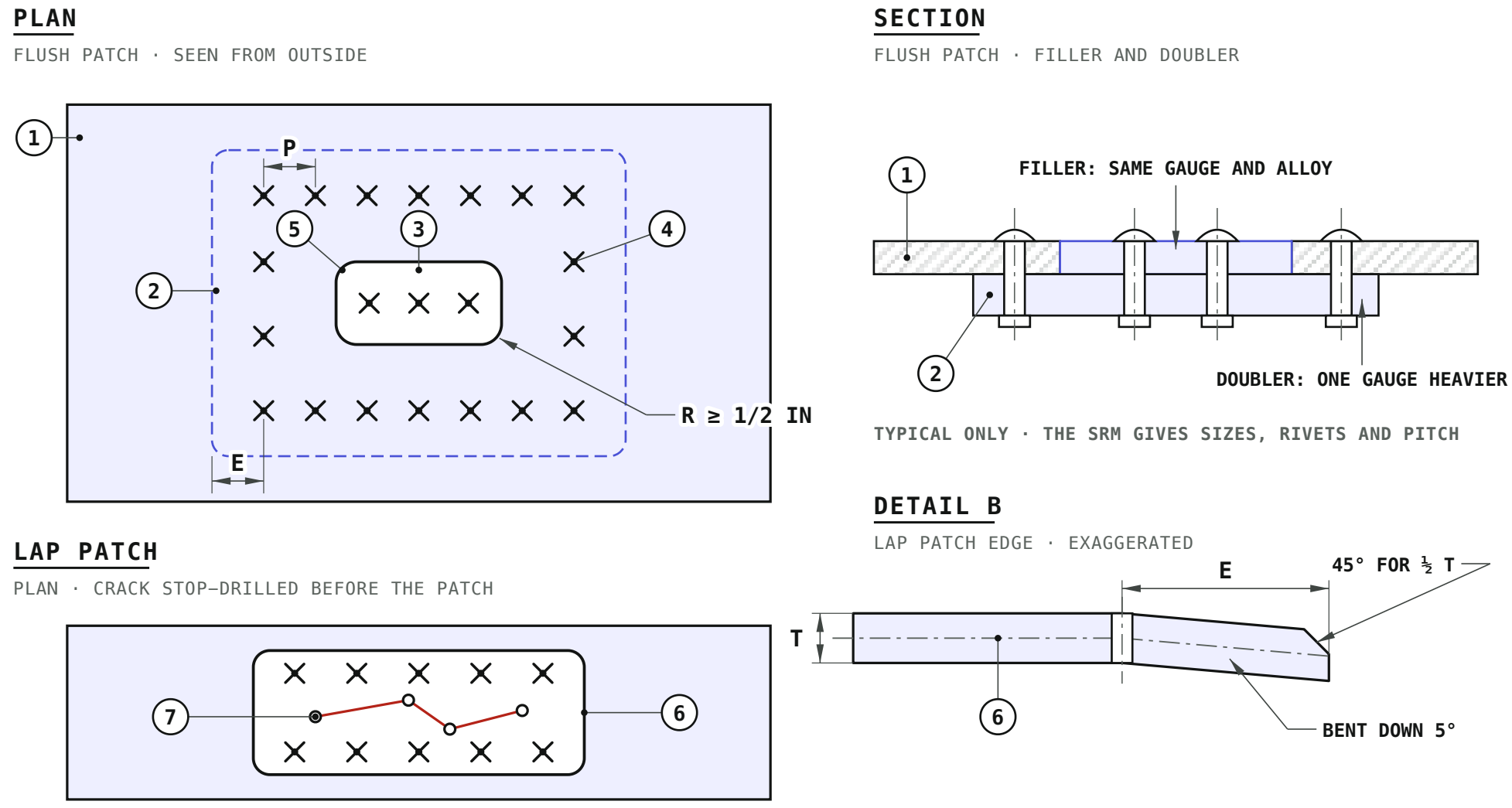
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Patches and Doublers: Lap, Flush and What Sets the Size

Lap patch · flush patch · doubler

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS



PARTS LIST

#	PART	RULE	SOURCE
1	Skin	Cutout round or oval; rectangular corners R ≥ 1/2 in	pp. 4-87, 4-98
2	Doubler	Behind the skin, same alloy, one gauge heavier	p. 4-97
3	Filler plug	Fills the cutout: same gauge and alloy as the skin	p. 4-97
4	Rivets	About 3x skin thickness; count from the SRM	p. 4-87
5	Cutout corner	Radius, not a square corner: cracks start there	p. 4-87
6	Lap patch	External; corners R ≥ 1/4 in; edges chamfered	p. 4-97
7	Stop-drill hole	At each crack end and sharp bend	p. 4-97

NOTES

1. Dimensions in inches. Do not scale: the SRM sets the values.
2. For reference. The applicable manual always governs.
3. Based on FAA-H-8083-31A ch. 4.

REVISIONS

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

The Aviation Point.			Structural repair reference
TITLE: Patches and doublers			
DRAWING NO.: TAP-DWG-005	REV: A	SCALE: NTS	SHEET: 1 OF 1
APPLIES TO: Sheet metal skin			
DO NOT SCALE DRAWING			

After FAA-H-8083-31A pp. 4-87, 4-97 and 4-98, Figs. 4-174 to 4-177. Typical only: the SRM gives the patch size, rivet and pitch.

Lap or flush

	Lap (scab)	Flush
Where	Aerodynamics not critical	Smooth skin needed
Patch	External, overlaps the skin	Filler in the cutout plus an inside doubler
Material	Same alloy as the skin; the SRM sets the gauge	Filler: same gauge and alloy. Doubler: one gauge heavier
Corners	Radius 1/4 in or more; edge chamfered 45 degrees for half the thickness, bent down 5 degrees	Cutout corners 1/2 in or more

Key points

- **The SRM sets** the patch, rivets and pitch.
- **Flush:** filler same gauge and alloy; doubler one gauge heavier.
- **Cutout corners** 1/2 in or more; lap patch corners 1/4 in or more.
- **Rivet** about 3 x skin thickness; edge 2D, pitch 4D to 6D.
- **Not too stiff:** an over-strong repair speeds up fatigue.

Step by step

1. Inspect the whole load path; find the SRM repair.
2. Stop-drill crack ends.
3. Cut the damage to a round, oval or radiused shape.
4. Fit the doubler and filler; drill through the original holes.
5. Deburr, protect, rivet.

SOURCES · FAA-H-8083-31A, AMT Handbook — Airframe, Volume 1, Chapter 4 · FAA AC 43.13-1B CHG 1, Chapter 4

SCAN · OPEN THIS GUIDE
theaviationpoint.com/sheet-metal/patches/

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