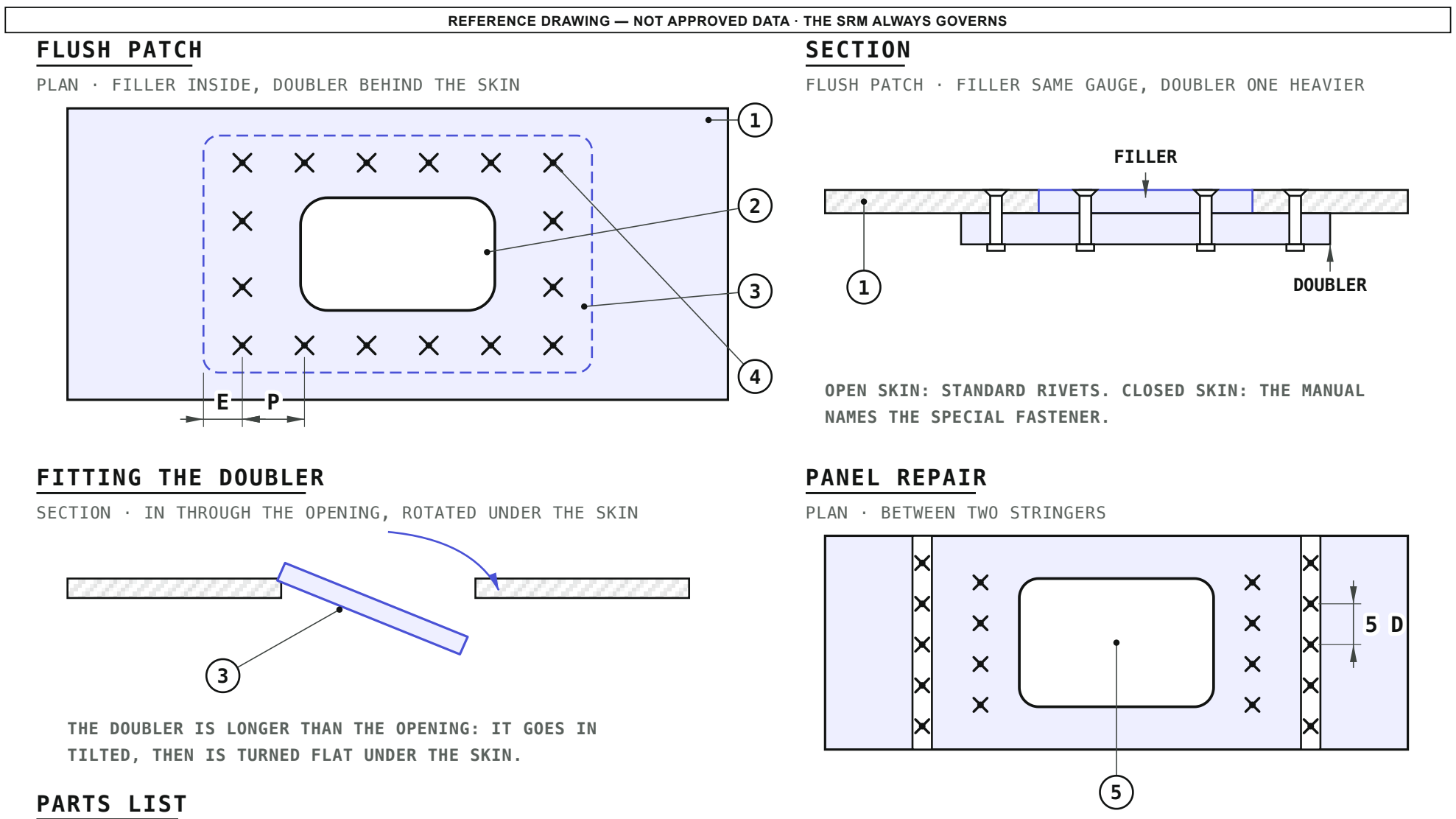
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Flush Patches: Cutout, Filler and Backing Doubler

Cutout · filler · doubler · rivets · panel repair

REFERENCE DRAWING — NOT APPROVED DATA · THE SRM ALWAYS GOVERNS



PARTS LIST

#	ITEM	RULE	SOURCE
1	Skin	Open skin is reached from both sides; closed skin is not	H 4-98
2	Cutout	Round, oval or rectangular; rectangle corners R 0.5 in or more	H 4-98
3	Doubler	Same material, one gauge heavier; slid in and turned under the skin	H 4-97
4	Rivets	As similar joints on the aircraft; edge E at least 2D, pitch P 4D to 6D	H 4-98
5	Panel repair	8 1/2 D or more outside the member: reach the maker's row, add a row	H 4-99

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-8083-31 ch. 4.

REVISIONS

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

The Aviation Point. Structural repair reference

TITLE			
Flush patches			
DRAWING NO. TAP-DWG-019	REV A	SCALE NTS	SHEET 1 OF 1
APPLIES TO Sheet metal skin			

DO NOT SCALE DRAWING

After FAA-H-8083-31 pp. 4-97 to 4-99, figs 4-176 and 4-177. Typical only: the SRM gives the sizes.

Which skin repair

Repair	Use it when	Source
Lap patch	Aerodynamic smoothness is not important; patch sits on the skin	H 4-97
Flush patch	A smooth surface is needed; filler plus inside doubler	H 4-97, 4-98
Panel repair	Damage too large for a standard patch, or beside stringers and frames	H 4-99
Panel replacement	Damage beyond repairable limits, or too many earlier repairs in the area	H 4-99
Pressurised skin	Highly stressed: needs more rivets than a non-pressurised repair; follow the maker	H 4-101

Key points

- **Filler:** same material and gauge as the skin.
- **Doubler:** one gauge heavier, slid in tilted and turned flat.
- **Cutout** round, oval or rectangle with corners R 0.5 in or more.
- **Rivets:** edge 2D, pitch 4D to 6D.
- **Pressurised skin:** more rivets, the maker's data.

Step by step

1. Remove the damage; round the corners.
2. Make the filler and the doubler.
3. Fit the doubler through the opening.
4. Drill one, find the second, drill the rest; deburr; protect.
5. Rivet; inspect.

SOURCES · FAA-H-8083-31, AMT Handbook — Airframe, Volume 1, Chapter 4

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

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