APPROVED

TSOLMON.J
DIRECTOR AND GENERAL INVESTIGATOR
AIRCRAFT ACCIDENT AND INCIDENT
INVESTIGATIONS BUREAU

PROCEDURE FOR PHOTOGRAPHIC DOCUMENTATION OF ACCIDENT SITE EVIDENCE

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PROCEDURE FOR PHOTOGRAPHIC DOCUMENTATION OF ACCIDENT SITE EVIDENCE

ONE. GENERAL

1.1. This procedure shall be followed by investigators participating in aircraft accident and serious incident investigations in order to preserve and document the accident scene and evidence by photographic means.

TWO. GENERAL PRINCIPLES

2.1. Accident-site photography is intended to create a systematic visual record. Its purpose is to preserve evidence that may later be altered or destroyed during firefighting, rescue, recovery, or wreckage removal operations.

2.2. Photographic documentation is a basic requirement of accident investigation. High-quality photographs assist in recording evidence effectively, support preparation of the investigation report, and help reveal the overall condition of the accident site.

THREE. PHOTOGRAPHIC DOCUMENTATION OF THE ACCIDENT SITE

3.1. Photography shall begin immediately and shall comprehensively depict the accident location, the wreckage, and its condition. The work shall be carried out by investigators participating in the investigation or by a person designated by the investigator-in-charge.

3.2. Where necessary, aerial photography shall be arranged without delay in order to create a systematic visual record of the accident. General overview photographs of the site should be taken as often as practicable.

3.3. Photographic evidence shall include all relevant evidence, beginning with perishable or easily lost evidence and continuing through to durable evidence.

3.4. Evidence at the accident site may fade, deteriorate, or disappear for many reasons, including weather and environmental effects, accidental disturbance of ground marks or component locations by persons at the site, movement of cockpit switches and selectors, and loss of witness memory over time. For that reason, investigators shall reach the site as quickly as possible and begin photography and video recording immediately.

3.5. At the early stage of an investigation, the scene is often disorderly and dynamic, and the probability of evidence loss is high.

3.6. All activities at the site and all items discovered shall be photographed individually, and each photograph shall be numbered, captioned, and recorded using the applicable log form.

3.7. Accident-site photographs shall contain sufficiently clear and systematic information to show both the identification and the position of all items that may constitute evidence.

FOUR. TAKING PHOTOGRAPHS AND VIDEO RECORDINGS

4.1. The investigator-in-charge shall designate a qualified person to take photographs and video recordings sufficient to document all relevant evidence, terrain features, weather conditions, and other circumstances associated with the occurrence.

4.2. The designated person shall proceed to the site without delay, take photographs and video recordings, assign a number and label to each image or clip, and complete the corresponding log using the form in Attachment 1.

4.3. Photography, video recording, and documentation of the accident site shall be carried out in accordance with Chapter 5.8 of the Bureau's Aircraft Accident and Incident Investigation Manual.

4.4. After the overall condition of the site has been fully documented, the photographs and recordings shall be professionally processed, printed if required, and archived in a usable form.

4.5. Active-scene photography shall, as applicable, include:

- Video of the aircraft on approach or landing, if available;
- Rescue and firefighting operations in progress;
- Weather conditions;
- The accident site from a distance and at close range;
- The extent and position of fire damage;
- Movement, recovery, or relocation of wreckage;
- Passenger locations and any movement or relocation of persons.

4.6. Passive-scene photography shall, as applicable, include:

- General terrain conditions;
- The approach path and accident path;
- Views from above and below the accident path where relevant;
- Plan-view photographs taken perpendicular to the accident path;
- Aerial photographs;
- Specific noteworthy items;
- Slope or embankment dimensions (width, length, thickness) where relevant;
- All involved objects or cargo;
- Vegetation or foliage marks;
- Control systems and linkages;
- Propellers, wheels, and landing gear;

- Engines and other separated items;
- Fragmentation patterns;
- Fire damage;
- Instrument panel and controls;
- Lenses, lights, and wiring;
- External surfaces of the aircraft;
- Interior of the aircraft to the extent necessary;
- Any impacted objects.

