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Jalan Medan Merdeka Timur Nomor 5
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**Note:**

Each amended page of KNKT guideline shall show the appropriate amendment number and date. A vertical black line on the right margin adjacent to the item that has been changed will indicate all changes. However, in any circumstances, the vertical black line is not necessary when the amendment is more than 50 percent of total pages, therefore new edition will be issued.
KOMITE NASIONAL KESELAMATAN TRANSPORTASI
INVESTIGATION GUIDELINES

FOREWORD

Komite Nasional Keselamatan Transportasi, KNKT (National Transportation Safety Committee, NTSC) is no blame, independent, multimode safety investigation body within the Republic of Indonesia responsible directly to the President of the Republic of Indonesia.

KNKT has the main duty of conducts objective and independent transport safety investigation (investigation) for four modes of transportation which are; aviation, railway, road and marine transportation. KNKT investigation is intended to prevent similar occurrence in the future without implying blame or liability.

KNKT investigation in aviation is to conduct objective and independent investigation of civil aircraft accident and serious incident under the provision of International Civil Aviation Organization (ICAO) Annex 13.

The purpose of this guideline is to encourage the uniform application of the Standards and Recommended Practices contained in Annex 13 and to provide information and guidance to KNKT investigators on the procedures, practices and techniques that can be used in aircraft accident investigations. Since accident investigations vary in complexity, this guideline cannot cover all eventualities. The more common techniques and processes, however, have been included.

Because this guideline deal with both accident and serious incident investigations and, for reasons of brevity, the term “accident”, as used herein, applies equally to “serious incident”. Throughout this guideline, the use of the male gender should be understood to include male and female persons. Although this guideline will be of use by experienced and inexperienced investigators alike, it is not a substitute for investigation training and experience.

This guideline will be amended periodically as new investigation techniques are developed and new information becomes available.

Readers are invited to submit material for possible inclusion in subsequent editions of this guideline. This material should be addressed to: Komite Nasional Keselamatan Transportasi; Gedung Kementerian Perhubungan lantai 3, Jalan Medan Merdeka Timur Nomor 5, Jakarta – Indonesia 10110 or email to knkt@dephub.go.id.

Jakarta, 8 August 2017

[Signature]
Dr. Ir. Soerjanto Tjahjono
Chairman
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GLOSSARY

When the following terms are used in this guideline, they have the following meanings:

**Accident:** An occurrence associated with the operation of an aircraft which, 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 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:
   1) being in the aircraft, or
   2) direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
   3) 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:
   1) adversely affects the structural strength, performance or flight characteristics of the aircraft, and
   2) 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, vanes, tires, brakes, wheels, 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 1** – For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as fatal injury.

**Note 2** – An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

**Note 3** – Guidance for the determination of aircraft damage can be found in the Appendix 7.2 in this guideline.

**Accident Investigation Authority:** The authority designated by a State as responsible for aircraft accident and incident investigations.

**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. 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.
**Aircraft:** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth surface.

**Causes:** Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident. The identification of causes does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

**Civil Aircraft:** Any aircraft used for commercial and non-commercial air transportation purposes.

**Commercial Air Transport:** An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

**Contributing Factors:** Actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

**Directorate General of Civil Aviation (DGCA):** The Indonesia governmental entity that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport).

**Flight recorder:** Any type of recorder installed in the aircraft for the purpose of complementing accident/incident investigation. The flight recorder includes Automatic Deployable Flight Recorder (ADFR), a combination flight recorder installed on the aircraft which is capable of automatically deploying from the aircraft.

**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 accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and/or contributing factors and, when appropriate, the making of safety recommendations.

**Investigator:** A person on the basis of his or her qualification and competency to conduct transportation safety investigation. In this guideline, investigator is KNKT investigator unless otherwise specified.

**Investigator-in-Charge (IIC):** A person charged, on the basis of his or her qualifications, with the responsibility for the organization, conduct and control of an investigation.

**Komite Nasional Keselamatan Transportasi (KNKT):** Indonesian accident investigation authority that is independent from State aviation authorities and other entities that could interfere with the conduct or objectivity of an investigation.

**Major Accident:** An accident with potentially increases the complexity of investigation with regards to media interest or political issue, number institution involves, or status of occupants involves as crew or passengers.

**Maximum Mass:** Maximum certificated take-off mass.

**Non-commercial Air Transport:** An aircraft operation, not for remuneration or hire, to serve private purposes to support the main objective of the organization, other than air transportation.
**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.

**Safety Recommendation:** A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including 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, 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 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.

*Note 1* – The difference between an accident and a serious incident lies only in the result.

*Note 2* – Examples of serious incidents can be found in Appendix 7.1 of this guideline.

**Serious Injury:** An injury which is sustained by a person in an accident and which:

a. requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
b. results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
c. involves lacerations which cause severe hemorrhage, nerve, muscle or tendon damage; or
d. involves injury to any internal organ; or
e. involves second or third-degree burns, or any burns affecting more than 5 percent of the body surface; or
f. involves verified exposure to infectious substances or injurious radiation.

**State of Design:** The State having jurisdiction over the organization responsible for the type design.

**State of Manufacture:** The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

**State of Occurrence:** The State in the territory of which an accident occurs.

**State of the Operator:** The State in which the operator principal place of business is located or, if there is no such place of business, the operator permanent residence.

**State of Registry:** The State on whose register the aircraft is entered.

**Unmanned Aircraft:** An aircraft operated without the possibility of direct human intervention from within or on the aircraft.
# LIST OF ACRONYMS

The following abbreviations are used throughout this guideline:

<table>
<thead>
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<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>ACCID</td>
<td>Accident</td>
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<tr>
<td>ADREP</td>
<td>Accident/incident data reporting system</td>
</tr>
<tr>
<td>ATC</td>
<td>Air Traffic Controller</td>
</tr>
<tr>
<td>ATS</td>
<td>Air Traffic Services</td>
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<tr>
<td>BASARNAS</td>
<td>Badan SAR Nasional (National Agency of Search and Rescue)</td>
</tr>
<tr>
<td>BMKG</td>
<td>Badan Meteorologi Klimatologi dan Geofisika (National Agency of Meteorology, Climatology and Geophysics)</td>
</tr>
<tr>
<td>CASR</td>
<td>Civil Aviation Safety Regulation</td>
</tr>
<tr>
<td>CCTV</td>
<td>Closed Circuit Television</td>
</tr>
<tr>
<td>Cir.</td>
<td>Circular</td>
</tr>
<tr>
<td>CVR</td>
<td>Cockpit Voice Recorder</td>
</tr>
<tr>
<td>DGCA</td>
<td>Directorate General of Civil Aviation</td>
</tr>
<tr>
<td>Doc.</td>
<td>Document</td>
</tr>
<tr>
<td>DSLR</td>
<td>Digital Single Lens Reflex</td>
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<tr>
<td>DVI</td>
<td>Disaster Victim Identification</td>
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<tr>
<td>ETA</td>
<td>Estimate Time Arrival</td>
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<td>ETD</td>
<td>Estimate Time Departure</td>
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<tr>
<td>FDR</td>
<td>Flight Data Recorder</td>
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<tr>
<td>GB</td>
<td>Gigabyte</td>
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<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<tr>
<td>IIC</td>
<td>Investigator-in-charge</td>
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<tr>
<td>INCID</td>
<td>Incident</td>
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<tr>
<td>ITB</td>
<td>Institute Technology of Bandung</td>
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<tr>
<td>KNKT</td>
<td>Komite Nasional Keselamatan Transportasi / National Transportation Safety Committee (NTSC)</td>
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<tr>
<td>LT</td>
<td>Local Time</td>
</tr>
<tr>
<td>mm</td>
<td>Millimeter</td>
</tr>
<tr>
<td>MoU</td>
<td>Memoranda of Understanding</td>
</tr>
<tr>
<td>NOK</td>
<td>Next of Kin</td>
</tr>
<tr>
<td>OJT</td>
<td>On-the-Job Training</td>
</tr>
<tr>
<td>PPE</td>
<td>Personal Protective Equipment</td>
</tr>
<tr>
<td>ROV</td>
<td>Remotely Operated Vehicle</td>
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KOMITE NASIONAL KESELAMATAN TRANSPORTASI
INVESTIGATION GUIDELINES

RPAS : Remotely Piloted Aircraft System
SARPs : Standards and Recommended Practices
SEM : Scanning Electron Microscope
ULB : Under Water Locator Beacon
UTC : Universal Time Coordinate
UV : Ultraviolet
INTRODUCTION

1.1 General

Komite Nasional Keselamatan Transportasi (KNKT) is accident investigation authority of Indonesia assigned by the President of Republic Indonesia as stipulated in Presidential Decree number 2 of 2012. KNKT is an agency in Indonesia responsible to fulfill the requirement of Annex 13 “Aircraft Accident and Incident Investigation” of the Chicago Convention on International Civil Aviation and its amendments.

This Investigation Guidelines contains guideline for the investigation of civil aircraft accidents and serious incidents that occur within the territory of the Republic of Indonesia or when KNKT is being delegated to conduct investigation involving Indonesia registered, operated, designed or manufactured aircraft.

Relevant chapters of this guidelines (when applicable) also contains guidelines for KNKT or other Indonesia organization participation in investigations of accidents and serious incidents that occur outside of Indonesia territory, but involving Indonesia interests, including Indonesia operated, registered, designed, or manufactured aircraft.

The Investigation Guidelines contained herein are in conformity with international standards and best practices. This guideline was developed using the SARPs and guidance material promulgated by ICAO, as well as materials and best practices. The Investigation Guidelines are referring to the following ICAO documents as follows:

a. Annex 13 – Aircraft Accident and Incident Investigation;

b. Manual on Regional Accident and Incident Investigation Organization (Doc. 9946);

c. Manual of Aircraft Accident and Incident Investigation (Doc. 9756);

d. Manual on Accident and Incident Investigation Policies and Procedures (Doc. 9962);

e. Policy on Assistance to Aircraft Accident Victims and Their Families (Doc. 9998);

f. Manual on Assistance to Aircraft Accident Victims and their Families (Doc. 9973);

g. Manual of Civil Aviation Medicine (Doc. 8984);

h. Human Factors Training Manual (Doc. 9683);

i. Accident Incident Reporting Manual (ADREP Manual) – (Doc. 9156);

j. Safety Management Manual (Doc. 9859);

k. Hazards at Aircraft Accident Sites (Cir. 315);

l. Guidance on Assistance to Aircraft Accident Victims and Their Families (Cir. 285);

m. Human Factors Digest No. 7 – Investigation of Human Factors in Accidents and Incidents (Cir. 240); and

n. Training Guidelines for Aircraft Accident Investigators (Cir. 298).
The Investigation Guidelines also referring to the Indonesia Rules and Regulation as follows:

a. *Undang – undang nomor: 1 Tahun 2009 tentang Penerbangan* (Indonesia Law Number 1 of 2009);

b. *Peraturan Pemerintah nomor: 62 Tahun 2013 tentang Investigasi Kecelakaan Transportasi* (Governement Decree Number: 62 of 2013: Transport Safety Investigation);

c. *Peraturan Presiden nomor: 2 Tahun 2012 tentang Komite Nasional Keselamatan Transportasi* (Presidential Decree Number: 2 of 2012: Komite Nasional Keselamatan Transportasi, KNKT/NTSC);

d. Civil Aviation Safety Regulation (CASR) Part 830 – Accidents and Serious Incidents Investigation Procedures;

e. *Peraturan Menteri Perhubungan Nomor: 48 Tahun 2012 tentang Organisasi dan Tata Kerja Sekretariat KNKT* (Minister of Transportation Decree Number: 48 of 2012: Organization and Procedures of KNKT Secretariat);

f. Other relevant Indonesia rules and regulation.

The purposes of this guideline are:

a. To establish a standardized basis and the fundamental principles governing the investigation conducts by KNKT.

b. To ensure that KNKT aircraft accident investigations are conducted in accordance with the provisions of ICAO Annex 13 and Indonesian laws and regulations.

c. To implement uniform application of the Standards and Recommended Practices (SARPs) contained in Annex 13 - Aircraft Accident and Incident Investigation to the Convention on International Civil Aviation (Chicago, 1944) and the guidance contained in the International Civil Aviation Organization (ICAO) Manual of Aircraft Accident and Incident Investigation (Doc. 9756), as well as other relevant ICAO documents.

d. To institute and conduct the investigation which are normally include:
   1) The gathering, recording and analysis of all relevant information on that accident;
   2) The protection of certain investigation records;
   3) If appropriate, the issuance of safety recommendations;
   4) If possible, the determination of the contributing factors; and
   5) The completion of the Final Report.

The provisions of this Investigation Guidelines are binding on the actions of KNKT, including its investigator and management personnel. The provisions of this Investigation Guidelines are also binding on any other Indonesia government agency, operator, personnel, and organization from outside of Indonesia participate in KNKT investigation.

Since investigations vary in complexity, a document of this kind cannot cover all eventualities. The more common techniques and processes however, have been included. Although this Investigation Guidelines will be of use to experience and inexperienced investigators alike, it is not a substitute for investigation training and experience, as well as common sense.
1.2 Background Legislation

The Indonesia Law Number 1 of 2009

Pasal 357

(1) Pemerintah melakukan investigasi dan penyelidikan lanjutan mengenai penyebab setiap Kecelakaan dan kejadian serius pesawat udara sipil yang terjadi di wilayah Republik Indonesia.

(2) Pelaksanaan investigasi dan penyelidikan lanjutan sebagaimana dimaksud pada ayat (1) dilakukan oleh komite nasional yang dibentuk dan bertanggung jawab kepada Presiden.

Pasal 359

(1) Hasil investigasi tidak dapat digunakan sebagai alat bukti dalam proses peradilan

(2) Hasil investigasi sebagaimana dimaksud dalam ayat (1) yang bukan digolongkan sebagai informasi rahasia, dapat diumumkan kepada masyarakat.

Penjelasan pasal 359

Yang dimaksud dengan “informasi rahasia” (non-disclosure of records), antara lain:

a. Pernyataan dari orang-orang yang diperoleh dalam proses investigasi;

b. Rekaman atau transkrip komunikasi antara orang-orang yang terlibat di dalam pengoperasian pesawat udara;

c. Informasi mengenai kesehatan atau informasi pribadi dari orang-orang terlibat dalam kecelakaan atau kejadian;

d. Rekaman suara di ruang kemudi (cockpit voice recorder) catatan kata demi kata (transkrip) dari rekaman tersebut;

e. Rekaman dan transkrip dari pembicaraan petugas pelayanan lalu lintas penerbangan (air traffic services); dan

Article 357.

(1) Indonesia government shall institute an investigation to establish the cause of any civil aircraft accident and serious incident occurs in the territory of the Republic of Indonesia.

(2) The investigation and follow-on investigation as stated in (1) conducts by a national committee that constitute and responsible to the President.

Article 359

(1) Information of investigation shall not be used as evidence during the court of law.

(2) Information of investigation as stated in (1) which is not classified as non-disclosure records, can be disclose to public.

Elucidation of the Article 359

Information that classified as non-disclosure of records are:

a. All statements taken from persons by the investigation authorities in the course of their investigation;

b. All communications between persons having been involved in the operation of the aircraft;

c. Medical or private information regarding persons involved in the accident or incident

d. Cockpit voice recordings and transcripts from such recordings;

e. Recordings and transcriptions of recordings from air traffic control units;

f. Opinions expressed in the analysis of information, including flight recorder information
f. Pendapat yang disampaikan dalam analisis informasi termasuk rekaman informasi penerbangan (flight data recorder).

Pasal 361
(1) Dalam hal pesawat udara asing mengalami kecelakaan di wilayah Republik Indonesia, wakil resmi dari Negara (accredited representative) tempat pesawat udara didaftarkan, negara tempat badan usaha angkutan udara, negara tempat perancang pesawat udara, dan Negara tempat pembuat pesawat udara dapat diikutsertakan dalam investigasi sepanjang tidak bertentangan dengan kepentingan nasional.

(2) Dalam hal pesawat udara yang terdaftar di Indonesia mengalami kecelakaan di luar wilayah Republik Indonesia dan negara tempat terjadinya kecelakaan tidak melakukan investigasi, Pemerintah Republik Indonesia wajib melakukan investigasi.

Pasal 362
(1) Orang perseorangan wajib memberikan keterangan atau bantuan jasa keahlian untuk kelancaran investigasi yang dibutuhkan oleh komite nasional.

Pasal 363
(1) Pejabat yang berwenang di lokasi kecelakaan pesawat udara wajib melakukan tindakan pengamanan terhadap pesawat udara yang mengalami kecelakaan di luar daerah lingkungan kerja bandar udara untuk:
   a. Melindungi personel pesawat udara dan penumpangnya; dan
   b. Mencegah terjadinya tindakan yang dapat mengubah letak pesawat udara, merusak

Article 361
(1) In the case of foreign civil aircraft involve to an accident within the territory of republic of Indonesia, the representatives of a state (accredited representative) of the state of registry, state of operator, state of design, and state of manufacture may participate to the investigation on condition that not conflicted with the national interest.

Article 362
(1) Anyone shall provide information or expertise assistance to assist the investigation as required by the national committee.

Article 363
(1) Authority of the location of the accident site shall provide security protection to the aircraft involve in an accident outside the perimeter of an airport to:
   a. Protect the crew and passenger, and
   b. Protect action that may change the location of aircraft, damage and or remove goods from the aircraft involve in an accident.
Government Decree Number 62 of 2013

Pasal 1: Definisi
Investigasi Kecelakaan Transportasi adalah kegiatan penelitian terhadap penyebab kecelakaan transportasi dengan cara pengumpulan, pengolahan, analisis, dan penyajian data secara sistematis dan objektif agar tidak terjadi kecelakaan transportasi dengan penyebab yang sama.

Article 1
Definition
1. Transportation Accident Investigation is investigation activities to determine the cause of a transportation accident includes collecting, examining, analysis and presenting systematic data with objective to prevent transport accident with similar causes.

Pasal 2
Investigasi Kecelakaan Transportasi diselenggarakan berdasarkan prinsip:

a. Tidak untuk mencari kesalahan (no blame);

b. Tidak untuk memberikan sanksi/hukuman (no judicial); dan

c. Tidak untuk mencari siapa yang bertanggung jawab menanggung kerugian (no liability).

Article 2
Transportation Safety Investigation conducts in the basic principles of:

a. Not to apportion blame (no blame)

b. Not to apportion sanction/punishment (no judicial); and

c. Not to appoint responsibility to person or organization for liability (no liability)

Pasal 3
Investigasi Kecelakaan Transportasi diselenggarakan untuk mengungkap suatu peristiwa Kecelakaan transportasi secara professional dan independen guna memperoleh data dan fakta penyebab terjadinya Kecelakaan transportasi.

