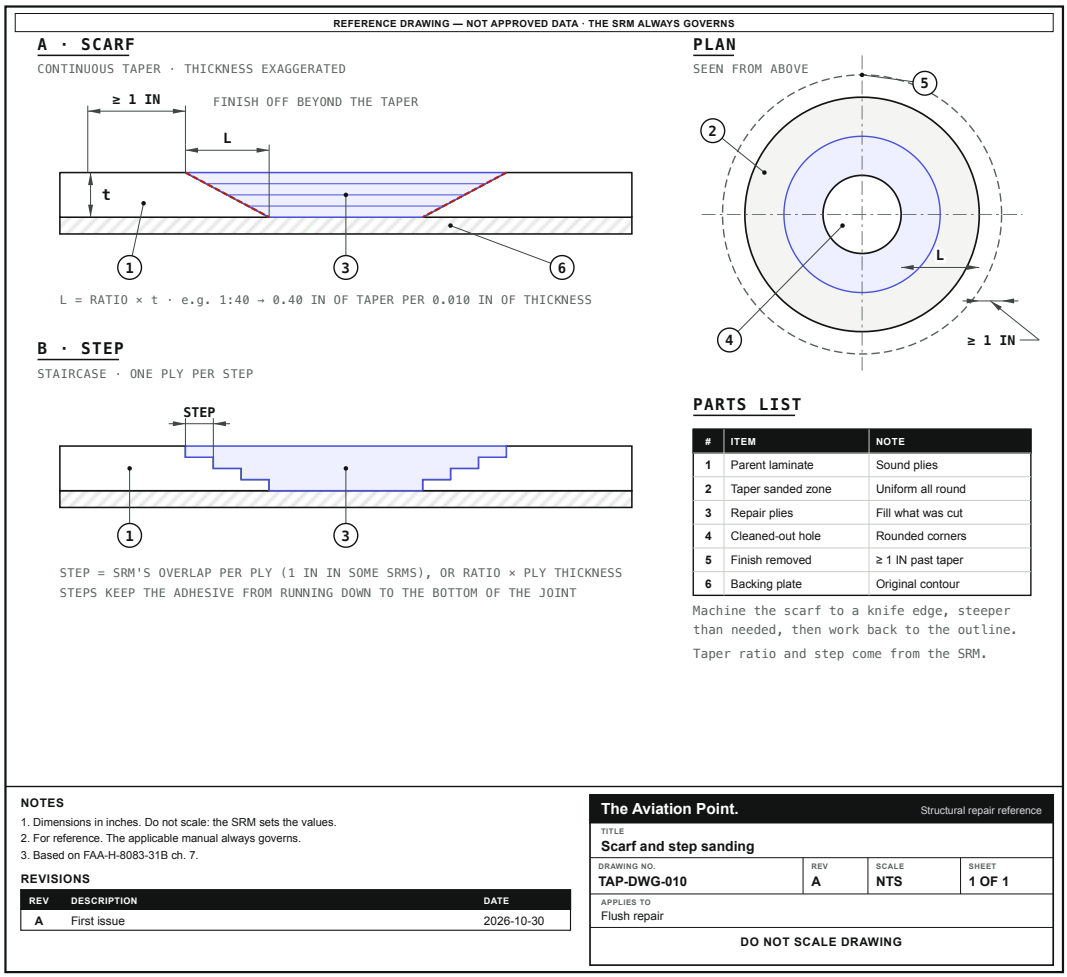
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Scarf and Step Sanding: Ratios, Technique, Cleaning

Scarf against step · taper numbers · sanding · cleaning



Scarf section, step section, plan and parts list, after FAA-H-8083-31B pp. 7-35, 7-38 and 7-39. The thickness is exaggerated. Your SRM sets the ratio.

Scarf or step

	Scarf	Step
Shape	One smooth slope	A staircase, one step per ply
For	Flush repairs; the most efficient load transfer: it aligns the neutral axis of parent and patch	Where the adhesive would run to the bottom of a scarf; external patches are usually stepped
Cost	A large amount of sound material comes out to keep the taper shallow; the plies must be placed very accurately	Approximates the scarf with small steps, so the adhesive cannot run to the bottom
Watch	Cured outside an autoclave, the replacement plies can lose a lot of strength	External patches are usually stepped to cut the stress concentration at the patch edge
Ratio	1:10 to 1:70 thickness to length; “such as 1:40”	About one step per ply; “a 1-inch overlap for each ply” in some manuals

Taper numbers in the public documents

Source	Number	For
H-8083-31B p. 7-35	1:40, or 1 in per ply	Honeycomb face sheet, as an example of what “some manufacturers give”
H-8083-31B p. 7-38	1:10 to 1:70	Solid laminates, thickness to length
AC 43.13-1B p. 3-3	About 50 × the face ply thickness	Fiberglass holes under 3 in, non-structural
AC 43.13-1B p. 3-5	1 in per layer	Fiberglass step joint

Key points

- **Ratio from the SRM.** Handbook: 1:10 to 1:70 for solid laminates; “such as 1:40”.
- **Scarf:** best load transfer, most material removed. **Step:** keeps the adhesive in place.
- **Knife edge first**, steeper than required, then work back to the outline.

Step by step

1. Map the damage by tap test or ultrasonics.
2. Trim to a smooth round or oval, corners rounded.
3. Taper sand to the SRM ratio with a flexible disc.
4. Check the ply count against the skin record.
5. Remove the finish 1 in beyond the taper.

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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- **Finish off** (and conductive coating) at least 1 in beyond the taper.
- **Dry compressed air and a vacuum**, then approved solvent on a clean cloth.
- **Dry the part**: water boils out at cure and lifts the face sheet.

6. Blow off, vacuum, wipe with approved solvent.
7. Dry, then bond.

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

SCAN · OPEN THIS GUIDE
theaviationpoint.com/composites/scarf-step/

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