4.7. Photographs of similar aircraft or undamaged comparison items may be taken for comparison purposes. Additional photographs should always be taken if light conditions or exposure are doubtful. Because only the best images will ultimately be used, investigators should take as many photographs as necessary to ensure that the required views have been captured.

4.8. Law enforcement or emergency response agencies should be asked to provide copies of any photographs they took, especially photographs made during rescue or firefighting operations.

4.9. The investigation team shall contact pathologists, media personnel, witnesses, and any other persons who may have taken photographs before items at the site were moved.

4.10. If the occurrence took place in flight, investigators should contact the air traffic control tower or other relevant facilities that may have captured images or video of the aircraft in distress.

4.11. Where film or images are privately owned, reasonable costs for development, duplication, or replacement shall be reimbursed, and original material shall be returned promptly after use.

4.12. During air shows or public events, numerous spectators and media representatives may have taken photographs or recordings before, during, or after the occurrence. Radio, television, and newspapers may be used to request that such persons come forward.

4.13. A systematic sequence shall be used to document the overall scene. The wreckage should be photographed from at least four directions and, where practicable, from all eight compass points. If wreckage is spread over a large area, a series of overlapping photographs shall be taken along the debris path starting from one end.

4.14. Photographs shall be used to document major wreckage components, including wings, engines, empennage, and propellers.

4.15. Photographs shall be taken of major property damage and of any activity involving movement, opening, cutting, or disassembly of the wreckage, since such images are useful for documenting changes made during the investigation.

4.16. Photographs shall be taken of reconstructed wreckage where such reconstruction is carried out.

4.17. To document skid marks on a runway or any other marks on the ground longer than about 40 feet, investigators may need to take a series of photographs at regular intervals along the mark. Each image should overlap the previous one and include a common reference object. Ground scars and grooves are often best photographed in the direction of travel. Suspected areas and important evidence should also be photographed close-up or with magnification.

4.18. It is important to include a scale in photographs, such as a tape measure, ruler, or another object of known dimensions.

4.19. For close-up photography, investigators should first take an overall photograph from a distance, then a medium-range image, and only then a close-up. The first two images help the viewer understand the perspective and location of the close-up image. Where possible and appropriate, the scene or area described by a witness should also be photographed.

4.20. A brief record shall be kept of the location from which each photograph was taken. Photography shall be coordinated with the work of other team members, especially investigators dealing with witnesses. Important documents that cannot be reproduced in the report for other reasons shall nevertheless be photographed as necessary. The photo documentation log is provided in Attachment 1.

4.21. The standard set of photographs accompanying the accident report should include:

- The accident site, including ground marks and obstacles;
- The principal wreckage from four directions taken 90 degrees apart;
- The approach area;
- Surrounding terrain and, where possible, aerial views;
- Close-up photographs of important instruments, controls, switch positions, control surfaces, aerodynamic surfaces, and structural features;
- Close-up photographs of significant fractures or damage;
- Items or components as found before removal for further examination;
- Human remains only when critical information cannot be obtained by other means and subject to legal and ethical controls;
- Any type of perishable evidence.

4.22. A photographic record shall be maintained showing the date, time, and subject of each image. Notes shall also be kept regarding the subject, date, photographer, and camera settings. Where necessary, the position from which a photograph or recording was made shall also be recorded.

4.23. Each roll of film, memory card set, or image series shall be identified by its number, the occurrence, the date, and the photographer. If an incorrect film speed or camera setting is discovered, investigators should continue shooting without altering the sequence and advise the processing laboratory accordingly so that processing can be adjusted.

4.24. Good investigative photography practice requires investigators to take as many photographs as necessary, preserve all original image sets, and print or include in the report only those photographs needed for reporting purposes.

4.25. Video recording is particularly suitable for capturing the accident site, perishable evidence, and the real-time, unaltered environment at the scene. Valuable recordings can be checked immediately and duplicated later if required. Video recording is also useful for briefings and explanatory presentations. Video taken during the investigation—including footage of the site, wreckage, laboratory tests, examinations, interviews, and investigator actions—shall not be erased and shall form part of the occurrence record.