Article 3
Transport Safety Investigation conducts to reveal a transportation accident professionally and independently to collect data and the cause of the transportation accident.
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Pasal 4
Pelaksanaan Investigasi Kecelakaan Transportasi sebagaimana dimaksud dalam Pasal 3 dilakukan oleh Komite Nasional Keselamatan Transportasi.

Article 4
The Transportation Safety Investigation as stated in the article 3 is conducted by Komite Nasional Keselamatan Transportasi.

Pasal 6
Investigasi Kecelakaan Transportasi dilakukan terhadap:
   a. Kecelakaan Kereta Api;
   b. Kecelakaan Kapal;
   c. Kecelakaan Pesawat Udara dan;
   d. Kecelakaan tertentu kendaraan bermotor umum.

Article 6
Transportation Safety Investigation is conducted to:
   a. Railway accident
   b. Marine accident
   c. Aviation accident
   d. Special occurrence of road accident

Pasal 11
(1) Setiap investigasi Kecelakaan Kereta Api, Kapal, Pesawat Udara, dan Kecelakaan tertentu terhadap kendaraan bermotor umum sebagaimana dimaksud dalam Pasal 6 dilakukan oleh Komite Nasional Keselamatan Transportasi.

Article 11
(1) All investigation of railway, marine, aircraft and special occurrence of road accident as stated in the article 6 is conducted by Komite Nasional Keselamatan Transportasi.

Pasal 16
(1) Kecelakaan Pesawat Udara sebagaimana dimaksud dalam Pasal 11 wajib dilakukan Investigasi Kecelakaan Transportasi oleh Komite Nasional Keselamatan Transportasi yaitu kecelakaan yang mengakibatkan:
   a. Korban jiwa/dan/atau luka serius;
   b. Kerusakan berat pada peralatan/fasilitas yang digunakan.

Article 16
(1) Investigation shall be performed to aircraft accident as stated in the article 11 by Komite Nasional Keselamatan Transportasi when resulted to:
   a. Fatalities/and/or serious injury to person;
   b. Major damage to facilities being used.

   (2) Investigasi Kecelakaan Transportasi sebagaimana dimaksud pada ayat (1) wajib dilakukan pula terhadap Pesawat Udara yang mengalami Kejadian Serius (serious incident).

   (2) Transportation Safety Investigation as stated in the article (1) shall also be conducted to an aircraft involved in serious incident.
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Pasal 17
(1) Pesawat Udara asing yang mengalami kecelakaan di wilayah Negara Kesatuan Republik Indonesia, wajib dilakukan Investigasi Kecelakaan Transportasi oleh Komite Nasional Keselamatan Transportasi.

(2) Investigasi Kecelakaan Transportasi sebagaimana dimaksud pada ayat (1) dapat mengikut sertakan wakil resmi dari negara (accredited representative) tempat Pesawat Udara didaftarkan, Negara tempat badan usaha angkutan udara, Negara tempat perancang Pesawat Udara, dan Negara tempat pembuat Pesawat Udara, sepanjang tidak bertentangan dengan kepentingan nasional dan ketentuan peraturan perundang undangan.

Pasal 18
Dalam hal Pesawat Udara yang didaftarkan di Indonesia mengalami kecelakaan di luar wilayah Negara Kesatuan Republik Indonesia, Komite Nasional Keselamatan Transportasi dapat mengirimkan wakil resmi dari Negara (accredited representative) untuk berpartisipasi dalam investigasi tersebut.

Pasal 23
Komite Nasional Keselamatan Transportasi wajib segera meneruskan pemberitahuan kecelakaan Pesawat Udara atau Kejadian Serius sebagaimana dimaksud dalam Pasal 22 kepada:

a. Negara tempat pesawat terdaftar;
b. Negara operator;
c. Negara perancang pesawat;
d. Negara industri pesawat atau komponen; dan

International Civil Aviation

Article 17
(1) Foreign registered aircraft involves in an accident within the territory of Republic of Indonesia, shall be investigated by Komite Nasional Keselamatan Transportasi.

(2) Transportation Safety Investigation as stated in the (1) may participating official representatives from other states (accredited representative) of state of registration, state of operator, state of design and state of manufacture as long as not conflict with national interest and other regulation.

Article 18
In the case of Indonesia registered aircraft involves in an accident outside the territory of Republic of Indonesia, Komite Nasional Keselamatan Transportasi may send official representative of the state (accredited representative) to participate in the investigation.

Article 23
The National Transportation Safety Committee shall forward of an accident or serious incident as stated in the article 22 to:

a. The State of Registry;
b. The State of the Operator;
c. The State of Design;
d. The State of Manufacture Aircraft or Component; and

e. The International Civil Aviation Organization, when the aircraft weight is over 2,250 kg.
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Organization apabila berat pesawat melebihi 2.250 Kg (dua ribu dua ratus lima puluh kilogram).

Pasal 24

(1) Pemberitahuan Kecelakaan Transportasi sebagaimana dimaksud dalam Pasal 20, Pasal 21, dan Pasal 22 disampaikan segera dengan cara lisan atau tertulis.

(2) Pemberitahuan Kecelakaan Transportasi paling sedikit memuat:
   a. Lokasi kejadian;
   b. Waktu kejadian;
   c. Akibat kecelakaan;
   d. Jumlah korban jiwa dan/atau luka-luka; dan
   e. Prasarana dan sarana transportasi yang mengalami kecelakaan.

Article 24

(1) The notification as stated in the article 20, 21 and article 22 shall be submitted immediately in verbal or written.

(2) The Notification at least include:
   a. Location of occurrence
   b. Time of occurrence
   c. The consequences of occurrence
   d. Number of fatalities or injury
   e. Damage to the vehicle and transportation infrastructure which involve in the occurrence.

Pasal 26

(1) Setelah menerima pemberitahuan terjadinya Kecelakaan Kereta Api, Kapal, dan Pesawat Udara, sebagaimana dimaksud dalam Pasal 20, Pasal 21, dan Pasal 22, Komite Nasional Keselamatan Transportasi melakukan persiapan investigasi.

(2) Persiapan investigasi sebagaimana dimaksud pada ayat (1) meliputi:
   a. Membentuk tim investigasi;
   b. Mempersiapkan peralatan investigasi; dan
   c. Melakukan koordinasi dengan instansi terkait atau operator sarana transportasi yang mengalami kecelakaan.

(3) Tim investigasi sebagaimana dimaksud pada ayat (2) huruf a ditetapkan oleh Ketua Komite Nasional Keselamatan Transportasi.

(2) The preparation of investigation as stated in the (1) includes:
   a. Arrange the investigation team
   b. Prepare the investigation tool and equipment
   c. Coordination with the institution or operator which involve in the occurrence.

(3) The investigation team as stated in the (2) a are determined by chairman of Komite Nasional Keselamatan Transportasi.
Pasal 27
Setelah persiapan investigasi sebagaimana dimaksud dalam Pasal 26, Komite Nasional Keselamatan Transportasi melakukan investigasi awal di lokasi Kecelakaan Transportasi.

Article 27
After the preparation of an investigation as stated in the article 26, the Komite Nasional Keselamatan Transportasi conducts the initial investigation on the accident site.

Pasal 28
Investigasi awal sebagaimana dimaksud dalam Pasal 27 paling sedikit dilakukan dengan:

a. Mengambil gambar atau foto;
b. Mengumpulkan data dan barang bukti Kecelakaan Transportasi;
c. Mendata korban; dan/atau
d. Mengumpulkan informasi dan keterangan di lokasi Kecelakaan Transportasi dari pihak yang mengetahui kejadian kecelakaan.

Article 28
The initial investigation as stated in the article 27, contain minimum activities of:

a. Collecting the data and evidence from the occurrence.
b. Take picture or photo
c. Record the data of victims
d. Collecting the information on the accident site from the eyewitness.

Pasal 29
Dalam rangka pemenuhan data, keterangan, informasi dan pengumpulan barang bukti yang lebih lengkap dapat dilakukan investigasi lanjutan.

Article 29
In order to complete the data, information and evidence collection, further investigation can be conducted.

Pasal 30
Investigasi lanjutan sebagaimana dimaksud dalam Pasal 29 paling sedikit dilakukan dengan:

a. Meminta keterangan dari pihak yang terkait dengan kecelakaan;
b. Melakukan uji laboratorium;
c. Mengumpulkan data tambahan untuk melengkapi data investigasi awal; dan/atau
d. Membuat analisis dari hasil keterangan, pengumpulan barang bukti Kecelakaan Transportasi, dan data yang telah diperoleh.

Article 30
Further investigation as stated in the article 29, include minimum activities of:

a. Enquiring the information from the parties related to the accident;
b. Conducting the laboratory examination;
c. Collecting the additional data to complete the initial investigation;
d. Conducting the analysis from the information, evidence and the data that have been obtained.
Pasal 31
(1) Pelaksanaan Investigasi Kecelakaan Transportasi dilakukan oleh Investigator.
(2) Investigator sebagaimana dimaksud pada ayat (1) wajib memiliki kualifikasi dan kompetensi kecakapan tertentu yang dibuktikan dengan sertifikat kecakapan.
(3) Sertifikat kecakapan sebagaimana dimaksud pada ayat (2) diperoleh melalui pendidikan dan pelatihan.

Article 31
(1) The Transport Accident Investigation conducted by the Investigator.
(2) The investigator as stated in (1) shall have the required qualifications and competency and proved by a certificate of competency.
(3) The certificate of competency as stated in (2) is obtained by training.

Pasal 33
Setiap orang dilarang merusak atau menghilangkan barang bukti Kecelakaan Transportasi, mengubah letak sarana transportasi, memindahkan barang bukti, dan mengambil bagian dari sarana transportasi atau barang lainnya yang tersisa akibat Kecelakaan Transportasi kecuali untuk kepentingan penyelidikan dan/atau penyidikan.

Article 33
No one shall damage or lost an evidence of aircraft accident, remove of evidence and taking the custody of property from a vehicle or the goods from an accident unless for purpose of investigation.

Pasal 34
(1) Pemindahan barang bukti sebagaimana dimaksud dalam Pasal 33 dapat dilaksanakan oleh pejabat berwenang setelah berkoordinasi dengan Komite Nasional Keselamatan Transportasi kecuali mengganggu kepentingan umum.
(2) Pejabat yang berwenang sebagaimana dimaksud pada ayat (1) terdiri atas:
   a. Pejabat yang berwenang di bidang transportasi perkeretaapian;
   b. Pejabat yang berwenang di bidang transportasi laut;
   c. Pejabat yang berwenang di bidang transportasi udara; atau lalu
   d. Pejabat yang berwenang di bidang transportasi lintas dan angkutan jalan.

Article 34
(1) Removing of evidence as stated in article 33 can be performed by the authority after coordination with the Komite Nasional Keselamatan Transportasi unless disturbing public interest.
(2) The authority as stated (1) are:
   a. The authority of railway transportation
   b. The authority of marine transportation
   c. The authority of aviation transportation
   d. The authority of road transportation
Civil Aviation Safety Regulation Part 830: Accident and Serious Incident Investigation Procedures

830.17: Authority of Investigator

Investigator is authorized:

a. to have access to enter any transportation facilities and infrastructure where an accident or serious incident has occurred; or wherever the wreckage from any such accident or serious incident is located in order to conduct investigation activities.

b. to interview witness, any person involved or any person considered having information of accident or serious incident.

c. to take custody, occupy, remove, examine or test any wreckage, documents, component, parts or equipment involved or related to the accident or serious incident for such period as maybe necessary for the purpose of an investigation.
This chapter provides information on the initial activities that are undertaken prior to an investigation taking place. Occurrences of a high safety concern are normally investigated. The procedure is initiated after receiving an occurrence report of an aviation occurrence.

The initial investigation activities include the decision to investigate and the establishment of an investigation team.

2.1 Assessing Occurrence Report

Based to the legislation, KNKT is responsible to conduct investigation for accident and serious incident of civil aircraft within the territory of the Republic of Indonesia or when KNKT is being delegated to conduct investigation involving Indonesia registered, operated, designed or manufactured aircraft.

It is the policy of the KNKT to institute an investigation into the circumstances of all aircraft accidents and serious incidents falling under the authority and responsibilities entrusted to the KNKT by the government. Such investigations should be conducted in accordance with the provisions of ICAO Annex 13 and Indonesia laws and regulations. In the case of investigation of an unmanned aircraft system, KNKT will take the consideration to aircraft with a design and/or operational approval.

The definition of an accident and serious incident are described in the chapter Glossary of this guideline and the sample of serious incident is available on the Appendix 7.1 of this guideline which refer to the ICAO Annex 13.

However, KNKT will also investigate incidents which potentially lead to more serious consequences. The decision to investigate shall be made by the Chairman or the Head of the Aviation Accident Investigation Sub Committee when under his opinion an investigation is necessary to be conducted. To be able to determine whether or not investigation is required, sufficient information shall be collected, includes but not limited to type of occurrence, number of casualty and type of injury, damage to aircraft and location of occurrence.

The procedure of handling occurrence report will be conducted as the following process:

a. As soon as the occurrence report is received, the Duty Officer will review and verify the occurrence. If the occurrence is confirmed, the Duty Officer shall seek further detail information available from other related parties as practicable (aircraft operator, airport, navigation provider, BASARNAS, etc.)

b. After the information has been confirmed, the Duty Officer shall forward to the Chairman and/or Head of Aviation Accident Sub Committee the detail occurrence information.

c. The Chairman and/or Head of Aviation Accident Sub Committee subsequently shall determine the occurrence classification. If the occurrence is determined as incident, the Duty Officer will forward the case to the DGCA for further action.
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d. The Chairman and/or Head of Aviation Accident Sub Committee shall determine the classification of occurrence based on definition of accident or serious incident, or if the occurrence potentially causing fatality or major damage to aircraft. The list of samples of serious incident in the Appendix 7.1 can be used as reference.

e. If the occurrence is determined as accident or serious incident, the Chairman and/or then the Head of Aviation Accident Investigation Sub Committee, will assign the Investigator in Charge and team members. The Duty Officer or nominated KNKT staff member shall contact appropriate investigation team members at the earliest possible time. The investigation team members must prepare for the earliest possible departure to the accident site, while ensuring that they have received adequate briefing and have investigation and protective equipment suitable for the location and accident site.

Before commencing an investigation, the Chairman or the Head of the Aviation Accident Investigation Sub Committee should ensure there is sufficient information available to make an assessment. If report does not contain all the information necessary, then the extra details required can be sought from relevant sources by any means available in timely manner.

The more detail information will allow the Chairman or the Head of the Aviation Investigation Sub-committee to make a more informed decision about whether to investigate at all and, if so, what resources are required.

Where an investigation has not been commenced KNKT has therefore, not taken control of the wreckage. There is no requirement to release the wreckage, where relevant, to the owner or owner agent. If the owner or owner agent has been contacted they should be reminded that KNKT is not responsible for the wreckage.

Where a decision has been made not to investigate, the reporter (who gave report of the occurrence) and other relevant parties may need to be advised. KNKT may collect further information about the incident for the purpose of populating its safety information database.

Where a decision has been made to investigate, the relevant parties are advised and will be contacted by an investigator to discuss any KNKT requirements in relation to the preservation of evidence.

2.2 Deciding to Conduct an On-Site Investigation

It is KNKT policy to collect factual data as much as possible, therefore to conduct on-site investigation is important. However, the safety of KNKT investigator should become consideration to decide on-site investigation.

The decision to conduct on-site investigation may involve a pre-deployment risk assessment as part of the deployment process.

Any decision to go onsite is made following consultation between the Investigator in Charge (IIC) and the Head of the Aviation Accident Investigation Sub Committee. That consultation should include a risk assessment of the on-site hazards that may be present, and should include consideration of the following factors:

a. Location and accessibility of the site;

b. The need to access evidence onsite;

c. Site terrain and any limitations it may impose on the on-site activity;
d. Environmental considerations and safety implications;
e. Logistics that will be required;
f. Contingency plans.

To all KNKT investigators who are deployed to accident site will be provided with equipment required. Common use equipment includes communication, navigation, safety, audio visual, operational and protective equipment. Investigator may request special equipment or tool other than common use.

Detail of this equipment control is described in the Tools and Equipment Management Guidelines. Required tools for the safety of investigators are described in the Safety at Accident Site Guidelines.

Whenever on-site investigation is not conducted, factual data collection shall be performed in the location where most of the data are available, such as the departure airport.

Investigator may also request assistance to personnel of other institution who will go to the accident site such as Search and rescue Agency (BASARNAS) or Indonesia police or military personnel. The assistant may include the collection of photographic document, on board recorder, flight documents, etc. Special briefing should be provided to the personnel. The briefing may include the area of photographic documents required, the on-board recorder picture and the shape and color change after an impact or fire, type of flight documents required, etc.

2.3 Selection of Investigation Team

When it is decided that an investigation should be conducted, one or more investigators are assigned to conduct the investigation.

Prior to assign an investigator, the possibility to the conflict of interest shall be considered. It is the KNKT policy not to assign investigator who have possibility of conflict of interest to the parties involved in the accident.

Conflict of interest is a situation in which a person is in a position to derive personal, community or other party benefit from actions or decisions made in their official capacity. The conflict of interest may cause by:

1. Affiliation which is the relation of investigator to other party that may in the form of friendship, family, or other relation as result of gratification or gift;
2. Former or future employment.

The conflict of interest to investigator may include:

1. Receive gratification and/or gift for the action or decision that has been or will be made;
2. Use KNKT facility or position for personal or community benefit;
3. Disclose restricted information to unauthorized person;
4. Provide special access to a party which is not accordance to the KNKT policy and procedure;
5. Deviate from KNKT policy and procedure during conduct their duty influenced by involve party;
6. Authority abuse;
7. Act against law;

To prevent the conflict of interest to investigator and the seconded investigator, the selection of investigation team member

1. The seconded investigator is not the employee of the organization involve in the accident.
2. The investigator shall not be employee of the organization involve in the accident for minimum of two years,
3. The seconded investigator or the investigator shall not have family affiliation to the person involve in the accident,

Any investigator knows of exist or perceive of conflict of interest shall report to IIC, the Head of Aviation Investigation Sub Committee or the Chairman.

For any given occurrence, the selection of IIC and other investigation personnel of KNKT are determined by the circumstances of the occurrence including:

a. Its complexity of investigation activities;
b. The anticipated level of public interest;
c. The existing investigator workload;
d. The anticipated demand on KNKT resources;
e. Area of expertise;
f. Number of institution involve either from Indonesia or foreign institution.

The IIC is responsible to the Head of the Aviation Accident Investigation Sub Committee for the overall coordination and conduct of the investigation, and the compilation of the Final Report.

