arrival .....
Aerodrome of Occurrence.....
Runway in Use .....
Altitude (AGL).....
Speed (IAS).....
Position (if en-route) .....
ATC Informed YES ☐ NO ☐

Phase of Flight

Taxi	☐	Descent	☐
Take-off run	☐	Approach	☐
Climb	☐	Landing roll	☐
En-Route	☐	Ground Checks	☐

Part(s) of Aircraft

(Attach sheet for description if any)	Struck	Damaged
Radome	☐	☐
Windshield	☐	☐
Nose (if not one of the above)	☐	☐
Engine No. 1	☐	☐
2	☐	☐
3	☐	☐
4	☐	☐
Wing (including high lift devices)/	☐	☐
Rotor/Propeller	☐	☐
Fuselage	☐	☐
Landing Gear	☐	☐
Tail	☐	☐
Lights	☐	☐
Others (Specify)	☐	☐

Effect on Flight

None	☐	Precautionary Landing	☐
Aborted T/O	☐	Engine Shutdown	☐
Other (Specify)	☐		

Other Report Raised
Flight Safety Incident Report ☐
Other (Specify) ☐

Precipitation:
None ☐ Fog ☐ Rain ☐ Sleet/Snow ☐

Sky Condition
No Cloud ☐ Some Cloud ☐ Overcast ☐

Wildlife (Bird/Animal) Description (e.g. Eagle, Pigeon, Dog, Deer etc.)
.....
.....

Bird Remains sent for identification Yes ☐ No ☐

Number of Birds/Animals

(Enter actual number if known)	Seen	Struck
1	☐	☐
2-10	☐	☐
11-100	☐	☐
100+	☐	☐

Pilot warned of birds/Animals Yes ☐ No ☐

Bird/Animal Size Small ☐ Medium ☐ Large ☐

Note 1: Copies of this form should be submitted as soon as practicable to the recipient shown below:-

DGCA Headquarter (DAS)	☐
DGCA Regional Air Safety Office	☐
Aerodrome In-charge	☐
Flight Safety Dept, Operator	☐

Remarks and other relevant information:

Reported by:

Name.....
Designation.....Station.....
Contact No.....Date.....

Financial loss Information

Aircraft time out of service(hrs)	Estimated cost of repairs or replacement ()	Estimated other cost()

Wildlife (bird/animal) strike form 1/2011 Supersedes Previous Bird Strike Incident form

Guildlines for filling wildlife (bird/animal) strike form

1. **Aircraft Operator**- Operator can be an airlines (sch-Nsch) (State aircraft- Defence, Custom, immigration, State Government) Corporate business groups), You can use ICAO code for Schedule airlines or full name of the Operator
2. **Aircraft Types & Series**- You can use abbreviation such as, A-320, B737-400, B-200, PA23, C-172 ect.)
3. **Aircraft Registration**- Use full registration (Nationality+ registration mark) such VT-ESC, VT-JNS, VT-KFR, VT-INA, VT-SPM, for defense VU-AVB, VU-KBC
4. **Flight No** - Use flight no in ICAO or IATA code or use full airline name.
5. **Engine make/Model** - Abbreviation are allowed (CFM 560, IAE 2527)
6. **Date of occurrence** - Write the local date as per country of occurrence, do note GMT date. Format dd/mm/yyyy
7. **Time of occurrence-** Use the time in 4 digit e.g 1600, 0700 or as 7AM or 4PM
8. **Aerodrome od Departure-** Fill the airport name in 4 letters ICAO code e.g. VIDP, VABB or use full airport name, Delhi Mumbai, if there are more than one airport in the city use airport name also, while using ICAO code.
9. **Aerodrome of Occurrence-** Fill the airport name as mentioned in para 8.
10. **Aerodrome of Occurrence-** Fill the airport name as mentioned in para 8
11. **Runway used-** Use standard e.g. 27,05 etc.
12. **Altitude AGL-** Use feet above ground level at the time of the strike (if you don't know, use MSL and indicate this). For take-off run and landing roll, it must be.
13. **Speed (IAS) –** Speed at which the aircraft was travelling when the strike occurred.
14. **Position of Flight –** Put the name of the nearest airport and state.
15. **Phase of Flight –** It must be filled very accurately, whether strike occurred during, Take – off run of landing roll etc.
16. **Part(s) of Aircraft –** check which parts were struck and damaged. If a part was damaged but not struck indicate this with a tick on the damaged column only. Please give more information in remark column why this happened.
17. **Effect on Flight –** Fill in the given options and explain in remark.
18. **Other Report Raised –** If any other report raised tick the appropriate column.
19. **Precipitation –** you may check more than one.
20. **Sky condition –** Check the one that applies.
21. **Wildlife (Bird/Animal) description –** Specify the bird/animal type (Pariah kite, crow, deer, dog, pigeon etc.) if you don't know, put unknown.
22. **Bird Remain sent for identification –** Tick the appropriate column if applicable.
23. **Number of Birds seen / or struck –** check the box in the column with the correct number if you saw the birds/other wildlife before the strike and check the box in the struck column to show how many were hit. The exact number can be written next to the box.
24. **Pilot warned of Birds –** weather ATC warned about birds or ATIS contain any information about bird activity.
25. **Bird Size –** check what you think is the correct size (e.g., Paria kite –big, Sparrow – small).
26. **Remarks –**this include information about the extent of the damage, injures, effect on flight or emergency, PAN PAN or MAY Day deceleration. Be as specific as you can,

anything you think would be helpful to know about safety/bird/animal strike prevention.

27. **Reported by –** do not hesitate in putting your name, this is optional. It is helpful if question arise about the information on the form (a phone number could also be included).
28. **Title –** This can be pilot, ATCO, Airport Official, Airline Officials, Flight Safety/Regulatory/body officer/persons etc.
29. **Date –** Write the date when the form has been filled e.g. dd/ mm/yyyy
30. **Financial Loss Information:**- As you know that wildlife (bird/animal) strike may result in financial loss to the airlines. For this information engineering, commercial and flight safety department shall be responsible.
    a. **Aircraft time out of service –** Record how many hours the aircraft was AOG due wildlife (bird/animal) strike.
    b. **Estimated cost of repairs or replacement –** This may not be known immediately after bird/animal strike, but the data can be sent at a later stage to DGCA you should write contact name and number for this data. Financial loss be provided in Indian rupees.

    Estimated other cost- This include passengers transfer by other flight or other means of transport, fuel, hotels, food/snacks, refund of fare etc.