4.26. Digital still photography is especially useful because image quality can be checked immediately and images can be transmitted rapidly to other persons. Only the original, unaltered image shall be treated as primary evidence. If an image is edited—for example by annotation, cropping, or quality adjustment—the details of that modification shall be documented and retained with the image. Digital images are also readily incorporated into reports and related records.

FIVE. AERIAL PHOTOGRAPHY

5.1. If the investigator-in-charge considers it necessary, aerial photographs shall be taken before the site is altered by ongoing activities. Aerial photographs should include significant terrain features, the initial impact point, and burned areas on the ground.

5.2. When photographing the site from the air, the person conducting the flight shall have a clear understanding of the photographic requirements so that airborne time is used efficiently, and the pilot shall be fully briefed before the flight.

5.3. Aerial photography of the accident site shall be carried out in accordance with Chapter 5.8.5 of the Bureau's Aircraft Accident and Incident Investigation Manual.

SIX. NIGHT PHOTOGRAPHY

6.1. Photography that fully shows the location of the occurrence, the wreckage, and its condition shall begin as soon as possible. The work shall be performed by investigators participating in the investigation or by a person designated by the investigator-in-charge.

6.2. If an accident or incident occurs at night or in the absence of natural light, the situation shall be assessed immediately and night photography shall be organized without delay in order to create a systematic photographic record. General overview images of the site should be taken as often as practicable.

6.3. Where there is a choice, night photography should be avoided because artificial lighting is only marginally adequate for close and medium-range work and is generally insufficient for overall views, long-range images, or very large objects.

6.4. If night photography is unavoidable, it shall be conducted in accordance with Chapter 5.8.6 of the Bureau's Aircraft Accident and Incident Investigation Manual.

SEVEN. STEREO PHOTOGRAPHY AND PHOTOGRAMMETRY

7.1. Stereo photography of the accident site may prove valuable months after the occurrence. By using three-dimensional viewing methods, investigators can distinguish relative size and estimate distances between wreckage items in complex scenes. Stereo photography is conceptually simple: human depth perception is based on the two eyes viewing the same object from slightly different angles. In the same way, two photographs taken from slightly separated positions on the same horizontal plane can create a depth effect. As a rule of thumb, the second photograph should be taken after moving the camera by a distance approximately equal to one percent of the camera-to-subject distance.

7.2. If stereo photography is required, it shall be carried out in accordance with Chapter 5.8.7 of the Bureau's Aircraft Accident and Incident Investigation Manual.

7.3. Photogrammetry is the science of measuring and interpreting photographic and other electromagnetic imagery. Photogrammetric techniques can be used to produce highly accurate scaled reference images from photographs. By incorporating a coordinate grid or other known measurements into three-dimensional image processing, photographers can generate accurate reference imagery of the accident site.

7.4. Where photogrammetric photography, measurement, or analysis is required, it shall be carried out in accordance with Chapter 5.8.8 of the Bureau's Aircraft Accident and Incident Investigation Manual.

EIGHT. USE OF PHOTOGRAPHS IN REPORTS AND THEIR STORAGE

8.1. The person responsible for the investigation shall record, caption, and authenticate all photographs and video recordings of the accident territory, the aircraft, components, and other important evidence using the form in Attachment 1.

8.2. Photographs containing important evidentiary value shall be selected and included in the investigation report as appropriate.

8.3. All photographs, video recordings, and other visual evidence related to the occurrence shall be retained in the archives of the Aircraft Accident and Incident Investigation Bureau.

8.4. The Bureau shall preserve the confidentiality of such evidence and shall not disclose it to unauthorized persons.

8.5. The evidence shall be retained in the archive for five years after completion of the investigation and issuance of the final report, after which it shall be disposed of in accordance with the applicable records management and archival procedures.

ATTACHMENT 1. PHOTO DOCUMENTATION LOG

Aircraft: _____ Occurrence type: _____ Location: _____

Serial No.: _____ Date: _____ Log No.: _____

No.	Photo / video code	Description	Signature