It is KNKT policy for the KNKT investigator to be deployed and to reach the accident site or the nearest airport as soon as possible or within 24 hours. Subject to the circumstances, it may be appropriate for a KNKT investigator or assignment to seconded investigator who has been trained by KNKT to be deployed to the accident site ahead of an investigation team to:

a. Make an initial assessment of the situation;
b. Collect initial factual data;
c. Establish lines of communication on behalf of the KNKT with those who are managing the accident site or who are responding to the accident.
3 PARTICIPATION OF INVESTIGATION

3.1 Participation in KNKT Investigation

The State of Registry, the State of the Operator, the State of Design, the State of Manufacture and State that on request by KNKT to provide information, facilities or technical experts may appoint Accredited Representative. In addition, other State which has a special interest in an accident by virtue of fatalities or serious injuries to its citizens may appoint an expert.

Other States and/or organization also may participate as observer in the KNKT investigation or as seconded investigator if requested by KNKT.

The representative of other State participating in the KNKT investigation shall not require travel document other than passport and the KNKT will assist the entry permit.

Any person other than Adviser and Expert, approved by KNKT to participate and/or have access to investigation data shall sign agreement letter/affidavit covers their entitlement and obligations (see Appendix 7.4).

3.1.1 Accredited Representative and Adviser

The State of Registry, the State of the Operator, the State of Design, the State of Manufacture and State that on request by KNKT to provide information, facilities or technical experts shall be entitled to appoint Accredited Representative.

Annex 13 to the Convention on International Civil Aviation specifies the conditions under which these States are entitled to appoint Accredited Representative. As a starting point, investigations in which Accredited Representative participate are conducted in a spirit of full:

a. Co-operation;
b. Participation;
c. Availability of information;
d. Mutual trust;
e. Consultation.

The Accredited Representative shall also be entitled to appoint one or more advisers from any relevant sources to the case to assist the accredited representative in the investigation which coming from the following organization but not limited to:

a. The aircraft operator;
b. Civil aviation authority;
c. The organizations responsible for the type design;
d. The organizations responsible for the final assembly of the aircraft;
e. Other organization or personnel have special facility or expertise requires to support the investigation.

Nothing in the above provisions is intended to preclude a State participating in an investigation from calling upon the best technical experts from any source and appointing such technical experts as Advisers to its Accredited Representative.
The Advisers shall be permitted, under the Accredited Representative supervision, to participate in the investigation to the extent necessary in order to make the participation by the Accredited Representative effective.

The Accredited Representative may request to protect the evidence and to maintain safe custody of the aircraft and its contents for such a period as may be necessary for the purposes of an investigation.

The Accredited Representatives and their Advisers which travel to Indonesia to participate in the KNKT investigation shall sign agreement letter/affidavit covers their entitlement and obligations (see Appendix 7.4).

The participation of the Accredited Representative and their Adviser in the KNKT investigation is under control of the IIC, in particular to:

a. visit the scene of the accident;

b. examine the wreckage;

c. obtain witness information and suggest areas of questioning;

d. have full access to all relevant evidence as soon as possible;

e. receive copies of all pertinent documents;

f. participate in read-outs of recorded media;

g. participate in off-scene investigative activities such as component examinations, technical briefings, tests and simulations;

h. participate in investigation progress meetings including deliberations related to analysis, findings, causes, contributing factors and safety recommendations; and

i. make submissions in respect of the various elements of the investigation.

The Accredited Representative and Adviser have the obligations:

a. shall provide the State conducting the investigation with all relevant information available to them; and

b. Shall not divulge information on the progress and the findings of the investigation without the express consent of the KNKT.

The Investigator in Charge (IIC) may consider placing limitations on the Accredited Representative and their Adviser participation and access to information if the objectives of investigation by the State that they are representing contrary to the ICAO Annex 13.

3.1.2 Expert

The State which has a special interest in an accident by virtue of fatalities or serious injuries to its citizens shall be entitled to appoint an Expert who shall be entitled to:

a. Visit the scene of the accident;

b. Have access to relevant factual information which is approved for public release by the State conducting the investigation, and information on the progress of the investigation; and


In addition, the Expert also may assist in the identification of victims and in meetings with survivors.
3.1.3 Seconded Investigator

A technical expert, based on his expertise requires for KNKT investigation may participate in the KNKT investigation as Seconded Investigator by request of the IIC and after being approved by the Chairman or the Head of the Aviation Accident Investigation Sub Committee.

The IIC shall consider the possibility of conflict of interest before engaging the Seconded Investigator in the KNKT investigation. The following shall be taken into consideration when determining participation of seconded investigator:

a. Is there possibility of conflict of interest issues and can they be managed?
b. Can the person meet the commitments expected of them?

Prior to perform his duty, the Seconded Investigator shall sign agreement letter/affidavit covers their entitlement and obligations (see Appendix 7.4). If Seconded Investigator does not comply with the requirements that they agreed to or appear to have conflict of interest, the Chairman, Head of Aviation Accident Investigation Sub Committee or the IIC may remove the participation in the investigation.

3.1.4 Observer

Observer is a person who is present approved by the KNKT to watch, for their own interests, or those of their organization, rather than for the purpose of contributing to the KNKT investigation. They are present to gather information for their own purposes, such as investigation training purposes. An example may include if the person is present at an engine tear down for their own purposes, such as an insurer representative.

People seeking to observe the investigation may include:

a. Emergency service personnel;
b. Research workers in fields allied to transport safety;
c. The next-of-kin of those involved;
d. Accident investigators from other State or Indonesia arm forces;
e. Regulatory authorities;
f. Manufactures insurers.

When the Chairman, the Head of the Aviation Accident Investigation Sub Committee or the IIC considers it appropriate, the Observers may witness a KNKT investigation or aspects of it. The Head of the Aviation Accident Investigation Sub Committee or the IIC determine who is acceptable and the precise stages of the proceedings the observers(s) may view.

The Observer during KNKT investigation generally is not authorized to have access on non-disclosure information unless there are exceptional circumstances in which case the Chairman or the Head of the Aviation Accident Investigation Sub Committee for the investigation must be consulted.

The Observers are not authorized to interview witnesses and survivors and/or to seek information.
Examples of what an Observer may be permitted to do, depending on their interest in the investigation, are as follows:

a. Attend the accident site after the IIC has assumed control of the site, or after the IIC has obtained permission from the occupier of the site for the observer to attend;

b. View evidence pertaining to:
   1) The aircraft operating environment at the time of the occurrence;
   2) The operating crew involved;
   3) Laboratory tests.

The IIC may grant the Observer access to the accident site. However, permission may also need to be sought from the occupier of the property surrounding the accident site is in.

The safety issues need to be considered before granting access to the accident site, as described in the Safety at the Accident Site Guidelines.

If the Observer does not comply with the pre-agreed requirements for them to be present during any aspect of an investigation then they may be asked to leave. A decision may then be made between the IIC, the Chairman or the Head of the Aviation Accident Investigation Sub Committee, if necessary, about whether the person should continue to be an observer in other aspects of the investigation.

### 3.2 Participating of KNKT in other State Investigation

#### 3.2.1 General

In the case of the Indonesian registered, operated, designed and/or manufactured aircraft has experienced an accident or serious incident occur in the territory of other State, the KNKT may appoint an Accredited Representative to participate in the investigation conducted by other State.

When a person or organization in Indonesia which on request of the State conducting investigation to provide information, facilities or technical experts, the KNKT shall be entitled to appoint an Accredited Representative to participate in the investigation.

The KNKT may appoint one or more Advisers, proposed by the operators or may calling upon the best technical experts from any source and appointing such experts as advisers to assist the Accredited Representative.

If Indonesia is the nearest the scene of an accidents and serious incidents in international waters, KNKT shall provide assistance to the best ability and shall respond to requests by the State conducting the investigation. In this case, the KNKT will seek the coordination with other Indonesia government agencies and/or relevant organizations, such as Indonesia search and rescue agency, Indonesia Police, Ministry of Foreign Affair etc.
### 3.2.2 Assigning an Accredited Representatives

The appointment of an Accredited Representative to participate in other State investigation shall be approved by the Chairman.

The following matters may be considered when determining whether it would be appropriate or desirable for KNKT to appoint Accredited Representative to participate in other State investigation:

a. Meet the criteria for commencing an investigation under the Indonesia Legislation and/or ICAO Annex 13.

b. The accident or serious incident involving Indonesia registered, operated and/or manufactured aircraft.

c. If a person or organization in Indonesia which on request of State conducting investigation to provide information, facilities or technical experts.

d. Indonesia has been requested to assist or participate in accordance with the intent of Memoranda of Understanding (MoU).

e. KNKT participation contributes to transport safety in Indonesia.

After a decision has been made to participate in an investigation, the Accredited Representative shall obtain information relevant to the occurrence. The persons or organizations from whom the information is collected are to be made aware of how it will be disclosed and the use it will be put to.

Depending on the circumstances, the Accredited Representative may be assisted by one or more advisers. The request for adviser participation must be approved by the Head of the Aviation Accident Investigation Sub Committee, in consultation with the Chairman. The appropriate person to participate or assist in another State or organization investigation should have relevant expertise or represent relevant organization.

The Adviser may be personnel from the Directorate General of Civil Aviation, the operator, organization responsible for aircraft design or manufacturer, technical expert or Disaster Victim Identification (DVI) if Indonesia citizens suffered fatalities. If the Accredited Representative and adviser(s) are to travel to the state of occurrence, the name and contact details of those persons, and their travel details are to be provided to the state conducting investigation. The decision for Accredited Representative and Adviser to undertake international travel should be made by the Chairman.

Except where other State authority specifically requests the participation of KNKT personnel that would not otherwise be covered by an international agreement or instrument, or in accordance with the agreed terms of a MoU, the KNKT will be responsible for the cost of its own participation unless otherwise the state conducting investigation will responsible for it.

### 3.2.3 Disclose of Information

For accident involve an Indonesia operated aircraft, the Accredited Representatives shall seek information of any dangerous goods on board. When dangerous goods were on board, the Accredited Representatives as soon as possible with minimum time delay, provide information to the State conducting investigation of detail information of type of dangerous goods on board, the amount, packaging, location in the aircraft and other relevant information.
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Accredited Representatives shall provide information required for the investigation to the State conducting the investigation.

Indonesia participant to the other state investigation shall not disclose (circulate, publicize, or giving unauthorized access) any information without the express consent of the State conducting the investigation, unless such reports or documents have already been published or released by the State conducting the investigation.

3.3 Participating in a Military or Other Organization Investigation

The KNKT may be requested to conduct a military or other organization investigation. When the investigation would be in accordance with principles of independence and 'no-blame' which the KNKT adheres to, all KNKT procedures will be implemented.

In the case of the KNKT being requested to participate in a military or other organization investigation, all KNKT policy and procedures may not be implemented.
4 SAFETY AT THE ACCIDENT SITE

4.1 Securing and Controlling the Accident Site

The local fire department, the police or other relevant organization will probably be the first authorities to arrive at an aircraft accident site. It is therefore important to enlist the cooperation of these authorities in order to ensure security and control of accident sites and cooperation during investigations. It is essential that vital evidence is not lost through interference with the aircraft wreckage in the early phases of an investigation.

The relevant organization should be aware of what is expected of them in the event of an aircraft accident. The IIC or investigator shall plan and arrange for the following essential tasks should be in place so that they can be accomplished without delay:

a. Notification to the rescue coordination center;

b. Notification to KNKT and other authorities, as necessary for any progress of the activities;

c. Securing the aircraft wreckage from fire hazards and further damage;

d. Checking for the presence of dangerous goods, such as radioactive consignments or poisons being carried as freight, and taking appropriate protective action;

e. Placing guards to ensure that the aircraft wreckage is not tampered with or disturbed;

f. Taking steps to preserve, through photography or other appropriate means, any evidence of a transitory nature, such as ice, snow or soot deposits; and

g. Obtaining the names and addresses of all witnesses whose testimony may aid in the investigation of the accident.

Apart from these arrangements, the wreckage should be left undisturbed until the arrival of the investigation team. It should be emphasized to the police and the rescue services that the bodies of persons killed in an accident involving a large aircraft should, where practicable, be left in situ for examination and recording by the police disaster victim identification team. There may also be times when for crash worthiness/survival investigation purposes it may be appropriate for the deceased to be left undisturbed until viewed and documented by the KNKT investigation team.

Similarly, personal belongings should remain untouched as their location may assist in the identification of the victims. In general, disturbance of the wreckage should be limited to that necessary to rescue survivors, extinguish fires and protect the public.

4.1.1 Security at the Accident Site

The KNKT shall take all reasonable measures to protect the evidence and to maintain safe custody of the aircraft and its contents for such a period as may be necessary for the purposes of an investigation or by request of the State of Registry, State of the Operator, State of Design and State of Manufacture as far as this is reasonably practicable and compatible with the KNKT consideration, provided that it does not result in undue delay in returning the aircraft to service where this is practicable. The IIC should consult with the aircraft operator and/or owner before granting the request to maintain safe custody of the aircraft and its contents.
Immediately following an accident, the IIC or the designated accident Site Safety and Security Coordinator will immediately verify to ensure the security of the wreckage to the person who in charge to secure the accident site. This is usually arranged through the airport operator and/or local police, but in some cases, military personnel or specially recruited civilians may be employed. The person who secures the accident site should be made thoroughly conversant with their duties, which are to:

- a. Protect the public from the hazards in the wreckage;
- b. Prevent disturbance of the wreckage;
- c. Protect property; and
- d. Admit to the accident site only persons authorized by KNKT; and
- e. Protect and preserve, where possible, any ground marks made by the aircraft.

If necessary to move the aircraft, its parts or other items left as a result of an accident or serious incident of civil aircraft, sketches, descriptive notes and photograph shall be made, if possible of the original position and condition of the wreckage, and any significant impact marks.

Upon arrival at the accident site, one of the first tasks of the investigators should review the security arrangements. The IIC shall make the investigation team known to key personnel related to the accident site, for example, the police, the person in charge to secure the accident site, or the emergency services personnel and be appraised of the on-site activities, including any health and safety issues known at that time.

Usually, it will then be considered appropriate for the IIC to assume control of the accident site. All other interested parties such as Accredited Representative, will have to wait until the person in charge to secure the accident site releases the site to the IIC.

The IIC or the designated accident Site Safety and Security Coordinator shall examine for potential health and safety hazard. Once it has been handed over, the IIC has responsibility to control access to the site. However, the security of the site will still be the responsibility of local authority. There should be close cooperation and communication between the local authority, emergency services personnel and IIC in an effort to minimize damage to existing evidence.

The IIC shall inform the local authority and any other party if considered appropriate to secure the wreckage and components when KNKT likely to leave the site on the end of the day and subsequent investigation will be required.

4.1.2 Access to Accident Site

Once a site has been secured, the access the site shall be managed by the IIC or the designated accident Site Safety and Security Coordinator.

Cordonning off and taking control of an accident site is required particularly in regard to the safety of people who are on the site. Normally, the police will put police line surround the accident site. The KNKT investigation line also may be put whenever the IIC consider different area to protect the evidence or health and safety concern.
The following arrangements should be completed before cordonning off an accident site:

a. Emergency response activities associated with stabilizing the accident site should be complete. This includes extinguishing fires, controlling pollution, making people safe and preventing the accident site from deteriorating further.

b. Appropriate agreements and arrangements have been made with the existing site holder to ensure complete transfer of information.

c. The IIC or KNKT investigator is on site to manage.

Access to those cordoned areas would be restricted to persons those specifically approved by the IIC on the basis of valid purpose, and having proof of current blood-borne pathogen training.

Clear and specific instructions should be given to those guarding the wreckage site on the need for authorized persons to have proper identification. In the case of major investigations, special credential will be issued. The special credential includes names, photographic identification, and institution. The detail guidelines of special credential are described in the KNKT Major Accident Investigation Guidelines.

4.1.3 Giving Access to External Persons

After the KNKT investigators have taken reasonable measures to secure the site perimeter, a person having proof of current blood-borne pathogen or equivalent training, participate to the KNKT investigation may be allowed to enter the perimeter. Otherwise, permitted conditional entry to the site only when escorted by KNKT personnel. Those persons may include:

a. Representatives of operator;

b. The aircraft insurer representative;

c. Next-of-kin;

d. Property owner;

e. The media.

*Note* – The KNKT does not provide access to the site to enable the insurance representative to conduct a detailed investigation. The insurance representative normally needs only to confirm the circumstances of the occurrence to advise their client regarding the likely extent of their liability.

If the IIC considers being pressured to accede to unreasonable demands for access, the IIC must cease access and refer the matter to the Chairman or the Head of the Aviation Accident Investigation Sub Committee.

Some sites will be impractical, if not impossible to cordon off, due to terrain, extent of the affected area, or other considerations. It may be necessary to use one or more specific cordons within a large area, consistent with the disposition of the wreckage. Security guard/s may be necessary due to widespread wreckage/evidence, or the location of the wreckage within or near a populous area.
4.2 Preparing On-Site Investigation

Unless authorized by the Chairman or the Head of Aviation Accident Investigation Sub Committee, KNKT personnel will not normally participate in an investigation or go on site unless the following training has been completed:

a. Investigator/other personnel (other than as an observer):
   1) KNKT investigation operational induction, and
   2) Safety at Accident Site and Blood-borne Pathogens Training.

b. Investigator on training

   When is granted by the Chairman or the Head of Aviation Accident Investigation Sub Committee, investigator on training who have not been conducted the required training shall be supervised by a qualified investigator.

   Sufficient information related to the location of the accident site, possibility of hazard from the environment and cargo, availability of accommodation and transportation arrangement shall be considered.

4.2.1 Safety at Accident Site Preparation

This topic provides guidance on health and safety issues that need to be addressed prior to participating in an on-site investigation.

The information provide in this subchapter is only a brief summary, for further details describe in the Safety at Accident Site Guidelines.

The investigator shall not attend an accident site where there is considerable disruption, including potential biological hazards, unless:

a. Prescribed vaccinations for the investigator are current;

b. The investigator has received appropriate training in safety at accident site and Blood Borne pathogens;

c. The investigator has been provided with, and is equipped with all relevant personal protective clothing and related equipment appropriately;

d. The danger from hazardous materials and contamination is assessed and removed or adequately controlled by responsible and qualified personnel;

e. Location of the accident site is safely accessible.

All investigators should make themselves familiar with the health and safety issues associated with the on-site phase of an investigation as outlined in Safety at Accident Site Guidelines.

While each investigator has individual responsibility for health and safety, the IIC has overall responsibility for the health and safety of the investigation team. That includes for non-KNKT personnel assisting KNKT investigation while they are on site or in the immediate vicinity of the site.

The IIC is to confirm that team members:

a. Are medically fit to participate in the on-site investigation process.

b. Are equipped with and use all relevant personal protective clothing and equipment.

c. Comply with established and planned/briefed health and safety requirements that are applicable to the site and ambient conditions.
The protective clothing and equipment is listed in the Hazard at Accident Site Guidelines.

