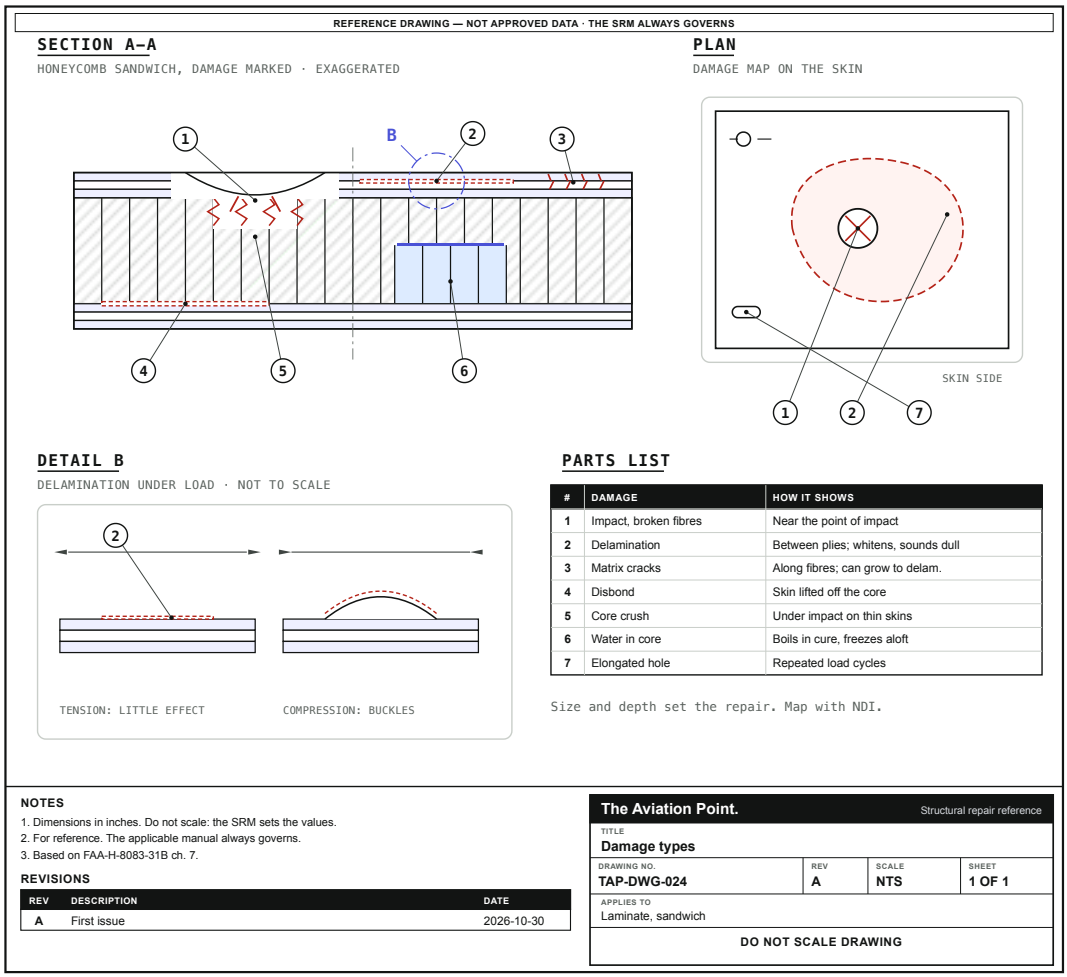
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Composite Damage Types: What Each One Is

Seven damages · how each shows · why it matters



Section, plan of a damage map, delamination under load and parts list, after FAA-H-8083-31B pp. 7-12 to 7-15 and 7-35.

The damages: what, how it shows, why it matters

Damage	What it is	How it shows	Why it matters
Broken fibres	Fibres cut near the point of impact, in a zone limited by the size and energy of the object	Dent, penetration, chips, abrasion	Critical: structures are designed so the fibres carry most of the load
Matrix cracks	Cracks in the resin or at the fibre-resin interface, parallel to the fibres	Often not visible; crazing needs NDI	Seldom critical unless widespread; cut interlaminar shear and compression strength; can grow into delamination
Delamination	Separation between plies, from matrix cracks that grow or from low-energy impact	Whitening in glass laminates; dull sound on a tap test	Grows under repeated load; can fail the part in compression or shear
Disbond	Non-adhesion or lost adhesion along a bondline, such as skin to core	Dull sound on a tap test; visible if the skin is thin	Can start a delamination in the adjacent plies
Core crush	Core collapsed under impact, common under thin face sheets	Dent in a thin skin	Hidden damage beyond the dent; liquid can enter

Damage	What it is	How it shows	Why it matters
Water in the core	Water or hydraulic fluid in the cells through damage or poor edge close-outs	Moisture meter, X-ray, back light	Water boils during an elevated cure and disbonds the skin; frozen aloft it can do the same
Heat and lightning	Overheating or a strike; the lightning mesh can corrode at fastener holes	Scorch, discolouration, stains	Discolouration is a sign to investigate; corroded mesh breaks the electrical bonding (p. 7-14)
Erosion, UV	Edge and surface wear in the airstream; sunlight on unprotected resin	Roughened or worn surface	Composites erode more than aluminium; UV needs a top coat
Flawed fastener holes	Bad drilling, poor installation, missing fasteners; elongation from load cycling	Elongated or oversize hole	Loss of the load path at the joint

 Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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Key points

- **Broken fibres** are critical: fibres carry the load.
- **Delamination** grows under repeated load and fails the part in compression or shear.
- **Combinations are the rule:** a dent can hide fibre breaks, cracks, delaminations and crushed core.
- **Water in the core** boils in a hot cure and disbonds the skin: dry first.
- **The eye cannot see** delaminations, disbonds or matrix crazing: use NDI.
- **Size and depth** go to the SRM for the repair class.

SOURCES · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7

SCAN · OPEN THIS GUIDE
theaviationpoint.com/composites/damage-types/

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