



ICAO Regional Accident Investigation Workshop (Bangkok, Thailand, 5-6 October 2026)

HANDLING AND PRESERVATION OF EVIDENCE

From discovery to preservation: making every item traceable and defensible

Alfred Idau Nana | Manager Investigation Operations

Evidence disappears faster than the investigation moves

PROTECT FIRST. INTERPRET LATER.

Early discipline prevents later uncertainty.

If the site is dangerous, make access controlled or impossible until hazards are managed.

01

Protect people and evidence

Control hazards, prevent disturbance, and restrict access.

02

Document the untouched scene

Capture conditions, positions, marks, and perishable evidence.

03

Assess before committing resources

Identify specialist support, heavy equipment, and survey needs.

Evidence collection principles

1 PRESERVE

- Protect the item from further damage or contamination
- Document before movement where practicable
- Consider environmental conditions

2 DOCUMENT

- What is it?
- Where was it found?
- What was its condition?
- Who identified / collected it?
- What action was taken?

3 CONTROL

- Label and package appropriately
- Maintain chain of custody
- Store securely
- Record every transfer

Preserve four things — or lose the evidence

4

NON-NEGOTIABLES

01 **CONDITION**

Prevent contamination, damage, deterioration, loss or unintended alteration.

02 **CONTEXT**

Record where, when, how and in what state the item was found.

03 **IDENTITY**

Mark, label, photograph and describe the item so it cannot be confused.

04 **CONTINUITY**

Document every transfer, custodian, seal status and authorised examination.

If one breaks, evidential value and defensibility can break with it.

Evidence Priorities-Secure what can disappear, change or be overwritten first

01 DESTROYED

02 ALTERED

03 CONTAMINATED

04 LOST

05 OVERWRITTEN

06 REMOVED

07 WEATHER-AFFECTED

DIGITAL & RECORDED

- FDR/CVR
- Avionics and electronic memory
- ELT and GPS/navigation data
- CCTV and ATC recordings

PHYSICAL & ENVIRONMENTAL

- Ground and tyre marks
- Fluid samples
- Wreckage position
- Weather-sensitive evidence

RECORDS & CONFIGURATION

- Aircraft switches and controls
- Cockpit configuration
- Aircraft technical records
- Site/recovery activity records

The first team secures transient evidence before routine work begins.

Every item needs a position, identity and image

SEARCH



Delineate the area and brief searchers on the method.

MARK



Use position reference markers before photography.

TAG



Help Systems and Structures identify and label components.

PLOT



Establish each item's location and build the distribution record.

PRESERVE



Protect documentation, including burned or water-damaged material.

PLOT THE DISTRIBUTION

Impact point • major components • direction • fire areas • ground scars • witness locations • final flight path • property damage

Manage investigation retrieval separately from owner/operator removal.

The first decisions at the scene protect everything that follows



FIELD RULE

Record before moving. Stabilise before packaging. Escalate before improvising.

02 / DOCUMENT

Evidence documentation — minimum information

IDENTITY

- Evidence / item number
- Description
- Part / serial number where available
- Photograph reference

LOCATION

- Sector
- Reference point / coordinates
- Original position
- Relationship to other evidence

CONDITION

Damage / contamination
Observed state
Packaging requirements
Changes made during handling

Documentation discipline

WRITE WHAT YOU OBSERVED

- Separate observation from interpretation.
- Use objective, specific descriptions.
- Record measurements and reference points.
- Time-stamp important actions.

PRESERVE THE RECORD

- Keep original photographs/data.
- Do not overwrite source files.
- Control versions of sketches and logs.
- Back up investigation records appropriately.
- Restrict access according to investigation requirements.

Records that support the investigation

SITE RECORDS

- Site entry / access log
- Sector allocation sheet
- Site sketch / map
- Photography log
- Measurement records

EVIDENCE RECORDS

- Evidence register
- Collection forms
- Labels
- Chain-of-custody records
- Storage / transfer records

INVESTIGATION RECORDS

- Witness information
- Requests and correspondence
- Operational / maintenance records
- Laboratory / specialist reports
- Decision and action logs

Chain of custody is an unbroken operational record

01 FOUND	02 RECORDED	03 PACKAGED	04 TRANSFERRED	05 EXAMINED	06 RETAINED / RELEASED
-------------	----------------	----------------	-------------------	----------------	------------------------------

Every hand-off must reconcile the item, seal and record.

MINIMUM RECORD

- Unique evidence identifier and clear description
- Exact recovery location, date, time and condition
- Collector, packager and initial custodian
- Package type, seal method and seal condition
- Each transfer: from, to, date, time and purpose
- Authorised opening, resealing and examination
- Storage location and access controls
- Final retention, return, disposal or release decision

Package to prevent change not merely to contain

HAZARD

CONTROL

Movement / impact



Immobilise the item; use sufficient padding and a rigid outer container.

Moisture / corrosion



Keep dry where appropriate; use compatible barriers and controlled ventilation.

Cross-contamination



Package items individually; cap, plug or seal openings and fluid lines.

Fragment loss



Retain chips, particles and loose material; use clean inner wrapping.

Misidentification



Mark the item and package; photograph, seal and reference the custody record.