For those occurrences or aspects of occurrence investigations that are not conducted on site, for example, in the engine tear down, the IIC or investigator shall appropriately assess of risks depending on the circumstances.

4.2.2 Investigation Tools and Equipment Preparation

Prior to depart to the accident site, investigator shall obtain as much as possible information related to the accident to determine the investigation tools and equipment requires conducting on site investigation. The information shall include but not limited to the nature of accident, location and access to the accident site, the possibility of mobile phone network coverage, injury to person, accommodation availability and information of contact person on the accident site if any.

Based on the information available, the investigation shall determine the investigation tools and equipment to be carried. It is recommended that the investigator shall prepare adequate equipment to be carried considering the estimated duration of the on-site investigation, location of the accident site and number of participant including person assisted the investigation. The investigator shall consider to bring extra battery and memory card (if applicable) for all electronic equipment (camera, GPS receiver, flashlight, etc.).

The list of minimum investigation equipment is listed in the Field Investigation Handbook in the Appendix 7.3 of this guideline.

4.2.3 Protection of Evidence

An appropriate protection is required to prevent evidence from being removed or interfered, particularly at the accident site. Protection of evidence shall include the preservation, by photographic or other means of any evidence which might be removed, effaced, lost or destroyed. Safe custody shall include protection against further damage, access by unauthorized persons, pilfering and deterioration.

In all cases where an on-site investigation is to be conducted, a protection shall be requested to the local authority to ensure protection of the accident site and/or other evidence at the site relating to the occurrence. A protection to the evidence can be issued verbally, where practicable it may be followed up with a written request.

In addition to protect the wreckage for an on-site investigation, a protection may be requested to protect other evidential material where the integrity or security of that material is at risk.

In some instances, if the wreckage needs to be removed, the IIC may grant the request of removal or relocation of the wreckage provided initial data collection and/or documentation has been performed.

The initial data collection and/or documentation included sketch, photograph and measurements to significant marks or evidence, if possible of the original position and condition of the wreckage, and any significant impact marks. Normally the IIC will brief the data required and data collection process to the local authority. The initial data collection shall be collected by the investigator upon arrival to the accident site.
4.2.4 Preparing to Enter Premises

Before entering any premises with the intention to conduct transport safety investigation, the investigator or KNKT personnel requires showing their credential card and announcing the purpose of their entry.

Regardless of the type of premises, investigators are entering premises where they may conduct transport safety investigation be first of all, to enter with consent of the occupier or the local authority.

4.3 Initial Site Survey and Office Briefing

Prior to commencing any investigation, the IIC shall ensure that an initial site survey is conducted to:

a. Confirm known hazards
b. Identify other hazards
c. Scope likely on-site activities
d. Develop a plan of work for the team.

Following the survey and before commencing investigation activities the IIC shall brief the all investigators including external participant on the survey results.

The intention of the briefing is to confirm the work plan, to ensure that hazards are managed/mitigated, proper personal protective clothing and equipment, and that resources are appropriate to the task.

4.4 Communicating the Investigation

4.4.1 Communicating with the Media

Media briefing conducted by the Chairman unless, during the on-site phase, the IIC or KNKT personnel authorized by the Chairman may conduct media briefings.

When requested by the media, the media briefing or media release shall be performed in order to provide correct information to the public of the investigation process and progress.

All dealings with the media shall be carefully planned in order create and maintain a good public image to the KNKT and avoid a loss of confidence to the KNKT by the Minister, the community and other groups such as transport industries.

All approaches by the media to other investigation personnel are to be directed to the IIC. Media representatives should be cautioned to seek permission from the owner/occupier of the property to enter the property.

Phone conversations can be easily overheard and care should be taken with these calls to avoid security leaks to the media and other persons.

It is only factual information that only may be disclosed to the media. The IIC may collect the information from other investigators. Disclosure of the information may be by the media release or media briefing. Interviews are to be conducted outside the security perimeter of the accident site, at a safe and discrete distance as determined by the IIC.
4.4.2 Communicating with the Next of Kin

Notification of Next of Kin (NOK) is a sensitive task that must be planned and undertaken with great care in order to avoid anomalies, such as multiple or erroneous notifications. The KNKT human factors specialist who has psychology background may assist for communication with the NOK.

It is a good practice for the KNKT investigators to contact the NOK and provide relevant information of the process and progress of the investigation to them during an investigation of an accident involving fatality.

The NOK may seek to visit the accident site. Where the NOK does visit a site, appropriate personal protective clothing and equipment shall be provided and they are to be escorted and site investigation activities are to cease. The IIC may determine an appropriate place to view the site and may need to assist with personal requests (such as placement of flowers etc.) at the site.

KNKT investigators are to be mindful of the sensitive nature of interactions with NOK and take appropriate actions where necessary, for example, where numerous family members arrive unexpectedly at a site, it may be necessary to show the site to smaller groups or the IIC may have the opportunity to reduce the numbers of family members arriving by suggesting a staged process of smaller groups.

During, or soon after the initial on-site phase, the IIC may provide a factual briefing to the NOK to explain the purpose and scope of the KNKT investigation. The IIC should also plan to provide regular updates (the frequency of contact would be dependent on the circumstances and the requirements of the NOK) on the investigation progress (even if there is nothing ‘new’ to tell).

4.5 Safety and Health

During working in the accident site, the safety of the investigator and all person involve is important. Thorough hazard assessment and provide the perimeter of contaminated area is required to prevent person to enter. The IIC or assigned safety officer (minimum of two persons) shall conduct hazard assessment to identify hazard that exist on the accident site, including potential blood-borne pathogen hazard. The assessors then brief all participant of the hazard, the location of the hazard and minimum personal protective equipment required.

After the assessment, the perimeter of the contaminated area shall be established. The IIC may coordinate with the local authority to assign personnel to guard the entry and exit of the accident site to prevent unauthorized person entering the site.

All persons entering the accident site shall wear proper Personal Protective Equipment (PPE). Do not enter the site alone. For large area of accident site, person entering and exiting the site shall be recorded / documented.

Other consideration in controlling the accident site, are:

a. Contingency plans in the event of emergencies (first aid, transportation etc.).

b. Names of those non KNKT individuals who were cleared by the KNKT to access the site based on their confirmation that they had received adequate biohazard training, had received all appropriate vaccination, and were properly equipped.

c. The circumstances of any exposures; the measures taken to confirm the extent of the exposure; follow up actions.
d. Problems with any aspect of health and safety procedures (that is, breaches of security, failure of equipment etc.). 

e. Awareness of and managing the potential and reality of Critical Incident Stress events that may have been present at the site.

f. A log of personnel movement at an isolated accident site is maintained.

g. A record of any injuries which occur on site and the first aid treatment/action taken is maintained.

4.6 Completion of On-Site Phase

At the completion of the on-site phase, the IIC shall relinquish control of the accident site. Relinquishing control involves informing appropriate personnel and ensuring the safety of the site.

When leaving the site, representative of police, airport operator, owner of wreckage or local authority shall be contacted to advise that the KNKT is leaving the site and what information was relayed concerning potential hazards remaining at the site.

The information may contain:

a. A general description of how wreckage, equipment, and materials were made safe.

b. The circumstances of any potentially contaminated or hazardous materials.

c. To whom the site was released to.

4.6.1 Return of Wreckage to Owner

If there is no party (with a statutory right) that has requested custody of the wreckage then it shall be released to the owner or aircraft operator. The release of custody describes in subchapter 5.11 in this guideline.

4.6.2 Exercise Caution and Diligence

When the IIC is relinquishing control of the accident site, he shall consider whether it is appropriate for the KNKT to take any steps to ensure the site is safe.

The IIC, the Head of Aviation Accident Investigation Sub Committee and, if required, the Chairman will determine the KNKT capacity to deal with the hazard and the measures that may be put in place that would be adequate to remove or reduce the risk of injury.

The KNKT investigators are expected to exercise reasonable caution and diligence in relation to any potential hazards when relinquishing control of the accident site (for identifying and dealing with hazards describe in the Safety at Accident Site Guidelines).

The extent to which caution and diligence should be exercised will be dependent on the circumstances, including the extent of risk the hazard poses and the capacity of the KNKT (financial or resource-based) to put in place measures to eliminate or mitigate the hazard.
The IIC should consult with the Head of Aviation Accident Investigation Sub Committee and, if required, the Chairman about the appropriate precautions to take where hazards have been identified. Precautions include:

a. Removing the hazard(s);
b. Placing signs around the accident site warning of the hazard(s);
c. Making the owner of the transport vehicle aware of the hazard(s) and the measures required to deal with them. The IIC should gauge the capacity of the owner to deal with the situation and offer any feasible assistance within KNKT capacity;
d. Making the occupier of the site and other parties who may enter the site aware of the hazard(s). The IIC should gauge the capacity of the occupier of the site and other relevant parties to deal with the situation and offer any feasible assistance within the KNKT capacity;
e. Contacting other agencies, such as the police or fire department, who may be able to provide support to control the hazard(s).
5 EVIDENCE PROCESS

5.1 Obtaining Evidential Material

The evidential material of aircraft, its contents or any parts thereof which is taken from the accident site with consent of the owner/occupier is to be noted on file.

All evidence material removed from an accident site is to be:

a. Photographed in-site before removal (if possible);
b. Preserved where possible by appropriate means;
c. Tagged or clearly identified by another method before its removal from site;
d. Appropriately packaged.

It is important that the evidence is controlled at all times since the KNKT took custody of the evidential material until it has been returned to the owner, another party, or destroyed. Upon receiving the evidence material, the Receive of Custody Form describes in Appendix 7.5 in this guideline shall be used.

Upon returning the evidence material, the Release of Custody Form describes in Appendix 7.6 in this guideline shall be used. Electronic copies of Release of Custody Form should be uploaded to the investigation evidence database.

5.1.1 Costs of Removing Evidence

Activities associated directly with the investigation including the removal of evidence from the accident site will be the responsibility of the KNKT.

If recovery of evidence is likely requiring funding beyond KNKT budget then KNKT Chairman will submit letter to Ministry of Finance and copy to Ministry of Transportation requesting for additional fund.

Where there would be mutual benefit for the KNKT and other parties such as the owner, insurer, the DGCA, or property authority regarding the removal of the transport vehicle or parts of the vehicle to another location, the IIC is to liaise with the Head of the Secretariat or the Chairman to seek approval to contribute to the cost of such salvage.

5.1.2 Engage External Agencies

Before engaging external agencies for expertise to conduct several required tasks such as a site survey and wreckage removal, the IIC is to consult with the Chairman or the Head of the Secretariat.

The tools and methods used to complete the task should be commensurate with the circumstances and complexity of the task. IIC shall brief the provider the task requirements.

The agencies may include:

a. Heavy equipment provider;
b. Aerial photography provider;
c. Professional site survey organization.
5.1.3 On-site Record Collecting

It is necessary for the investigator to collect the data of the accident that might have been collected prior to the arrival of KNKT. The data may be collected from individual or organizations. Investigators shall immediately get contact of the individual or organizations.

The sources may include:

a. Anyone who had access to the site prior to KNKT arrival.
b. Photos or other evidence taken prior to KNKT arrival by rescue organization or local authority;
c. The responsible person controlling the site prior to the KNKT accepting responsibility of the site, and the actions that has been performed including actions to contain, neutralize or otherwise control the hazards;
d. Any outside agencies who may have provided assistance or expertise at the accident site;
e. Witness that may have documentation evidence;
f. Media;
g. Witness if any.

5.2 Non-Disclosure Information

Non-disclosure information, defined in article 359 (2) of the Indonesia Law number 1 of 2009, covers various types of information acquired during the course of investigation.

To prevent unauthorized access, non-disclosure information stores only in the KNKT server. Investigator is not allowed to have personal copy.

5.2.1 Classifying Information as Restricted Information

The categories of non-disclosure information are a sub-set of evidential material that is generally sensitive in nature. It is considered to be sensitive because there could be an adverse impact on the free-flow of safety information in the future if it was made freely available by the KNKT for purposes other than transport safety, such as ‘blame’ inquiries.

The list covers a range of information that may be obtained or generated in the course of an investigation.

The restricted information means any of the following:

a. cockpit voice recordings and airborne image recordings and any transcripts from such recordings;
b. all statements taken from persons by the accident investigation authority in the course of their investigation;
c. all communications between persons having been involved in the operation of the aircraft;
d. medical or private information regarding persons involved in the accident;
e. recordings and transcripts of recordings from air traffic control units;
f. analysis of and opinions about information, including flight recorder information, made by the accident investigation authority and accredited representatives in relation to the accident; and
5.3 Collecting Evidence

It is the main duty of investigator conducting on-site investigation is to collect evidence.

Interview is part of collecting information from various persons having information of the accident. The KNKT Interview Guidelines provide detail information of interview conduct.

Where an investigator is seeking evidence that is, or contains, information that is likely to be sensitive, he or she should seek to ensure that it is protected even if the information is not classified as non-disclosure information.

The initial phase of the investigation process should focus on defining and obtaining data relevant to the accident. In particular, highly perishable data should be given priority. Data collection will often develop into an on-going process as more is learned about events surrounding the accident. Therefore, data collected early in the investigation may be combined with other data collected at later stages as a method of reaffirming and validating possible contributing factors. Types of data to be collected include:

a. accident particulars;
b. meteorological;
c. technical; and
d. human factors.

5.3.1 Collection of Accident Particulars

Important reference data must be collected to facilitate collection of meteorological, aircraft performance and Air Traffic Services (ATS) data. Primary sources of such data shall be obtained from flight plans, ATS surveillance data, navigation and topographical charts. Data collected should include:

a. date (Universal Time Coordinated, UTC and Local Time, LT);
b. time (UTC and LT);
c. location;
   1) general location;
   2) grid reference; and
   3) elevation and topography;
d. departure point;
e. cruising altitude or flight level; and
f. destination and intermediate stops (with Estimate Time Arrivals, ETAs and Estimate Time Departures, ETDs), and radar tracks.
5.3.2 Collection of Meteorological Particulars

The forecast and local weather conditions may have significant importance on both the flight conditions and the aircraft performance. This will include the atmospheric conditions, sun or moon locations, wind and any unusual considerations such as volcanic ash, smoke, windshear, visual illusions or icing, along with take-off or destination considerations that may have impacted the take-off or landing profile, such as rushed departure or additional fuel reserve due to expected delays or diversions.

Weather related evidence is available from a variety of sources, including:

a. Witnesses;

b. Pilot briefing documentation;

c. Badan Meteorologi, Klimatologi dan Geofisika, BMKG (Meteorology, Climatology, and Geophysical Agency) forecasts and observations.

5.3.3 Collection of Technical Particulars

This data is provided from the investigation at the accident site along with maintenance and manufacturing records, onboard data collection devices and laboratory analysis of aircraft components.

Before taking physical evidential material that will be conducted any examinations or tests of the evidence that might result in its damage or destruction, the owner shall be notified. Where it is intended to conduct examinations or tests on the evidence, the parties would be contacted to ascertain whether they wish to be in attendance.

This information may also provide a course for synthetic flight reconstruction and simulation. Other related indicators may be uncovered from maintenance reports and review of similar accident from databases.

5.3.4 Collection of Human Factors Particulars

Human factors information is sometimes the most difficult in fatal accidents because there are few witnesses to interview to confirm what actions and conditions the flight crew was experiencing. Interviews with maintenance and co-workers can be very emotional and challenging. The results of autopsies and reconstruction of crew actions from cockpit voice recordings and air traffic control communication record may provide indicators to flight crew actions. Systems failures may also require interviews with maintenance and ground service personnel. These interviews should be conducted as soon as possible while their knowledge remains clear and is uncontaminated by conversations with other workers.

5.3.5 Obtaining Autopsy and Medical Examination

IIC will arrange for complete autopsy examination of fatally injured flight crew and, subject to the particular circumstances, of fatally injured passengers and cabin attendants, by a pathologist, preferably experienced in accident investigation. These examinations shall be expeditious and complete.

If necessary, IIC will request to conduct medical examination of the crew, passengers and involved aviation personnel, by a physician, preferably experienced in accident investigation. Such examinations may also determine whether the level of physical and psychological fitness of flight crew and other personnel directly involved in the occurrence is sufficient for them to contribute to the investigation.
These autopsy and/or medical examinations should be expeditious. As soon as the autopsy or medical examination is required, the procedure is as follow:

a. If the crew, passenger and/or aviation personnel involve and survive in the occurrence and the medical examination is required, then the IIC responsible to arrange with the medical expert or physician to arrange the medical examination. The examination should include but not limited to drug and alcohol.

b. The IIC shall immediately arrange the complete autopsy to the fatally injured flight crew and subject to the particular circumstances to fatally injured passengers and cabin attendants.

c. The IIC and/or investigator may coordinate with examiner to provide relevant information required.

The IIC entitle to receive the copy of the autopsy or medical examination. The result of autopsy or medical examination is confidential.

### 5.3.6 Air Traffic Service Communication

Some Air Traffic Service (ATS) provider has ground-based recording facility to record the communication between controller and pilot. The data can be obtained in digital voice recorder and the transcript if available. When obtaining ATS communication recording, the recorder time shall be check if there is any time differences.

### 5.3.7 Video Information

Some of the video recorded data such as Closed Circuit Television (CCTV) and Aircraft Situational Display (ATC radar display) may not be able to play in common video player or office computer. The investigator shall record the data when being play back using video camera. During the recording process, the quality of the video recording should be maintained, tripod use is highly recommended.

### 5.4 Evidence Photography

Photography is an important element of the investigation process. Clear, well composed photographs allow the investigator to preserve perishable evidence, substantiate the information in the report, and illustrate the investigator conclusions. Every accident investigator needs a basic knowledge of photography. This allows the investigator to take quality photographs or to communicate effectively with a professional photographer in order to obtain photographs that contribute to a clearly written report.

There are many other photographic techniques that may be of value to the accident investigator. These techniques are explained in the numerous books available in book stores and photo specialty stores. Many are explained in the instruction books that are supplied with the cameras. Read the instructions that come with the camera and several books on photographic technique.

Practice using all the photographic equipment in the investigator kit until its use becomes second nature. This will allow the investigator to make the best use of available time and obtain the best possible photographs. Utilize the equipment frequently to ensure it operates correctly.
Ensure the photographer is aware of what to expect at the crash site, has an understanding of site hazards and has all the necessary personal protective equipment and knows how to use it. The photographer should know not to disturb anything in the crash site.

5.4.1 Equipment

When selecting equipment, the investigator should keep in mind that aircraft accident sites are not always conveniently located. The investigator should find out the accident location and how far the equipment has to be carried, what harsh conditions will be encountered during operations such as on a high mountain area or if electrical power or telephone and internet access will be available. The investigator equipment should be compact and lightweight to make it easily portable and it should be easy to use under any conditions.

