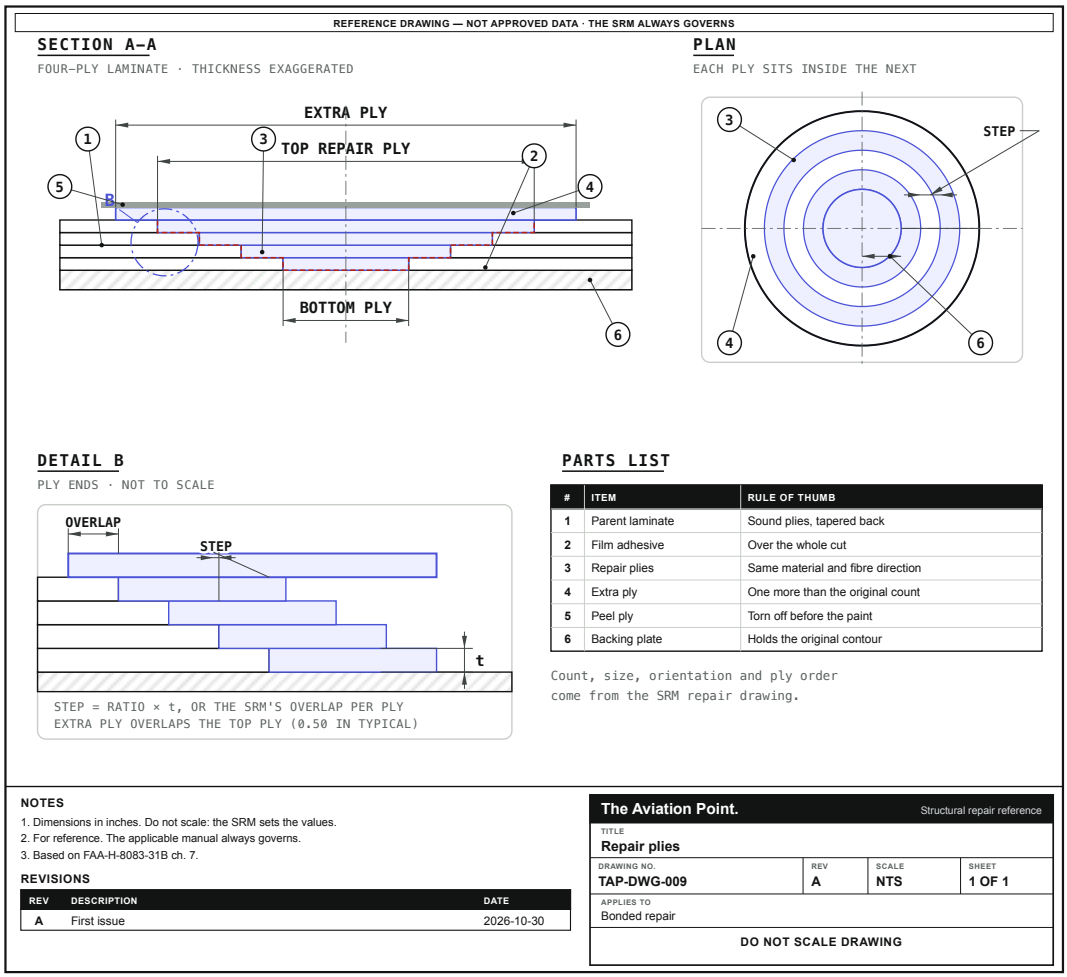
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Sizing the Repair Plies: Count, Overlap, Order

Count · overlap · fibre direction · ply order



Section, plan, detail of the ply ends and parts list, after FAA-H-8083-31B pp. 7-36 and 7-39 and AC 43.13-1B p. 3-4.

Seven rules for the cut list

Rule	What the sources say	Where
Material	Same reinforcement as the original: same fabric or tape, same resin system or one the manufacturer approves.	H-8083-31B p. 7-39; AC 43.13-1B p. 3-1
Fibre direction	Each repair ply is laid in the same direction as the ply it replaces.	H-8083-31B pp. 7-36, 7-39
Count	The original plies, found from the skin identification, plus one extra ply.	H-8083-31B p. 7-36; AC p. 3-4
Size	Each ply overlaps the one below by 0.50 in typical (Handbook figure); at least 1/2 in for the fiberglass patches of the AC.	H-8083-31B p. 7-36; AC p. 3-4
Order	Smallest ply first is usual but leaves resin-rich ply edges; largest ply first, covering the whole work area, gives a stronger interface. Follow the SRM.	H-8083-31B p. 7-39; AC p. 3-4
Symmetry	The layup mirrors the original, plus the one extra ply.	AC p. 3-4 (fig. 3-6)
Proof	Cure test specimens with the repair: same adhesive batch, same pressure, temperature and time.	AC p. 3-1

Key points

- **Same material, same fibre direction** as each ply it replaces.
- **Count:** original plies plus one extra (Handbook p. 7-36).
- **Overlap:** 0.50 in typical (Handbook figure); at least 1/2 in in the AC fiberglass repairs.
- **Order:** smallest first is usual; largest first gives a stronger interface. The SRM names it.
- **Ply k diameter** = hole + 2 × k × step.
- **Test specimens** cured with the repair, same batch.

Step by step

1. Find the ply count, material and orientation in the SRM repair drawing.
2. Work out the step per ply from the ratio or overlap in the SRM.
3. Cut one ply per original ply, plus the extra ply.
4. Mark each ply with its number and fibre direction.
5. Lay them in the order the SRM gives, working air out of each.
6. Cure a test specimen beside the repair.

SOURCES · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7 · AC 43.13-1B, Change 1, Chapter 3, Fiberglass and Plastics

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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