Before sealing: photograph condition • inventory loose material • confirm labels • record package and seal

Documents need condition-specific recovery

DRY / ROUTINE

Control the record

- Record source, owner, location and condition
- Protect privileged or sensitive material
- Use clean handling and a labelled enclosure
- Preserve original order and associated context

WET / WATER-SOAKED

Stabilise before separating

- Handle as little as possible; support the full sheet
- Do not force pages apart while saturated
- Air-dry only when safe and controlled
- Freeze or obtain conservation advice when delay risks further damage

CHARRED / DAMAGED

Contain without compression

- Photograph before lifting or opening
- Do not brush, flatten or attempt separation
- Use a rigid container; prevent movement and crushing
- Seek specialist document examination

Never trade speed for irreversible handling damage.

STOP IF CONDITION CHANGES

Authority, dignity, identification and confidentiality come first

RESPONSIBLE AUTHORITY

- Direct removal, examination and legal disposition
- Set health, safety and mortuary requirements
- Coordinate forensic pathology and identification specialists
- Authorise release and family-notification processes

INVESTIGATION TEAM

- Record position and scene relationship before removal
- Preserve associated personal effects and identity evidence
- Document every transfer and maintain clear body identification
- Limit access, images and information to authorised purposes

IDENTITY CHAIN

scene reference → unique identifier → sealed transfer → examination → authorised release

Secure the recorder without cleaning, opening or energising it

**DO
NOT**

**CLEAN
OPEN
POWER**

- Photograph the recorder in place before movement
- Protect it from further impact, heat, water and contamination
- Handle only as needed for safe recovery and packaging
- Notify the designated specialist authority without delay

IDENTIFY + TRANSFER

- Aircraft or event reference
- Exact recovery location and orientation
- Date, time and recovery personnel
- Visible condition, damage and package seal
- Named recipient, transfer time and purpose

Treat the recorder as both fragile equipment and controlled evidence.

Originals preserve time, sequence and authenticity

CAPTURE

01

Original photograph, video, ATS or communications record



PRESERVE

02

Secure the original and retain native labels / metadata



COPY

03

Create a controlled working copy for review



LOG

04

Record access, duplication, handling and transfer



VERIFY

05

Check transcripts and derived outputs against the original

WORK FROM COPIES

Minimise playback and handling of the original recording.

KEEP AWAY FROM HEAT AND MAGNETIC SOURCES

Retain original media, transcripts and access records together.

Map it before fire, water or movement redistributes it

SCENE MAP

HEAT EFFECTS		SOOT / DEPOSITS
	AREA OF INTEREST	
EXTINGUISHING AGENT		IMPACT / BREAKS

Record location, distribution and relation to the wreckage — not just the item.

CONTROLLED RECOVERY

- 1 Photograph and map before moving or washing.
- 2 Allow hazards and hot material to be controlled safely.
- 3 Avoid high-pressure washing or actions that redistribute residues.
- 4 Collect residues, deposits and comparison samples separately.
- 5 Package fragile or contaminated material to prevent further loss.

DO NOT ERASE THE PATTERN

Plan, witness and continuously record every destructive step

01**JUSTIFY**

Show why inspection cannot proceed without disassembly.

02**AGREE**

Obtain specialist and relevant manufacturer / overhaul input.

03**PLAN**

Set the sequence, tools, evidence controls and stop points.

04**RECORD**

Photograph and video the sequence; label removed parts.

05**QUARANTINE**

Protect parts, residues, fluids and tool-generated samples.

DESTRUCTIVE ACTIONS CHANGE THE EVIDENCE

Prefer dismantling over cutting; if cutting is unavoidable, control heat, coolant and swarf.

Dangerous goods change the handling plan

- 1 STOP** Do not handle or ship until hazards and restrictions are understood.
- 2 ISOLATE** Control access, ignition sources, incompatible materials and leakage.
- 3 IDENTIFY** Use labels, documents, markings and qualified technical advice.
- 4 CONSULT** Engage trained dangerous-goods specialists and the receiving laboratory.
- 5 SHIP** Use compliant packaging, documentation, carrier acceptance and tracking.

Never improvise dangerous-goods packaging or transport arrangements.

An agreed test plan protects both evidence and investigative rights

GOVERNANCE LADDER

01 DEFINE THE QUESTION

State the failure mechanism or issue the examination must resolve.

02 AGREE AUTHORITY + PLAN

Name decision-makers, specialists, methods, limits and stop points.

03 DOCUMENT BASELINE

Record seals, condition, identifiers and pre-test photographs.

04 START NON-DESTRUCTIVELY

Use the least altering method that can answer the question.

05 WITNESS + RECORD

Capture settings, observations, changes, outputs and participants.

06 RETAIN + REPORT

Preserve samples, residues, data, images and the final technical record.

No destructive examination without explicit agreement, documented necessity and controlled observation.

Record first. Protect always. Transfer transparently.

BEFORE LIFTING

- ☐ Scene is safe and access controlled
- ☐ Item photographed and mapped in place
- ☐ Condition, orientation and context described
- ☐ Specialist or hazard needs identified

BEFORE SEALING

- ☐ Item and fragments accounted for
- ☐ Packaging prevents movement and change
- ☐ Labels match notes and photographs
- ☐ Seal and package condition recorded

BEFORE TRANSFER

- ☐ Custodian and destination confirmed
- ☐ Purpose, date and time documented
- ☐ Recipient checks identity and seal
- ☐ Storage or examination authority is clear

If identity, condition, context or continuity is uncertain — stop, isolate and escalate.



THANK YOU

QUESTIONS & COMMENTS