Here is a list of suggested equipment and supplies the photographer should bring:

a. Full-featured digital cameras with appropriate lens;

b. Memory card for digital storage minimum of 16 Gigabyte (GB) capacity;

c. Extra batteries to support that volume of photographic activity.

d. Powerful external flash that can fill shadows in strong sunlight;

e. Dry bag or waterproof camera case;

f. Tripod;

g. Remotely Piloted Aircraft System, RPAS (drone).

5.4.2 Cameras

It is policy of the KNKT to always use digital camera. High quality digital cameras provide clear, top quality photographs that are easy to archive, edit, and insert into briefing materials and reports. With digital media, the investigator has the photograph immediately available. The investigator can immediately view the picture and determine if it is acceptable or if another view is necessary. Also, because of the large capacity of new digital cameras, several hundred photographs can be retained, or multiple memory devices easily carried allowing almost unlimited numbers of digital photographs at minimal expense. These can be transmitted over the internet by simply attaching them to an e-mail.

Cellular telephones now have this option and could be used by investigators at various locations of a disbursed site to rapidly exchange visual images.

The camera should be durable and reliable. It must have enough features to fulfill the photographer needs. The controls should allow for easy operation, even when the photographer is wearing gloves. Its lens should have sufficient zoom range to accommodate most situations, and should provide macro capability, the ability to take close-up photographs.

The digital camera depends on electrical power for its operation, extra batteries should be available. Extra memory card or even spare camera shall be considered.
There are a number of different types of cameras available to the investigator but, whatever the format of the camera selected, it is essential that the person taking the photographs have experience taking outdoor photographs under adverse and traumatic conditions.

a. Point-and-shoot cameras (pocket camera) currently on the market are usually fully automatic and therefore the camera makes focus and exposure adjustments itself. Many have zoom lenses. Some have macro capability. These cameras are versatile, compact, lightweight, easy to use and available for harsh weather conditions. They are an excellent choice for investigators who are new to photography.

b. Digital Single Lens Reflex (DSLR) cameras are so called because a mirror between the camera lens and the light sensor directs the light coming through the lens to a focusing screen that is used by the photographer to compose and focus the photograph. In essence, the photographer sees what the camera sees. These are the most versatile cameras available to date and, with the proper accessories, can handle almost any photographic task in accident investigation. They require the most knowledge of photography and experience in their use on the part of the investigator in order to be used effectively.

c. Mirrorless cameras are a camera that does not have a movable mirror in the optical path and uses an image sensor to provide an image to electronic viewfinder. Compared to DSLR camera, mirrorless camera can be made simpler, smaller and lighter. The quality of the mirrorless camera is similar with the DSLR camera.

d. Video camcorders are extremely useful to investigators. Modern ones are light and compact and the video digital medium can be edited on a computer using simple-to-use software. Investigators should use video recorders to record firefighting and rescue activities at the accident, to make notes during the accident site walkthrough, to record the steps in removal of wreckage, loading it on the vehicles, and unloading the vehicles into a hangar or other storage area. At least one video camera should be used to record the steps involved in component teardowns. Some of still cameras (pocket, mirrorless and DSLR) are now have the capability as video camera. To make video such as ATC surveillance display replay, a tripod shall be used to prevent shaking movement of the camera and improve the video quality.

5.4.3 Accessories

Accessories make the task of photographing wreckage easier and help the photographer improve the quality of the photographs. Here is a list of accessories useful to accident investigators.

a. Lenses

Accessory lenses may be auxiliary, which mount on the camera primary lens, or interchangeable, in which case the primary lens is removed and another is installed. A zoom lens with a range of 28 mm to 135 mm or its equivalent, that also has macro focusing capability, is ideal. Having all these features combined into one lens reduces the need to carry heavy accessories.
b. Flash

Flash is useful for filling shadows in bright sunlight. Most cameras have a flash built into the camera. These provide supplementary illumination for use in marginal lighting conditions, but usually are not powerful enough to fill shadows when photographing in bright sun. Since they are part of the camera, the photographer has no control over the angle of the light when using one. The best flash attachment for an investigator is one that can be detached from the camera and aimed independently. Flood lights, photographic lighting or video camcorders with low light capabilities are useful at night or in low visibility conditions.


c. Filters

These attachments mount on the front of the camera lens and filter the light that reaches the camera sensor. The ones most useful to investigators are the UV a, UV b, skylight, and polarizer. Many photographers install a UV or skylight filter over the lens to protect it from dust, moisture, salt spray or other hazards. UV a and UV b filters remove ultraviolet light which is rendered on film as blue, causing the photographs to appear hazy. Skylight filters are useful when taking pictures in shade and counteract the tendency of the light from the blue sky to influence the color of the photograph. A digital camera can normally compensate for this by adjusting the white balance. The polarizer is useful for reducing reflections off water, glass and other materials (taking picture of cockpit instrument). It will not, however, reduce reflections off metal surfaces. Check the camera instruction manual.


d. Camera Supports

The most commonly used camera support is the tripod. Select one that is both light and sturdy. It should have a full range of elevation adjustments including the ability to position the camera close to the ground to enable the investigator to take close-up photos of wreckage on the ground.


e. Cable/Remote Release

This attachment enables the photographer to take the picture without inducing movement in the camera that can cause a blurred image. This equipment required most when taking picture in the dark when low shutter speed is used.


f. Notebook

A notebook or other means of record keeping is necessary. Take notes that will allow you to identify each photograph by subject matter and significance. Some cameras also allow for date/time marking which can be useful in record keeping.


g. Measurement Scale

The measurement scale is important to be used as a reference scale of the evidence. If a measurement scale is not available, other common object of known size can be used as measurement scale.
5.4.4 Making a Good Photograph

To take a good photograph, a photographer must consider five variables: composition, subject lighting, lens focus, lens opening, and shutter speed. Familiarity with the photographic equipment is essential, and practice under adverse conditions is recommended. In addition to improve the knowledge of accident photography, the investigator may also cross-train with industrial fire fighters or criminal investigation units for additional experience.

a. Composition

Composition is the arrangement of the subject in the photograph. Here are some hints for effective composition. Move in close. Make your subject fill the frame as nearly as possible. Remove extraneous details and distractions. This is not always possible in accident photography, as other evidence may be damaged in the process. To get around this problem, photograph each piece and the distracting elements as found, then cover distractions with fabric or move the piece to where it can be photographed without a distracting background. A sheet of canvas in a contrasting shade or color makes a good background. Include a ruler, measuring tape, or common object of known size, such as a pencil, in the picture to give the viewer a sense of the subject’s size. Take your photograph from several different angles to ensure it contains all the necessary information. Digital cameras have an advantage here. They allow the investigator to review the photographs immediately to see if they contain the necessary information and are of sufficient technical quality.

b. Lighting

The best light to photograph wreckage is soft, diffuse and even. An overcast day is usually perfect. Shadows will not obscure details and the diffuse light will not cause excessively bright or distracting reflections off metal surfaces. These conditions might not be present at an accident site, so the investigator must control the light in other ways. If a small piece of wreckage is in bright sun, photograph it as found. Use a skylight filter or the camera white balance to counter the slight blue cast characteristic of shade. Finally, the investigator can use flash to fill any shadows. Most automatic camera/flash combinations are designed with a setting for filling shadows in strong sunlight.

c. Lens Focus

Properly focused images are essential to effective photographs. Most modern cameras focus automatically, and many allow the photographer to override the automatic focus feature and focus manually. The general procedure is to select the most important part of the subject and focus on that part. Then compose the picture in the camera viewfinder and take the photograph. If your camera has automatic focusing, it probably has a “focus lock” feature that allows the photographer to lock in the focus on a selected part of the frame and then recompose the picture. See the camera instruction manual for how to use the focus lock feature on the camera.
d. **Lens Opening**

The lens opening controls the intensity of the light on the sensor. The lens opening marked on the adjustment ring (a number such as 1.2, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, etc.) is simply the focal length of the lens divided by the diameter of the lens opening. The lens opening numbers are called F-stops. The light intensity on the digital sensor decreases as the numbers get higher, and each successive F-stop concentrates half as much light as the previous one. In dim light, photographers use a wide lens opening and, conversely, they select a small lens opening in bright light. Most modern cameras have a feature that will select the lens opening automatically. There are times when the photographer will find it advantageous to select the lens opening manually. Selecting a wide lens opening will decrease the depth of field of the image. Depth of field is the distance from the nearest point to the most distant point in the image in acceptable focus. Conversely, closing the lens to a narrow opening (called “stopping down”) increases depth of field. Investigators can use this characteristic of all lenses to their advantage. While selecting a small lens opening can keep everything in the image in acceptable focus, the investigator may wish to open the lens to intentionally make distracting elements of the photograph out of focus, and concentrate the viewer attention on a single element in the composition.

If the investigator chooses to manually control the lens opening, it will have to select the appropriate shutter speed. The camera may be designed to do this automatically. Check the camera instruction manual for “aperture preferred” exposure control.

e. **Shutter Speed**

Shutter speed controls the amount of time the light falls on the film or sensor. Shutter speeds are usually expressed in fractions of a second and, on most cameras, the speeds on the selector control are marked in increments (1, ½, ¼, 1/8, 1/16, 1/30, 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, etc.), where each successive marked speed is half the duration of the previous one. There are a number of techniques for selecting the appropriate shutter speed. A speed of 1/(ISO speed) of the film or selected sensitivity of the digital sensor is usually a good starting speed. For example, if the ISO is set to ISO 100, use a shutter speed of 1/125 s. In order to avoid image degradation due to camera shake, select a speed that is at least 1/(lens focal length). When using a lens whose focal length is 100 mm, use a shutter speed at least 1/100 second or 1/125 second. If you chose to manually control the shutter speed, you will have to select the appropriate lens opening. The camera may be designed to do this automatically. Check the camera instruction manual for “shutter priority” operation.
5.4.5 What to Photograph at the Accident Site

The general rule in accident site photography is to start with the most perishable evidence and work to the least perishable evidence. The Field Investigation Handbook on Appendix 7.3 contains an investigator checklist for accident site photography.

If possible, begin by using a video camera to record firefighting and rescue activities. Place the camcorder on a tripod and zoom the lens back to cover the whole site. Turn it on and let it record continuously. If the investigator has more than one video camera, get video from as many vantage points as possible without interfering with the response activities. The video will be valuable later for a number of uses. It will provide a record of the response. Investigators can use the video to determine what damage was caused by responders and what damage was caused by the accident itself. The video can be used to train firefighting and rescue crews. If the investigator can do so without endangering the investigator or interfering with the response, photograph other perishable items of evidence such as ground scars and skid marks.

As soon as the fire is extinguished and the accident site is declared safe for investigators to enter the area, photograph any remaining skid marks and ground scars. The local medical examiner will begin removing the human remains, if any, from the scene. All pieces of human remains should be photographed and catalogued before they are moved. Any other medical evidence such as tissue smears on wreckage should be photographed as soon as possible. Additionally, document any damage to private property.

The next step is to take aerial photographs of the site. An easy and effective way to accomplish this is to use a contractor who specializes in aerial photography. If an aerial photographer is hired, make sure the photographer understands exactly what information that will be needed for investigation. If the investigator takes the photographs by himself, an effective way is to use helicopter or drone. When taking photographs from a helicopter, it is important to consider the safety of the investigator and their equipment. Hold the camera so that the lens axis is as near to the vertical as possible. Take several photos from each position using different exposures. Use a high shutter speed to obtain the clearest images. Do not allow the camera to touch the helicopter structure during exposure because this will allow the vibrations from the helicopter to be transmitted to the camera, degrading the clarity of the image. Have a piece of equipment, such as a vehicle, in the photos to provide a sense of scale. If possible, take aerial photos at different times of the day. The different shadow patterns will reveal different details. When taking photograph use drone, be careful with the distortion effect from the wide lens of the camera.

During the initial walkthrough of the accident site, it may be helpful to have an assistant carry a video camcorder. It is useful to record initial impressions as video notes with a voice accompaniment. This can also be used as a briefing tool for newly arriving members of the investigation team, and to hazardous material mitigation crews and medical personnel for the recovery of passenger fatalities.

The next major photography task is to photograph the wreckage. If the wreckage is concentrated in a small area and all of it is easily seen from a single vantage point, photograph it from all cardinal and intermediate compass points. The photographer should stand the same distance from the center of the wreckage while taking each photograph.
Be sure to make notes which reflect the direction the investigator were facing at the time. If the wreckage is spread out over a large area, it may not be practical to photograph the whole scene. In this case, photograph each significant piece or group of pieces of wreckage. As a minimum, take a photograph from all cardinal compass points, then move closer to show details. Be sure to note the location of the piece or group of pieces of wreckage on the accident diagram. Take photos that illustrate damage to the components, fracture surfaces, and witness marks. The photographer or investigator should never try to reassemble broken parts as this may destroy the fracture surface and disturb the evidence of the cause of the failure.

When the wreckage is removed from the site or if it is moved to provide access to other evidence, be sure to photograph it before it is disturbed. Whenever major pieces of wreckage are moved from the site, use a video recorder to record the process of preparing them for transport, loading them onto the vehicle, and removing and setting them up at the destination. Whenever components are dismantled or cut open, record the process on video if possible.

Other significant pieces of evidence to be photographed include:

a. Evidence of fire;

b. Heat discoloration of structures;

c. Structural fractures;

d. Switch positions, and circuit breakers;

e. Any damage to nearby trees and foliage;

f. Ground scars from pieces of wreckage after the aircraft initial breakup;

g. The impact point from a vantage point that is along the flight path of the aircraft;

h. Anything found in the wreckage that should not be there;

i. Also photograph anything that has a critical component missing. For instance, if the investigation reveals a missing cotter pin on a critical fastener, photograph that fastener and also photograph one that shows a normal installation.

Environmental conditions should also be documented if there is any possibility that weather, sun angle, visual illusion or lack of visual reference may have contributed to the accident. This would require not only the documentation of weather conditions as soon as possible at the time of the accident, but to recreate the sun or moon angle and conditions at another date under the same representative conditions. This may also be accomplished by simulation, especially when controlled flight into terrain is being investigated, so as not to hazard another aircraft in attempting to recreate the accident conditions.

Considering the cost of an aircraft accident and its investigation, photography is inexpensive. Take as many pictures as needed. Take notes along with the photographs. The notes must contain enough information to later identify each photograph and its significance. This is not as important when using a digital camera, as each photograph can be reviewed immediately to see if it contains the necessary information.
5.4.6 Suggestions for Better Investigation Photographs

Ensure the subject to be photographed is identified. The best technique is to write the identifying information on a large index card and place it adjacent to the subject so that it appears in a corner of the photograph. Take good notes as to subject and significance of each photograph. Investigators may take thousands of photographs during an investigation. Good notes allow the investigator to retrieve and identify important photos. Include a measurement scale or object of known size in the photograph to give the viewer a sense of the object size.

Hold the camera as steadily as possible and press the shutter release as carefully as possible so as not to shake the camera. When using a slow shutter speed or taking macro photographs where the depth of field is very narrow, place the camera on a tripod to prevent movement from degrading the image or casting the subject out of focus, and use the cable or remote release.

Take most of the photographs in color. Occasionally, objects like fracture surfaces and structural cracks show up better in black and white. In that case, digital photographs can be converted from color to black and white by using the editing software in the computer.

Small pieces of wreckage may have an irregular shape that makes it difficult to position them on a work surface. To aid in positioning these objects, a bag of rice or dried beans covered by a piece of neutral-colored fabric may be used to hold and position the subject.

If the subject is a damaged or defective component, photograph a normal component for comparison.

5.5 Examination of Impact Marks and Debris

The marks of first impact of the aircraft with the ground should be found. From these and the distribution of the wreckage, it can usually be determined which part of the aircraft struck the ground first. The path of the aircraft may be deduced by careful examination of ground marks or scars upon trees, shrubs, rocks, poles, power lines, buildings, etc.

Wing tips, propellers or landing gear leave tell-tale marks or torn-off parts at points of contact with fixed objects. Ground scars used in conjunction with height of broken trees or brush will assist in establishing the angle and attitude in which the aircraft struck the ground. Examination of the victims of the accident and the contents of the aircraft can also assist in establishing angle, attitude, and speed at impact.

The general state of distortion and “telescoping” of the structure will permit an investigator to deduce whether the aircraft crashed at high or low speed. Usually only local damage occurs at low speed impact, but at high speed wings and tail become buckled and foreshortened. Cases have occurred in which the aircraft has been completely buried in a deep crater, with only a few twisted fragments dispersed adjacent to the impact site. Short straight furrows running out from each side of the crater told where the leading edges of the outer wings had hit the ground while traveling almost vertically downwards at very high speed.
When engines have not penetrated into the ground, their vertical descent speed has probably been small, but the aircraft might have been travelling very fast at a shallow angle and, in such circumstances, the wreckage will be spread far along a line from the mark of first impact. If the wreckage is widely scattered along the flight path, this may indicate that some structural disintegration had occurred before impact with the ground. It is usually possible to form a preliminary mental picture of:

a. The direction, angle and speed of descent;

b. Whether it was a controlled or uncontrolled descent;

c. Whether the engines were under power at the time of impact; and

d. Whether the aircraft was structurally intact at the point of first impact.

The extent of the damage to the wreckage will give some preliminary indication of the evidence that can be obtained from it by subsequent detailed examination. If structural disintegration in the air is suspected, it is essential to plan the investigation to ensure that all information which will help to trace the primary failure is extracted from the wreckage before it is moved. In such circumstances aircraft wreckage may be scattered over several miles of woodland, field, marsh, or built-up area and may be difficult to locate.

Search parties should comb the district and the search should be continued until all significant components have been found. The cooperation in the search of military personnel, police and local residents should be requested, but at the same time searchers should be informed of the need to report the location of pieces of wreckage without disturbing them. This will enable the investigator to examine and determine the exact location of such pieces as they fell to the ground. Light detached portions of low density tend to drift in the direction of the prevailing wind at the time of the accident whilst dense objects will be less affected by wind effects, and knowledge of this direction may save time in locating aircraft pieces. No piece of wreckage should be disturbed or removed until:

a. Its position is recorded;

b. An identification number is painted on it on an undamaged area, or in the case of small portions, a label attached; and

c. Notes are made of the manner in which the piece struck the ground, what the nature of the ground was, and whether it hit trees or buildings, etc., prior to this.

Such notes and photographs will be very valuable when a later detailed examination is made and may help to separate ground impact damage from other damage. A special search should be made for any part of the aircraft not accounted for at the accident site and if it cannot be located the fact must be recorded.

In the case of accidents associated with wheels-down landings, tire marks should be carefully recorded and examined. The width of the tire imprint of each wheel and the density of the color of the marks should be noted. The tire marks may well provide evidence of braking or skidding or sliding and, in particular, may provide a clue to a hydroplaning situation. A hydroplaning tire may leave a very distinctive whitish mark on the runway. These tracks are the result of a scrubbing action which is provided by the forces under the tire during hydroplaning.

