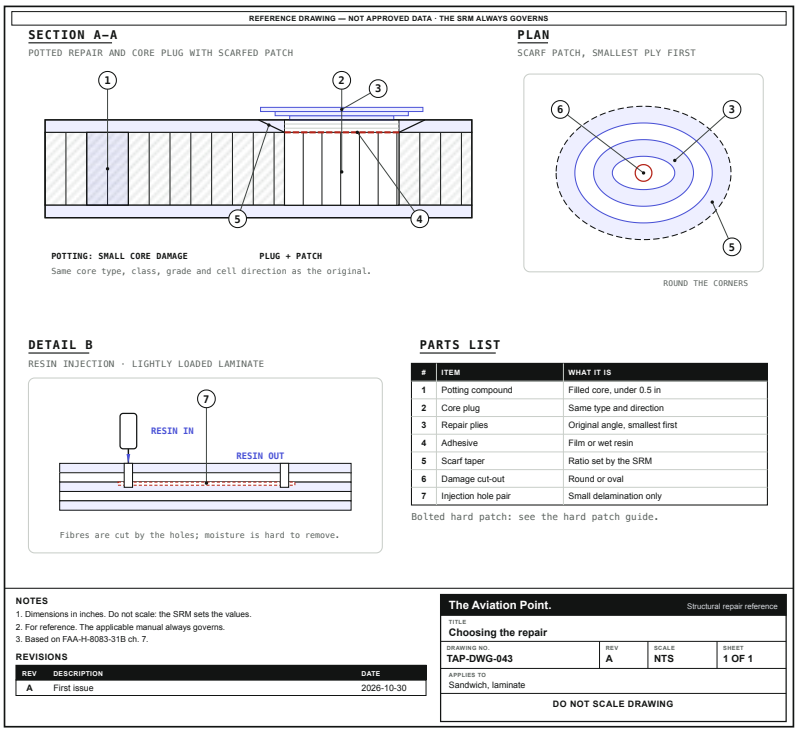
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Choosing a Composite Repair: Which Type Fits Which Damage

Filler · potting · plug · scarf · injection · bolted



Section, plan, resin injection detail and parts list, after FAA-H-8083-31B pp. 7-34 to 7-39. Not to scale: the SRM sets taper, overlap and plies.

Which repair for which damage

Damage	Repair	Source, and the catch
Scratch or erosion that stops at the first ply of a fibreglass laminate	Fill with putty (resin and short glass fibres), peel ply over it, sand	AC 43.13-1B 3-2b(1). Not for radomes, graphite or Kevlar.
Small core damage	Potting: epoxy and microballoons or similar in the cells; restores some strength only	Handbook p. 7-34 says under 0.5 in; AC 3-10g (metal-faced sandwich) allows 1 in or less. Heavier than the core: check balance.
Through one skin and into the core	Core plug of the same type, class, grade and cell direction, then the skin plies	Handbook pp. 7-34 to 7-37, eight steps; AC 3-2b(3) and 3-2c. Dry the core first.
Small delamination, lightly loaded solid laminate	Resin injection: drill two holes, inject low-viscosity resin until it comes out of the other	Handbook p. 7-39. It cuts fibres, moisture is hard to remove and filling may be incomplete.
Skin disbond on a sandwich	Resin injection is sometimes used	Handbook p. 7-39.
Hole or damage in a solid laminate, flush finish wanted	Scarf (tapered) or step; wet layup or prepreg; patch precured or cured in place	Handbook pp. 7-38, 7-39; AC 3-3. Taper in the scarf-step guide.
Trailing edge, control panel edge	As a sandwich repair, with the edge reinforcement	Handbook p. 7-39. The aft 4 in take ground and lightning damage.
Radome	As a sandwich repair, then a transmissivity test	Handbook p. 7-40. A repair can change radar performance.
Heavily loaded or thick solid laminate	Bolted patch	See the bolted patches guide.
Short-fibre mat parts	Non-structural use only	Handbook p. 7-40.

Key points

- **First ply only:** putty and peel ply (fibreglass, AC 3-2b).
- **Small core damage:** potting; under 0.5 in (Handbook) or 1 in (AC).
- **Skin and core:** plug of the same core, then plies in the same direction.
- **Scarf** ratios 1:10 to 1:70 in the Handbook; the SRM sets yours.
- **Injection** only for small, lightly loaded delaminations.
- **Dry the core** before any cure.

SOURCES · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7 · AC 43.13-1B, Acceptable Methods, Techniques, and Practices — Aircraft Inspection and Repair

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theaviationpoint.com/composites/repair-types/

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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