It should never be overlooked that the victims of an aircraft accident, if objectively examined in the same manner as the aircraft wreckage, may reveal important information relating to aircraft speed, aircraft attitude at impact, sequence of break-up, etc. This is referred to in more detail in the human factors investigation.

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5.6 Wreckage Distribution

The investigation at the accident site should begin with an assessment of the wreckage with particular attention to ensuring that major structural and flight control surfaces are within the wreckage pattern. In a cursory examination of the site determine that the major structural members are present: wings, vertical and horizontal tail, the correct number of engines, the correct number of propellers and propeller blades, etc. As the initial survey continues, it should be determined whether all flight control surfaces are present as well; ailerons, flaps, elevators, trim tabs, spoilers, etc. As the number of surfaces may be quite extensive, a common practice is to have each member possess a simple diagram of the aircraft (usually obtainable from the operator or maintenance manual). As each structural section is identified and each flight control surface is found, the appropriate part of the illustration can be "colored in". Later, all illustrations can be compared to assure the investigation team that the entire aircraft is at the site. The lack of a major section or control surface may be indicative of a loss prior to impact and the effort to recover the missing parts should begin as soon as possible, hence the need to accomplish this basic inventory early in the investigation.

An assessment of the basic terrain features surrounding the accident site should be made prior to detailed analysis. If the terrain rises where the impact occurred, the evidence of impact may indicate a steeper angle than would exist if the terrain were level or descending. Similarly, if the area is heavily forested, the degree of impact may be greater than if the area were devoid of large structures or vegetation.

The investigators should determine the scope of the aircraft breakup. If extensive, this may be accomplished by a site walk-through. Beginning at the point of initial contact with the ground, the investigator should attempt to determine a basic breakup direction and begin walking that line. Identification of structure or parts along the path can be made, noting whether they are straight ahead or to the left or right. A preliminary sketch of the wreckage might be made without great effort as to scale. When the last parts are noted in the line walked, it might be assumed that no other parts exist further down. The investigator should continue the line for some distance assuring that what was suspected to be the last parts are, in fact, so. Frequently, heavy objects having great inertia may lie well beyond the normal wreckage pattern. Once the length boundary is determined, the investigator should similarly determine the width to either side. All investigative efforts can then be concentrated within an established boundary. This facilitates investigative assignments and assures that investigation team members do not stray beyond the boundaries without coordination with the investigator-in-charge. In the case of in-flight breakup or mid-air collision, ATS surveillance data may be useful to identify the initial debris field and extent of wreckage disbursement. This will also be vital in over-water accident site determination.
5.6.1 Staking the Wreckage

As identification of small parts is made, and especially as objects are removed, the investigator should place a visible stake in the ground to identify the location. This maintains the integrity of the accident site for future activities such as returning to the location later to have an expert remove a small, damaged part or to find something related to an object previously removed.

Care should be taken to utilize stakes that are visible to the investigators. Common practice at airports is to have a supply of small wire stakes with colored flags at the top. The advantage is that many stakes can be carried out to the accident site. However, if the foliage is extensive at the site, the flags may not be visible, making them less usable.

In addition, an investigator cannot carry many stakes at once, making repeated trips to the supply necessary. This is not to say that these extremes are not useful in certain environments, but the investigator should strive to use the best stakes for the site at hand, not just what was initially provided.

As each stake is placed, it should be identified with a unique identification number and its number and significance noted in a log. A master log can be assembled by the investigator-in-charge so that return to specific locations or identification of distribution patterns can be made.

When several investigators set out to examine the site and stake significant parts, it might be useful to assign a numbering system to each investigator. For example, one investigator is assigned stakes numbering 1-99, another is assigned stakes 100-199, and so on. In this way, no two stakes have the same number and a master distribution chart can be made. Care should be taken with the identification of the stake so the information remaining on it is not lost.

A weather-proof tag with the stake number and an identification of the object written upon it is useful. An effective method is to issue a “permanent” marker to each member so that the identification number and object description can be placed on both sides of the stake. These markers should retain the information for the time an investigation team needs them.

As mentioned above, stakes should be placed to allow return to small parts for later removal or placed whenever something is removed for further examination. Stakes should also be placed where human remains are found and removed. In all cases, a photograph with the stake and object together may prove useful later. In addition, significant ground scars might be staked. If the ground scar is long, it may be useful to put a stake at either end.

Similarly, if the scar has a curve or a significant pattern, it may require multiple stakes to be able to duplicate the pattern after the ground has been altered and/or covered by wind, precipitation or equipment movement. Consideration should also be made for marking items in swamps and heavy undergrowth where normal stakes and tags will not be visible.
5.6.2 Using Global Positioning Satellite Location

As the availability and accuracy of Global Positioning Satellite (GPS) receivers improves, their use at the accident site makes it easier to accomplish the tasks at hand. Where previously a survey team had to return to the accident site and plot the position of wreckage/stakes for the investigators, the investigation team can now combine the initial wreckage debris identification and staking effort with an associated position entered into a GPS system database.

The accuracy of GPS receivers varies with the technology involved. Military GPS receivers may be able to plot positions accurately down to centimeters or inches. Commercially available hand-held receivers may only be able to determine position as close as three to five meters (10-15 feet). However, it should be noted that during a survey, while the positions of all the surveyed points may only be within five meters (15 feet) of absolute accuracy, the surveyed positions of points remain constant and maintain their relative positions. Caution should be taken to ensure all the charts, GPS receivers and surveyed positions use the same geodetic survey databases in the most current revisions to eliminate or minimize errors and confusion from various data/reference sources.

Since the reference satellites may be different or in slightly different positions when the surveying was done, it is important that surveying of all the relevant positions be done at the same time and with the same GPS receiver. If the previously captured geographical position is not available (documented), the investigator should establish one stake for this purpose.

While the different models of portable GPS receivers make specific instructions irrelevant to this guideline, there exist some common capabilities. Some units also have terrain features which can be particularly useful in adverse conditions or in widely disbursed accident sites. Most units allow locations to be entered into the GPS receiver database as numbered “waypoints”. These waypoints are sequentially numbered automatically by many GPS receivers, eliminating the need for time-consuming data entry. However, some units allow short descriptive terms to be entered. This should be done only when doing so provides meaningful information that cannot be duplicated later.

The number of waypoints available varies, but it is likely that more points will be identified during the field examination than a single GPS can hold. For this reason, a download of the points to a computer on a daily basis (or when full) should be made into a discrete file. The waypoints can then be cleared before the next venture into the field allowing a full availability of the waypoint assignments.

5.6.3 Wreckage Distribution Chart

After the initial study of the general scene of the accident has been made and photographs taken, the first step in the actual investigation is usually that of plotting the distribution of the wreckage. In simple terms, this is done by measuring the distances and bearings of the main wreckage and also of the scattered parts of the wreckage, including the contents of the aircraft, survivors and victims and all impact and ground markings, and then recording this information on a chart to a convenient scale.
While in many accidents the preparation of a wreckage distribution chart is a task considered to be well within the capabilities of an investigator, if a GPS plotting has not been accomplished, consideration should be given to employing the services of a qualified surveyor when the circumstances of the accident are such that there has been extensive scattering of the wreckage.

The preparation of a wreckage distribution chart is worthy of painstaking effort to ensure its completeness and accuracy, for the study of the completed chart may suggest possible failure patterns or sequences, and the significance of later findings may often depend upon reference to the original chart. It will not only be used as a reference document throughout the investigation but also will remain a most important document for inclusion in the investigator dossier to supplement the written report.

In determining the type and amount of information to be included on the chart of any specific accident, the investigator must be guided by the circumstances surrounding the particular accident, but in most cases the chart should record the locations of all major components, parts, accessories and freight, and the locations at which the accident victims were found, or survivors located and, if available, their identities. The initial contact markings and other ground markings should also be indicated on the chart with suitable reference to identify the part of the aircraft or component responsible for the marking. When terrain features appear to have a bearing on the accident or on the type or extent of structural damage, they too should be noted on the wreckage distribution chart. Pertinent dimensions, descriptive notes and also the locations from which photographs were taken add to the completeness of the chart.

The preparation of a wreckage distribution sketch may be accomplished in various ways, but the following are some examples of simple methods:

a. When the wreckage is concentrated in a small area, distances and bearings (magnetic) can be measured from a central point of the wreckage. The plotting of the items can be made on a polar diagram;

b. When the wreckage is scattered, a base line can be laid out usually along the main wreckage trail, dependent upon the terrain, and distances measured along the base line from a reference point and then perpendicularly from the base line to the scattered pieces of wreckage. A chart is then prepared from this information using a suitable scale. The use of squared paper may be useful in preparing simple plots.

Where there are many pieces of wreckage the presentation of the chart can be simplified by using a letter or a numeral for each item and preparing a suitable index for inclusion on the chart.

5.7 Retrieving Recorded Media

Field investigation should begin with the determination of all recorded media carried on board the aircraft.

In addition to Flight Data Recorders and Cockpit Voice Recorders, investigators should be aware of any other data storage which may provide valuable information. Such media may be contained in quick access recorders, and non-volatile memory in printed circuit boards. Manufacturer and operator representatives should be consulted for this identification.
Installation locations and appearance should be well understood before making any wreckage survey so that these valuable sources of evidence can be identified and retrieved before data is further compromised by time and conditions.

Any special handling information for media, such as water immersion or static-safe bagging, should be included prior to handling or removing the component. Flight and engine performance data may have been transmitted to the air carrier operations or maintenance facility through an automated data-link reporting mechanism, and should be made available to the investigation team.

5.8 Handling Evidence

The evidence obtained from an investigation needs to be managed appropriately to ensure its integrity and to demonstrate continuity of evidence.

The following activities are crucial for the handling of evidence:

a. Providing a receipt for all evidence obtained for an investigation
b. Ensuring that physical and documentary evidence remains secure and in as-received condition.
c. Recording the receipt, transfer and return of all evidence in the investigation database.

The safeguarding of digital information is of critical importance all reasonable steps should take to ensure the security of the data at all times. Digital information of KNKT is stored in the KNKT database server. The data shall have a backup in other storage facility which periodically updated.

Information classified as non-disclosure information, is not limited to information stored in paper or electronic files. It includes things like photographs or video on digital cameras and phones, as well as voice on recordings devices. It is important that any photographs and recordings are transferred to a KNKT database server as soon as practicable upon return to the office and that the data on the device is erased once transfer has been confirmed.

a. Copies of Correspondence

Investigators must store all correspondence with parties regarding the investigation process in the investigation database. When the correspondence is in paper file, it should be scanned and stored in the investigation database.

b. Travelling with Non-Encrypted Devices

Unlike data stored on a notebook computer, the data stored on phones, cameras and voice recorders may not encrypted. All care should be taken to secure such devices when travelling to minimize the risk of loss or theft.

While travelling, devices that contain restricted data should be kept on person if possible. If the device needs to be placed somewhere other than with the person or in carryon baggage, removing the memory card and keeping it with the person should be considered.

When non-encrypted devices are not being used, they should be stored in an appropriate lockable cabinet.
c. Digital Data Management

The collection and managing of digital information consist of storage and archiving of digital assets created or collected as part of the investigation process.

This system:

1) Prevents the untidiness of the investigation database or shared network drives with surplus (and often voluminous) digital media.
2) Ensures the integrity and continuity of the collected multimedia evidence.

The digital data management process utilizes a ‘master’ format that is created and forms the primary information record.

The digital data management provides investigators and staff with a process to follow from when they ‘create’ a digital asset (anything from digital images, video, audio, paper files, or negatives and analogue data converted to digital), to when that data is finished with and ready for archiving.

5.9 Tests and Component Examinations

5.9.1 Laboratory Testing of Aircraft Systems and Components

In many cases, specialist examinations or testing of specific components is required. KNKT will follow the same policies and procedures for tests and component examinations as used for the accident site phase of the investigation.

Specialist examinations may range from a Scanning Electron Microscope (SEM) examination of a failed part to chemical analysis, aircraft systems testing or flight-testing. Laboratory examination and testing generally entail the use of specialized equipment not available at the accident site and are often beyond the capability of an aircraft maintenance facility.

Consideration should be given to using the component manufacturer facilities where specialized equipment and trained personnel are readily available. However, this will require supervision by investigators to ensure there is no real or perceived conflict of interest. Activities, particularly disassembly and testing phases will be documented and photographed for evidence purposes.

Laboratory testing should not be limited to standard tests. In addition to testing for compliance with appropriate specifications, it is sometimes necessary to determine the actual properties of the specimen (such as metal, material, fuel and oil).

Occasionally it is necessary to devise special tests that will fully exploit the components capabilities. A wide range of specialized testing equipment will permit simulation of a variety of malfunctions, the only limitation being the ingenuity of the investigators.
When investigators send failed parts or components for laboratory testing, they will provide as much information as possible relative to the circumstances contributing to the failure of such parts or components, including their own suspicions. The information provided by the investigator is intended only as a guideline to the specialist who should, nevertheless, explore all relevant aspects. It is not sufficient for an investigator to send parts for specialist examination with the innocuous instructions “for testing”. The investigator should provide a detailed history of the part or component, covering such items as:

a. The date it was installed on the aircraft;

b. The total number of service hours or cycles;

c. The total number of hours or cycles since last overhaul or inspection;

d. Previous difficulties reported;

e. Any other pertinent data that might shed light on how and why the part or component failed.

**Note** – If not accompanied by a KNKT investigator, arrangements should be made for supervision by an investigator from accident investigation authority of the State where the testing is to take place, or representative of Indonesia embassy or consulate.

In order to preserve evidence, it is essential that failed parts and components requiring specialist examination be extracted from the wreckage with care. Aircraft systems, whether mechanical, electrical, hydraulic or pneumatic, should be removed in sections as large as practicable. Relevant sections should preferably be dismantled rather than cut. Paint smears, which are often extremely important in collision accidents and in-flight failures, require protection. This also applies to smoke or soot smears.

### 5.9.2 Practical Arrangements

The nature of the specialist examination and the type of components and systems to be tested will determine the facility to be chosen. The investigator must be confident that the facility chosen is capable of providing the required examination and testing. Prior arrangements should be made with the facility as far in advance as practicable so that the management of the facility can plan the tests and assign personnel and equipment.

When choosing a system and components for specialist examination and testing, it is desirable to include as many components of the system as practicable, e.g. wiring harnesses, relays, control valves and regulators.

Tests conducted on a single component will reveal information about the operation of that particular unit only, whereas the problem may actually have been in one of the related components. The most valid test results will be obtained by using as many of the original system components as possible.

Each component will be tagged with its name, part number, serial number and the accident identifier. The investigator will maintain a listing, descriptive notes and photographs of all components, which are to be tested; the components themselves should be kept in protective storage until ready for shipping.

Components should be packed to minimize damage during transport. Particular care should be taken to ensure that fracture surfaces are protected by appropriate packing material so that mating surfaces coming into contact with each other or with other parts does not damage them.
Whenever possible, power-plants should be shipped in their special stands and containers. Other heavy components, such as flight control power units, stabilizer screw jack assemblies and actuators, should be packed in protective wrapping and placed in separate wooden containers. Blocks or bracing should be installed inside the containers to prevent any movement of the component during transport.

Smaller and lighter components may be shipped in the same manner with more than one to a box but in a manner, which will prevent them from coming into contact with one another.

Very light units may be packaged in heavy corrugated pasteboard cartons with sufficient packing material to prevent damage from mishandling during transport. The investigators should label all boxes and cartons appropriately and should make an inventory list for each container.

Sometimes it is necessary to send a part, or parts, of a damaged aircraft to another State for technical examination or testing. In accordance with ICAO Annex 9, each State concerned shall ensure that the movement of such part, or parts, is effected without delay. The States concerned shall likewise facilitate the return of such part, to the State conducting the investigation.

5.9.3 Notes and Test Results

Prior to conducting the examinations and tests, the investigator(s) and the facility personnel involved should be briefed on the type and extent of the tests to be carried out and should review the test procedures to ensure their adequacy. Basically, a written test plan should be prepared and agreed to by all participants before proceeding with any testing. The test plan becomes a written record of the investigation.

Any discrepancies found during testing should be photographed and documented with an explanation as to their bearing on the operation of the system or component. It should be kept in mind that the tolerances called for in the test procedures may only apply to new or overhauled components and that components which have been in service for some time may have acceptable limits outside these tolerances.

If the nature of the discrepancy so warrants, a component should be disassembled following completion of the tests to ascertain the cause of failure. Photographs should be taken of the parts prior to and during disassembly, and the findings should be documented.

Consideration should be given to x-raying components before disassembly if the position of springs or contacts etc., could be lost during the disassembly.

Off scene tests and examinations should be completed under the same rules and procedures for the on-scene phase, which excludes non-technical personnel. However, in some cases, other personnel not part of the investigation team may be ordered to participate or observe by a judge. In such cases, investigators must ensure that they do discuss their opinions, or make comment of findings or analysis in the presence of these non-technical third parties.

If insurance loss assessors or other parties, who are not part of the investigation team, have been approved to attend and observe the disassembly, the investigator and test facility personnel must take extreme care. Findings and analyses should not be discussed in the presence of non-investigation personnel, because they may use such information inappropriately.
Following completion of the testing, the investigator(s) and facility personnel should review and discuss the results. When there is agreement that the data gathered present a true and factual picture of the components condition and capabilities, the notes and test results should be reproduced into field notes to serve as a record of the examination and testing of the system or component.

5.10 Giving Access Data to Other Parties

It is KNKT policy to share data that have been collected during the course of investigation to involved parties, in order to the organization to develop corrective action of safety issue that might have been identified. In considering whether evidential material is to be provided to another party, it must first be considered whether the evidential material is non-disclosure information.

The data to be share for related party may include the recorder data of the Flight Data Recorder (FDR), the Cockpit Voice Recorder (CVR) or the animation of the accident flight. Sharing of recorder data limited to only listening to the CVR, showing animation or FDR graph. Copy shall not be provided to prevent unauthorized use of the data. Where there is a reasonable possibility that the recorder data may contain graphic or potentially disturbing content, an investigator, experienced in the replay of recorder data, shall be assigned responsibility for the initial replay session.

It must ensure that only personnel that have a direct need-to-know are present, and that all personnel are briefed as to the possible nature and content of the replay. Briefing shall provide a reasonable opportunity for personnel to excuse themselves from the audition at any time before or during the replay session. Excused personnel may wish to audition an appropriately edited version of the recorder content at a later opportunity.

No recording device is allowed to be carried during the data sharing.

5.11 Return of Evidence to Owner or Other Parties

KNKT shall release custody of the aircraft, its contents or any parts thereof, as soon as they are no longer required in the investigation, to any person or persons duly designated by aircraft owner or operator, the State of Registry or the State of the Operator, as applicable. In the case of the aircraft, its contents, or any parts thereof located in restricted area, the KNKT shall facilitate the access, if KNKT finds it impracticable to grant such access, the KNKT shall remove to a point where access can be given.

Returning evidence shall be accompanied respective Release of Custody form (see Appendix 7.6). A scanned copy of the form is to be uploaded into the investigation database. The wording on this form should be accurate, consistent with the wording of the original receipt of evidential material and take account of the actual evidence being returned or forwarded on (especially when all the evidence is not being returned at the same time).

Where it is intended to return the evidence to the owner/owner nominated agent, the parties would be contacted to see if they want the KNKT to release it to them first.

Where it is not possible to examine documentary evidential material and return it to the owner or owner nominated agent within 30 days, the documents or relevant parts of the documents are to be copied and the originals returned to the owner or owner nominated agent.
Components and documents in custody and in the process of being returned to the owner should be given every care and protection to ensure the preservation of evidence and the eventual return of the items to the owner in the condition in which they were received, apart from the effects of destructive testing or the examination which may have been required (for example, disassembly of components).

5.12 Wreckage in the Water

5.12.1 Initial Actions

As soon as it has been determined that the wreckage is in water, efforts must be made to obtain the best technical expertise available. The Chairman will call upon the services of the military and other agencies and resources with specialized expertise including from outside of Indonesia to ensure that the aircraft wreckage underwater is found and recovered as necessary in a timely manner.

As part of its contingency planning for an accident in the water, the KNKT has pre-arranged agreements with relevant organizations and other States to obtain the necessary specialized assistance.

*Note* – Experience has shown that the search for and the recovery of the aircraft wreckage under water is a specialized task requiring experienced personnel and specialized equipment. Specialized agencies should be consulted early to avoid unnecessary delays in locating and recovery of the flight recorders and the aircraft wreckage from under water.

If the water is shallow (less than 60 meters), divers can be effective for search and recovery of wreckage; however, mapping of the wreckage using side-scan sonar may need to be used to ensure the safety of the divers.

If the wreckage is located in deeper water, or conditions make it difficult to use divers, use of the following equipment should be considered:

a. Underwater equipment used to locate the Underwater Locating Beacons (ULB) on the flight recorders;

b. Underwater videos and cameras;

c. Side-scan sonar equipment;

d. Manned or unmanned submersibles (Remotely Operated Vehicles - ROV).

5.12.2 Decision to Recover the Aircraft Wreckage

The circumstances and location of an accident will determine whether salvage of the aircraft wreckage is practicable and necessary. In most cases, the aircraft wreckage should be recovered, if it is considered that the evidence it might provide would justify the expense and effort of a salvage operation.

If the aircraft wreckage is likely to contain evidence significant to aviation safety, KNKT will provide the impetus needed to ensure that action is promptly taken to recover the aircraft wreckage. Such action includes obtaining the necessary funding and specialized equipment and personnel for the tasks.

There have been several instances where aircraft wreckage has been successfully recovered from deep water. Such recoveries necessitated expensive salvage operations lasting several months, but the results exceeded expectations, and the evidence obtained from the aircraft wreckage established the causes of the accidents and led to accident prevention measures.
5.12.3 Aircraft Wreckage Distribution

Once the aircraft wreckage has been located, a chart plotting the wreckage distribution will be prepared. In shallow waters, divers can achieve this. In deep waters, side-scan sonar and underwater video cameras from remotely operated submersibles may be used. The state of the various pieces of aircraft wreckage, their connection by cables or tubes, the cutting of these connections for the salvage operations, etc., should be recorded before lifting the various pieces of aircraft wreckage from the bottom. Usually the divers will not be experienced in aircraft accident investigation and, therefore, detailed briefings will be necessary.

5.12.4 Preservation of the Aircraft Wreckage

The rates at which various metals react with salt water vary considerably. Magnesium components react quite violently and, unless recovered within the first few days, may be completely dissolved. Aluminium and most other metals are less affected by immersion in salt water. However, corrosion will rapidly accelerate once the component is removed from the water, unless steps are taken to prevent it.

Once the aircraft wreckage has been recovered, the components should be thoroughly rinsed with fresh water. It may be convenient to hose the aircraft wreckage as it is raised out of the sea prior to it being lowered onto the salvage vessel.

Freshwater rinsing does not stop all corrosive action. When large aircraft are involved, it may not be practicable to take further anti-corrosion action on large structural parts. However, all components that require metallurgical examination will require further preservation. The application of a water-displacing fluid will provide additional corrosion protection; fracture surfaces should then be given a coat of corrosion preventives such as oil or inhibited lanolin.

When organic deposits, such as soot deposits or stains, require analysis, organic protective substances should not be used. Freshwater rinsing should be employed followed by air-drying. When the component is completely dry, it should be sealed in a plastic bag with an inert desiccant such as silica gel.

Flight recorders should not be dried, but should be kept immersed in fresh water until the assigned flight recorder specialist assumes responsibility for them. The KNKT will never permit flight recorders that have been submerged in water to dry out before reaching the recorder laboratory, in order to prevent damage to the recording media.
6   RESTRICTED INFORMATION PROTECTION

6.1 Security measures

It is KNKT policy to protect investigation data from un-authorized access, especially data which classified as non-disclosure of records.

Recorder facility and its computers contain recorder data of accident that classified as non-disclosure of records. Recorder facility is equipped with electronic locking door system to prevent un-authorized person to enter the facility.

6.2 Non-KNKT Personnel on KNKT Premises

Non-KNKT personnel within the KNKT office premises must wear a visitor pass and must be escorted throughout the building. Visitor passes will be made available through the security guard in the building foyer.

Non-KNKT personnel shall be escorted/supervised at all times when enter the recorder facility and evidence warehouse. No recorder and camera are allowed.

6.3 Security Measures for Evidence

6.3.1 Computer storage

It is KNKT policy to transfer the paper files into digital format. All KNKT investigation digital data other than the recorder data will be stored in the KNKT database server.

Storage of such information on other computer drives is discouraged except as a transitory measure for the purpose of uploading on KNKT database server. Once the data is uploaded to the investigation database is completed, this information should be removed from the computer drive.

The storage of the data is based on the year of occurrence. Investigation data will be put in the folder and be named based on the aircraft registration. Each investigation folder will contain subfolder of:

a. Analysis: contain the investigator analysis that have not been included in the report
b. Correspondence: contain copy of correspondence related to the investigation;
c. Data: contains all data and placed based on appropriate sub-folder;
d. Interview: contain the interview note, voice recorded interview process, list of attendance;
e. Investigation Notes: contain investigator notes or fields note.
f. Photos: contain picture taken during the investigation

g. Report: contain the format of report and draft reports.

The data shall be stored in appropriate folder to make ‘easy to find’ for all investigation member team.

Investigator and KNKT staff will be provided access to the server with individual password protection.
6.3.2 Paper Files

Investigators may wish to keep working paper files in parallel with the digital file. Where it is still seen as necessary or desirable to also raise paper file for some or all of the investigation record, those files must be classified as non-disclosure information because of the sensitive commercial and privacy information they often contain. It is the responsibility of the IIC to provide data to the investigation team. Investigator shall protect un-authorized access to the data.

6.3.3 Flight Recorder Data

On board recorder, as much as possible must only be downloaded onto KNKT recorder facility computer unless KNKT facility unable perform the downloading process. Access to this computer is to be limited to relevant recorder specialist. Downloading process in facility other than KNKT facility shall be authorized by the Chairman.

Recorder data that has been ready for investigator analysis for the purpose of writing the report may be transferred by the recorder specialist to KNKT database server under subfolder 'Data'.

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7 APPENDICES

7.1 List of Examples of Serious Incident

The incidents listed are typical examples of incidents that are likely to be serious incidents. The list is not exhaustive and only serves as guidance to the definition of serious incident.

a. Near collisions requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate.

b. Collisions not classified as accidents.

c. Controlled flight into terrain only marginally avoided.

d. Aborted take-offs on a closed or engaged runway, on a taxiway (excluding authorized operation by helicopter) or unassigned runway.

e. Take-offs from a closed or engaged runway, from a taxiway (excluding authorized operation by helicopter) or unassigned runway.

f. Landings or attempted landings on a closed or engaged runway, on a taxiway (excluding authorized operation by helicopter) or unassigned runway.

g. Gross failures to achieve predicted performance during take-off or initial climb.

h. Fires and/or smoke in the cockpit, in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents.

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

j. Aircraft structural failures or engine disintegrations, including uncontained turbine engine failures, not classified as an accident.

k. Multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft.

l. Flight crew incapacitation in flight.

m. Fuel quantity level or distribution situations requiring the declaration of an emergency by the pilot, such as insufficient fuel, fuel exhaustion, fuel starvation, or inability to use all usable fuel on board.


o. Take-off or landing incidents. Incidents such as under-shooting, overrunning or running off the side of runways.

p. System failures, weather phenomena, operations outside the approved flight envelope or other occurrences which caused or could have caused difficulties controlling the aircraft.

q. Failures of more than one system in a redundancy system mandatory for flight guidance and navigation.

r. The unintentional or, as an emergency measure, the intentional release of a slung load or any other load carried external to the aircraft.
7.2 **Guidance for the Determination of Aircraft Damage**

a. If an engine separates from an aircraft, the event is categorized as an accident even if damage is confined to the engine.

b. A loss of engine cowls (fan or core) or reverser components which does not result in further damage to the aircraft is not considered an accident.

c. Occurrences where compressor or turbine blades or other engine internal components are ejected through the engine tail pipe are not considered accidents.

d. A collapsed or missing radome is not considered an accident unless there is related substantial damage in other structures or systems.

e. Occurrences of missing flaps, slats and other lift augmenting devices, winglets, etc., that are permitted for dispatch under the configuration deviation list (CDL) are not considered accidents.

f. Retraction of a landing gear leg or wheels-up landing, resulting in skin abrasion only, when the aircraft can be safely dispatched after minor repairs or patching, and subsequently undergoes more extensive work to effect a permanent repair, would not be classified as an accident.

g. If the structural damage is such that the aircraft depressurizes, or cannot be pressurized, the occurrence is categorized as an accident.

h. The removal of components for inspection following an occurrence, such as the precautionary removal of an undercarriage leg following a low-speed runway excursion, while involving considerable work, is not considered an accident unless significant damage is found.

i. Occurrences that involve an emergency evacuation are not counted as accidents unless someone receives serious injuries or the aircraft has sustained significant damage.

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**Note 1** – Regarding aircraft damage which adversely affects the structural strength, performance or flight characteristics, the aircraft may have landed safely, but cannot be safely dispatched on a further sector without repair.

**Note 2** – If the aircraft can be safely dispatched after minor repairs and subsequently undergoes more extensive work to effect a permanent repair, then the occurrence would not be classified as an accident. Likewise, if the aircraft can be dispatched under the CDL with the affected component removed, missing or inoperative, the repair would not be considered as a major repair and consequently the occurrence would not be considered an accident.

**Note 3** – The cost of repairs, or estimated loss, such as provided by insurance companies may provide an indication of the damage sustained but should not be used as the sole guide as to whether the damage is sufficient to count the occurrence as an accident. Likewise, an aircraft may be considered a “hull loss” because it is uneconomic to repair, without it having incurred sufficient damage to be classified as an accident.
7.3 Field Investigation Handbook

FIELD INVESTIGATION CHECKLIST

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<th>Date of Occurrence</th>
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<tr>
<td>Time of Occurrence</td>
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<td>Aircraft Registration</td>
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This Field Investigation Checklist is part of KNKT internal guidelines, which contains guidance material, intended to assist IIIC and investigator to record site investigation detail.

Please fill the appropriate column or complete narratives as required. Result column should not be blank, even if data not available please stated "N/A" or "-".

Please add extra sheets or attachment if necessary for better explain condition or detail information provided.

The IIIC and/or investigator should always refer to applicable provision of ICAO Annex 13, CASR Part 830, KNKT Policy and Procedure Manual, and other manual to ascertain the requirement of, and the obligation imposed by or under, the KNKT authority.

When return from incident site, please return to:

KNKT
Transportation Building 3rd Floor
Jl. Medan Merdeka Timur No. 5
Jakarta 10110 - INDONESIA

Telephone : (62-21) 3517606
Mobile : (62) 81212655155
Facsimile : (62-21) 3517606
Email : knkt@dephub.go.id
         aviation.knkt@dephub.go.id
1 CONTACT PERSON

<table>
<thead>
<tr>
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2 GO-KIT

The minimum equipment in the Go-kit:

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<thead>
<tr>
<th>Go Kit</th>
<th>Qty.</th>
<th>Remark</th>
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<tbody>
<tr>
<td>1. Screwdrivers</td>
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<td>2. Heavy work gloves (other gloves)</td>
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<td>3. Clip board</td>
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<td>4. Part / component tags</td>
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<td>5. Graph paper</td>
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<td>6. Pencils (lead &amp; grease)</td>
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<td>7. Protractor &amp; dividers</td>
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<td>8. Voice recorder (with extra batteries)</td>
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<td>10. Magnetic compass</td>
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<td>11. Magnifying glass</td>
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<td>12. Ruler &amp; steel tape (100 cm)</td>
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<td>15. Flashlight (with extra batteries)</td>
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<td>16. Valve core remover</td>
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<td>17. Plastic (evidence) bags</td>
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<td>18. Fluid sampling bottles</td>
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<td>19. Dust caps</td>
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<td>20. Adhesive tape</td>
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<td>21. Camera (with extra batteries)</td>
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<td>24. GPS receiver (with extra batteries)</td>
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<td>25. Documents*</td>
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* Document includes
  - Copy of ICAO Annex 13
  - Initial Notification(s)
  - Maps of the accident area (Topographical)
Prior to deploy to the accident site, investigator shall check the Go-kit to ensure that the contents are complete and in particular that the following are in working condition:

- All battery kept in high state of charge including the extra battery if available (camera, voice recorder, flashlight and GPS receiver).
- All memory cards are empty (camera and voice recorder).

The investigator must ensure that he has proper clothing, footwear for the investigation as well as the necessary KNKT identification, inoculation record and other personal equipment deemed necessary. Particular attention should be paid to protection against possible presence of blood borne pathogen.

If required to travel, be prepared for at least a week stay. From initial information obtained, determine clothing requirements and expected terrain.
**NOTIFICATION**

<table>
<thead>
<tr>
<th>a) for accidents the identifying abbreviation ACCID, for serious incidents INCID;</th>
<th>ACCID (Accident)</th>
<th>INCID (Serious Incident)</th>
<th>Incident (optional)</th>
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<tbody>
<tr>
<td>b) manufacturer, model, nationality and registration marks, and serial number of the aircraft;</td>
<td>Manufacturer:</td>
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<tr>
<td>Model:</td>
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<tr>
<td>Registration:</td>
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<td></td>
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<tr>
<td>Serial Number:</td>
<td></td>
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<tr>
<td>c) name of owner, operator and hirer, if any, of the aircraft;</td>
<td>Owner:</td>
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<tr>
<td>Operator:</td>
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<tr>
<td>d) qualification of the pilot-in-command, and nationality of the crew and passengers;</td>
<td>Pilot in Command qualification:</td>
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<tr>
<td>Flight crew nationality:</td>
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<tr>
<td>Passengers nationality:</td>
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<tr>
<td>e) date and time (local time or UTC) of the accident or serious incident;</td>
<td>Local Time Date: _ _ _ _ LT</td>
<td>UTC Date: _ _ _ _ UTC</td>
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<tr>
<td>Time: _ _ _ _</td>
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<tr>
<td>f) last point of departure and point of intended landing of the aircraft;</td>
<td>Last point of departure:</td>
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<tr>
<td>Point of intended landing:</td>
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<tr>
<td>g) position of the aircraft with reference to some easily defined geographical point and latitude and longitude;</td>
<td>Latitude _ _ _ _ ° _ _ _ _ ’ N/S</td>
<td>Longitude _ _ _ _ ° _ _ _ _ ’ W/E</td>
<td></td>
</tr>
<tr>
<td>h) number of crew and passengers; aboard, killed and seriously injured; others, killed and seriously injured;</td>
<td>Persons on board are: _ _ pilots _ _ attendants and _ _ _ _ passengers.</td>
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<tr>
<td>Fatal _ _ crew _ _ pax _ _ others</td>
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<tr>
<td>Serious Injury _ _ crew _ _ pax _ _ others</td>
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<tr>
<td>Minor _ _ crew _ _ pax _ _ others</td>
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<tr>
<td>i) description of the accident or serious incident and the extent of damage to the aircraft as far as is known;</td>
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<tr>
<td>j) an indication to what extent the investigation will be conducted or is proposed to be delegated by the State of Occurrence;</td>
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<tr>
<td>k) physical characteristics of the accident or serious incident area, as well as an indication of access difficulties or special requirements to reach the site;</td>
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<tr>
<td>l) identification of the originating authority and means to contact the investigator-in-charge and the accident investigation authority of the State of Occurrence at any time;</td>
<td>The KNKT Indonesia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone: +62 21 3517606</td>
<td>Facsimile: +62 21 3517606</td>
<td>Email: <a href="mailto:knkt@dephub.go.id">knkt@dephub.go.id</a></td>
<td></td>
</tr>
<tr>
<td>m) presence and description of dangerous goods on board the aircraft;</td>
<td>No</td>
<td>Yes (please describe)</td>
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<td>Operation Type (If information is available)</td>
<td>Commercial Aviation</td>
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<td>Passenger Cargo Other</td>
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<td>Other</td>
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<tr>
<td>Level of damage to aircraft (If information is available)</td>
<td>Destroyed</td>
<td>Substantial</td>
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The State of Occurrence shall forward a notification of an accident or serious incident with a minimum of delay and by the most suitable and quickest means available to: a) the State of Registry; b) the State of the Operator; c) the State of Design; d) the State of Manufacture; and e) the International Civil Aviation Organization, when the aircraft involved is of a maximum mass of over 2,500 kg.
## PRELIMINARY

### 4.1 Personnel Information

#### 4.1.1 Pilot

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### 4.1.2 Flight Attendant

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4.1.3 Air Traffic Controller

4.1.3.1 Aerodrome Control Tower

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Note:
Working time is the time period when the person attends their particular working shift, while the duty time is the time period when the person performs their duty to provide air traffic control service.
### 4.1.3.2 Ground Control

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**Note:**

Working time is the time period when the person attends their particular working shift, while the duty time is the time period when the person performs their duty to provide air traffic control service.
### 4.1.3.3 Approach Control

<table>
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</table>

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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of joining company</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>License</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of issue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type rating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of issue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Validity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical certificate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last of medical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Validity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical limitation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAO Language Proficiency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of issue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Validity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 7 days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duty time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 7 days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last 24 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

Working time is the time period when the person attends their particular working shift, while the duty time is the time period when the person performs their duty to provide air traffic control service.
4.2 Aircraft Information

4.2.1 Aircraft Data

Registraion Mark : 
Manufacturer : 
Country of Manufacturer : 
Type/Model : 
Serial Number : 
Year of Manufacture : 
Certificate of Airworthiness
  Issued : 
  Validity : 
  Category : 
  Limitations : 
Certificate of Registration
  Registration Number : 
  Issued : 
  Validity : 
  Time Since New : 
  Cycles Since New : 
  Last Major Check : 
  Last Minor Check :

4.2.2 Engine

Manufacturer : 
Type/Model : 
Serial Number-1 engine : 
  Time Since New : 
  Cycles Since New : 
Serial Number-2 engine : 
  Time Since New : 
  Cycles Since New :
4.2.3 Propeller

Manufacturer : 
Type/Model : 
Serial Number-1 propeller : 
  - Time Since New : 
  - Cycles Since New : 
Serial Number-2 propeller : 
  - Time Since New : 
  - Cycles Since New :

4.2.4 Flight Data Recorder

The FDR unit shall be secured and transported to KNKT.
Manufacturer : 
Model : 
Part Number : 
Serial Number :

4.2.5 Cockpit Voice Recorder

The CVR unit shall be secured and transported to KNKT.
Manufacturer : 
Model : 
Part Number : 
Serial Number :
4.3 Meteorological Information

<table>
<thead>
<tr>
<th>Time</th>
<th>Wind (°/knots)</th>
<th>Visibility (km)</th>
<th>Weather</th>
<th>Cloud</th>
<th>TT/TD (°C)</th>
<th>QNH (mb/in Hg)</th>
<th>QFE (mb/in Hg)</th>
<th>Remarks</th>
</tr>
</thead>
</table>

If available, do not forget to collect data from satellite images, Automatic Weather Observation System (AWOS) including the RAW data and its sensor location. Determination of wind and visibility information often become PROBLEM!

4.4 Aerodrome Information

Airport Name : 
Airport Identification : 
Airport Operator : 
Airport Certificate : 
Validity : 
Coordinate : 
Elevation : 
Runway Direction : 
Runway Length : 
Runway Width : 
Surface : 

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4.5 Organization and Management

4.5.1 Aircraft Operator

- AOC Number: 
- Validity: 
- Aircraft Owner: 
- Address: 
- Aircraft Operator: 
- Address: 
- Certificate Number: 

4.5.2 Air Traffic Services Provider

- ATS Provider Name: 
- Address: 
- ATS Provider Certificate Number: 
- Validity: 
- Type of service: 

4.5.3 Other Organization Involved

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
KOMITE NASIONAL KESELAMATAN TRANSPORTASI
INVESTIGATION GUIDELINES

Komite Nasional Keselamatan Transportasi
National Transportation Safety Committee

5 DOCUMENT

The investigator may collect copy data and/or document listed below (if possible in softcopy).

5.1 Aircraft Operator Document

5.1.1 Aircraft Document

<table>
<thead>
<tr>
<th>No</th>
<th>Document</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Certificate of Airworthiness (C of A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Certificate of Registration (C of R)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Radio Permit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Aircraft Weight and Balance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Air Operator Certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Operation Specification (OPSPEC)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1.2 Operation Document

<table>
<thead>
<tr>
<th>No</th>
<th>Document</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Flight crew member report (trip report)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Company Operations Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Company/Aircraft SOP's</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Flight Manuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Checklists and Quick References Handbook (QRH)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Pilot Licences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Medical Certificates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Pilot’s Log Book</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Flight Crew Training records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Flight Plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Company Dispatch Log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Load Manifests (load sheet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>Photo and/or video related to the occurrence</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
KOMITE NASIONAL KESELAMATAN TRANSPORTASI  
INVESTIGATION GUIDELINES

<table>
<thead>
<tr>
<th>No</th>
<th>Document</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>Flight following (display playback, raw data, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>Flight Operation Quality Assurance (FOQA)/Flight Data Monitoring (FDM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>Global Positioning System (GPS) raw data</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1.3 Engineering Document

<table>
<thead>
<tr>
<th>No</th>
<th>Document</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>List of Maintenance or repair and Airworthiness Directive Compliances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Maintenance Program (Maintenance Specifications Items/MSI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Aircraft historical records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Aircraft condition monitoring programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Engine condition monitoring programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Engine and Propeller history records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Accident &amp; incident historical records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Maintenance Release forms;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Master and/or Company MEL;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Flight Data Recorder (FDR) and Cockpit Voice Recorder (CVR)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Flight recorder data frame.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Reliability report</td>
<td></td>
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</table>
5.2 Airport Operator

<table>
<thead>
<tr>
<th>No</th>
<th>Document</th>
<th>Y</th>
<th>N</th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>Airport certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Aerodrome Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Standard Operation Procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>SMS Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Aerodrome Emergency Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Incident/accident report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Chronological report of involved unit/personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Facilities data (including runway)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Daily inspection checklist of facilities (including runway)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Runway inspection log book</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Photo and/or video related to the occurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Involved personnel information data (licenses, medical certificate, training etc)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>Grid Map &amp; layout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>CCTV record</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>DGCA Last Audit data</td>
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</table>
### 5.3 ATS Provider

<table>
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<th>Document</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>ATS provider certificate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Manual of Standard (MOS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Standard Operating Procedure (SOP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Letter of Agreement (LOA) of involved units</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Incident/accident report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Chronological report of involved unit/personnel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>ATS units log book (Aerodrome Control Tower/TWR, Approach Control Unit/APP, Area Control Center/ACC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Navigation aids status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Voice communication data, including its transcript</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Radar/ADS-B display playback including its RAW data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Flight progress strip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Meteorological report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>Determination of wind and visibility value including its data source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>Visibility chart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>Notice to Airmen (NOTAM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>Controller duty roster (2 months before occurrence)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q</td>
<td>Air traffic controller information (licenses, medical certificate, training etc.)</td>
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</table>
## 5.4 Photography Checklist

<table>
<thead>
<tr>
<th>No</th>
<th>Activities</th>
<th>Y</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Aerial view of the site (Video and/or photo)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>The site ground view from each cardinal compass position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>The site from the direction the aircraft was traveling at impact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Ground scars</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Damage to trees and foliage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Skid marks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Photo inventory of major wreckage components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Flight control surfaces and actuators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Landing gear and other hydraulic components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j</td>
<td>Cockpit switch positions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k</td>
<td>Fire/heat damage and discoloration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l</td>
<td>Human remains, injuries, blood/tissue smears on wreckage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m</td>
<td>Extra items or items adjacent to items not accounted for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>Close-ups of fracture surfaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o</td>
<td>Close-ups of improperly installed components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>Close-ups of any other items suspected of having contributed to the mishap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>q</td>
<td>Private property damage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>Steps in removing, opening or cutting apart components</td>
<td></td>
<td></td>
</tr>
<tr>
<td>s</td>
<td>Any other photos deemed necessary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6 OCCURRENCE DESCRIPTION

Please provide a complete description of the occurrence and associated events.
Add extra sheets or attachment if necessary for better explain condition or detail information necessary.

This document is uncontrolled if printed, please verify that it is the latest copy, see online version
7 AIRCRAFT LOCATION AND WRECKAGE DISTRIBUTION

Please provide the sketch with location of tower, taxiway and building or other references.
7.4 Templates of Affidavit

7.4.1 Affidavit for Accredited Representative

I, ____________________________ (full name)

(organization name and title/position)

accept the invitation by the Chairman of the Komite Nasional Keselamatan Transportasi (KNKT) to act as an Accredited Representative, and agree to abide by the KNKT protocols during the conduct of the investigation of:

Aircraft Type: ____________________________ Registration: ____________________________

I understand and agree that I will not disclose any information on the fact and finding and other information of the investigation to other parties without express consent of the KNKT Chairman or Investigator in-Charge.

Signed : ____________________________

Date : ____________________________

Work address : ____________________________

Phone : ____________________________

Fax : ____________________________

E-mail : ____________________________

Mobile Phone : ____________________________
An Accredited Representative is entitled, subject to Indonesia Law No. 1 of 2009, Government Regulations No. 62 of 2013, CASR Part 830, KNKT Policy and Procedure Manual and under the provisions and recommended practices of ICAO Annex 13, and obliged to:

**Entitlement:**
- To visit the scene of the accident.
- To examine the wreckage.
- To obtain witness information and suggest areas of questioning.
- To have full access to all relevant evidence as soon as possible.
- To receive copies of all pertinent documents.
- To participate in read-outs of recorded media.
- To participate in off-scene investigative activities such as component examinations, technical briefings, tests and simulations.
- To participate in investigation progress meetings including deliberations related to analysis, findings, causes and safety recommendations.
- To make submissions in respect of the various elements of the investigation.
- To participate in any other activity as authorized by the Investigator in-Charge.

**Obligations:**
- To supervise his/her Advisors, allowing them to participate in the investigation to the extent necessary to enable the Accredited Representative's participation effective.
- To provide the Investigation Team with all relevant information.
- Not to divulge any information on the progress and the findings of the investigation without the express consent of the KNKT Chairman or Investigator In-Charge. (Except from reporting to their respective State in order to facilitate appropriate safety actions).
- To abide by the Health & Safety (H&S) procedures as determined by the Investigator In-Charge or his/her H&S advisors.
- To adhere to security and accident site access procedures and to wear an appropriate security pass issued by the relevant authorities.

**KNKT Acknowledgment**

Sign: __________________________

Name: __________________________
7.4.2 Affidavit for Seconded Investigator

I, _____________________________ (full name)

(organization name and title/position)

accept the invitation by the Chairman of the Komite Nasional Keselamatan Transportasi (KNKT) to act as an Seconded Investigator for the KNKT, and agree to abide by the KNKT protocols during the conduct of the investigation of:

Aircraft Type: ___________________________ Registration: ___________________________

I understand and agree that I will not disclose any information on the fact and finding and other information of the investigation to other parties without express consent of the KNKT Chairman or Investigator in-Charge.

Signed : ___________________________

Date : ___________________________

Work address : ___________________________

Phone : ___________________________

Fax : ___________________________

E-mail : ___________________________

Mobile Phone : ___________________________
A **Seconded Investigator** is entitled, subject to Indonesia Law No. 1 of 2009, Government Regulations No. 62 of 2013, CASR Part 830, KNKT Policy and Procedure Manual and under the provisions and recommended practices of ICAO Annex 13, and obliged to:

**Entitlement**: (choose the appropriate entitlement and erase the other before print)

- To visit the scene of the accident.
- To examine the wreckage.
- To obtain witness information and suggest areas of questioning.
- To have full access to all relevant evidence as soon as possible.
- To receive copies of all pertinent documents.
- To participate in read-outs of recorded media.
- To participate in off-scene investigative activities such as component examinations, technical briefings, tests and simulations.
- To participate in investigation progress meetings including deliberations related to analysis, findings, causes and safety recommendations.
- To make submissions in respect of the various elements of the investigation.
- To participate in any other activity as authorized by the Investigator in-Charge.

**Obligations**:

- To provide the Investigation Team with all relevant information.
- Not to divulge any information on the progress and the findings of the investigation without the express consent of the Investigator In-Charge.
- To abide by the Health & Safety (H&S) procedures as determined by the Investigator In-Charge or his / her H&S advisors.
- To adhere to security and accident site access procedures and to wear an appropriate security pass issued by the relevant authorities.

---

**KNKT Acknowledgment**

Sign : 

Name : 

---

**KOMITE NASIONAL KESELAMATAN TRANSPORTASI**

INVESTIGATION GUIDELINES
7.4.3 Affidavit for Involved Personnel

I, ______________________________________________ (full name)

_________________________________________________________

(organization name and title/position)

involves as _______________________________________________________________

agree to abide by the Komite Nasional KeSELAMATAN Transportasi (KNKT) protocols during the conduct of the investigation of:

Aircraft Type: ___________________________ Registration: _______________________

I understand and agree that I will not disclose any information on the fact and finding and other information of the investigation to other parties without express consent of the KNKT Chairman or Investigator in-Charge.

Signed : __________________________________________

Date : ____________________________________________

Work address : _______________________________________

Phone : ____________________________________________

Fax : ______________________________________________

E-mail : ____________________________________________

Mobile Phone : ______________________________________

---

KNKT Acknowledgment

Sign : ____________________________________________

Name : ____________________________________________

---

Affidavit

Komite Nasional KeSELAMATAN Transportasi

---

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7.5 Template of Receive of Custody Forms

7.5.1 Receiving Form in English

RECEIVING FORM

Number: BA. / BM / KNKT / 20.

On __________________ date ____________________________ month __________________ year

TWO THOUSAND __________________ the signed below:

a. Name : ____________________________________________
   Position : ____________________________________________
   Address : ____________________________________________

   On behalf of ____________________________________________________________________________
   hereinafter will be called as FIRST PARTY.

b. Name : ____________________________________________
   Position : ____________________________________________
   Address : Transportation Building 3rd Floor
   Jalan Medan Merdeka Timur No. 5 Jakarta 10110

   On behalf of the Komite Nasional Keselamatan Transportasi (KNKT), hereinafter
   will be called as SECOND PARTY.

The FIRST PARTY today on the date as mentioned above has provided the items
and/or copy of documents to the SECOND PARTY as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Item/Document</th>
<th>Remarks</th>
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<tbody>
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</table>
The SECOND PARTY has received the items and/or copy documents from the FIRST PARTY which will be used in the investigation involving aircraft registered under what conditions (as it is).

FIRST PARTY

SECOND PARTY

..........................................................  ..........................................................
BERITA ACARA SERAH TERIMA BARANG MASUK
Nomor: BA. / BM / KNKT / 20

Pada hari ................ tanggal ................ bulan ................
tahun DUA RIBU ................ yang bertanda tangan di bawah ini:

a. Nama : ..............................................
   Jabatan : ..............................................
   Alamat : ..............................................

Dalam hal ini bertindak atas nama ..............................................
untuk selanjutnya disebut PIHAK PERTAMA.

b. Nama : ..............................................
   Jabatan : ..............................................
   Alamat : Gedung Perhubungan Lt. 3
   Jl. Medan Merdeka Timur No. 5 Jakarta 10110

Dalam hal ini bertindak atas nama Komite Nasional Keselamatan Transportasi
(KNKT) yang selanjutnya disebut PIHAK KEDUA.

PIHAK PERTAMA pada hari ini tanggal tersebut di atas telah menyerahkan barang
dan/atau salinan dokumen kepada PIHAK KEDUA sebagai berikut:

<table>
<thead>
<tr>
<th>No.</th>
<th>Barang/Dokumen</th>
<th>Keterangan</th>
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Hal. 1 dari 2
PIHAK KEDUA telah menerima penyerahan barang dan/atau salinan dokumen dari PIHAK PERTAMA yang akan digunakan dalam investigasi kecelakaan pesawat udara ........................................... dengan registrasi ........................................... dalam kondisi apa adanya (as it is).

Demikian Berita Acara ini dibuat dengan benar dan dapat dipergunakan sebagaimana mestinya.

PIHAK PERTAMA

.................................................................

PIHAK KEDUA

.................................................................
7.6 Template of Release of Custody Forms

7.6.1 Aircraft Release of Custody (in English)

Dear Sir,

Regarding to the investigation on an [accident/serious incident (choose one)] involving an [type] aircraft, registered [aircraft registration] which occurred at [location, city, country] on [DD Month YYYY]. The Komite Nasional Keselamatan Transportasi (KNKT) has finished the examination and release custody of the aircraft.

In case of KNKT requires further information of the aircraft, the KNKT will sent a letter to the related parties.

Thank you for your cooperation.

Yours sincerely

KOMITE NASIONAL KESELAMATAN TRANSPORTASI
Chairman

SOERJANTO TJAHJONO
7.6.2 Aircraft Release of Custody (in Bahasa)


3. Demikian disampaikan, atas perhatian dan kerjasamanya diucapkan terima kasih.

KOMITE NASIONAL
KESELAMATAN TRANSPORTASI
KETUA

SOERJANTO TJAHJONO

KOMITE NASIONAL KESELAMATAN TRANSPORTASI
INVESTIGATION GUIDELINES
7.6.3 Releasing Form (in English)

**RELEASING FORM**

Number: BA. / BK / KNKT / 20 ......

On ____________________________ date ____________________________ month ____________________________ year

TWO THOUSAND ____________________________ the signed below:

a. Name : ____________________________
   Position : ____________________________
   Address : Transportation Building 3rd Floor
              Jalan Medan Merdeka Timur No. 5 Jakarta 10110

On behalf of the *Komite Nasional Keselamatan Transportasi* (KNKT), hereinafter will be called as **FIRST PARTY**.

b. Name : ____________________________
   Position : ____________________________
   Address : ____________________________

On behalf of ____________________________
hereinafter will be called as **SECOND PARTY**.

The **FIRST PARTY** today on the date as mentioned above has released items and/or documents to the **SECOND PARTY** as follows:

<table>
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</table>
The SECOND PARTY has received the items and/or documents from the FIRST PARTY which will be / have been* used in the investigation involving ................................ aircraft registered ................................ under what conditions (as it is).

FIRST PARTY

SECOND PARTY

........................................................

........................................................

........................................................

........................................................

........................................................

........................................................
BERITA ACARA SERAH TERIMA BARANG KELUAR
Nomor: BA. / BK / KNKT / 20___

Pada hari ................................ tanggal .......................... bulan ................................ tahun DUA RIBU ................................ yang bertanda tangan di bawah ini:

a. Nama : ..............................................................
   Jabatan : ..............................................................
   Alamat : Gedung Perhubungan Lt. 3
             Jl. Medan Merdeka Timur No. 5 Jakarta 10110

Dalam hal ini bertindak atas nama Komite Nasional Keselamatan Transportasi (KNKT) yang selanjutnya disebut PIHAK PERTAMA.

b. Nama : ..............................................................
   Jabatan : ..............................................................
   Alamat : ..............................................................

Dalam hal ini bertindak atas ........................................................ untuk selanjutnya disebut PIHAK KEDUA.

PIHAK PERTAMA pada hari ini tanggal tersebut di atas telah menyerahkan barang dan/atau salinan dokumen sebagai berikut:

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</table>

Hal. 1 dari 2
PIHAK KEDUA telah menerima penyerahan barang dan/atau salinan dokumen yang akan/tehad* dipergunakan untuk investigasi pesawat udara ..................registrasi .................. apa adanya (as it is) dari PIHAK PERTAMA.

Demikian Berita Acara ini dibuat dengan benar dan dapat dipergunakan sebagaimana mestinya.

<table>
<thead>
<tr>
<th>PIHAK PERTAMA</th>
<th>PIHAK KEDUA</th>
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Hal. 2 dari 2