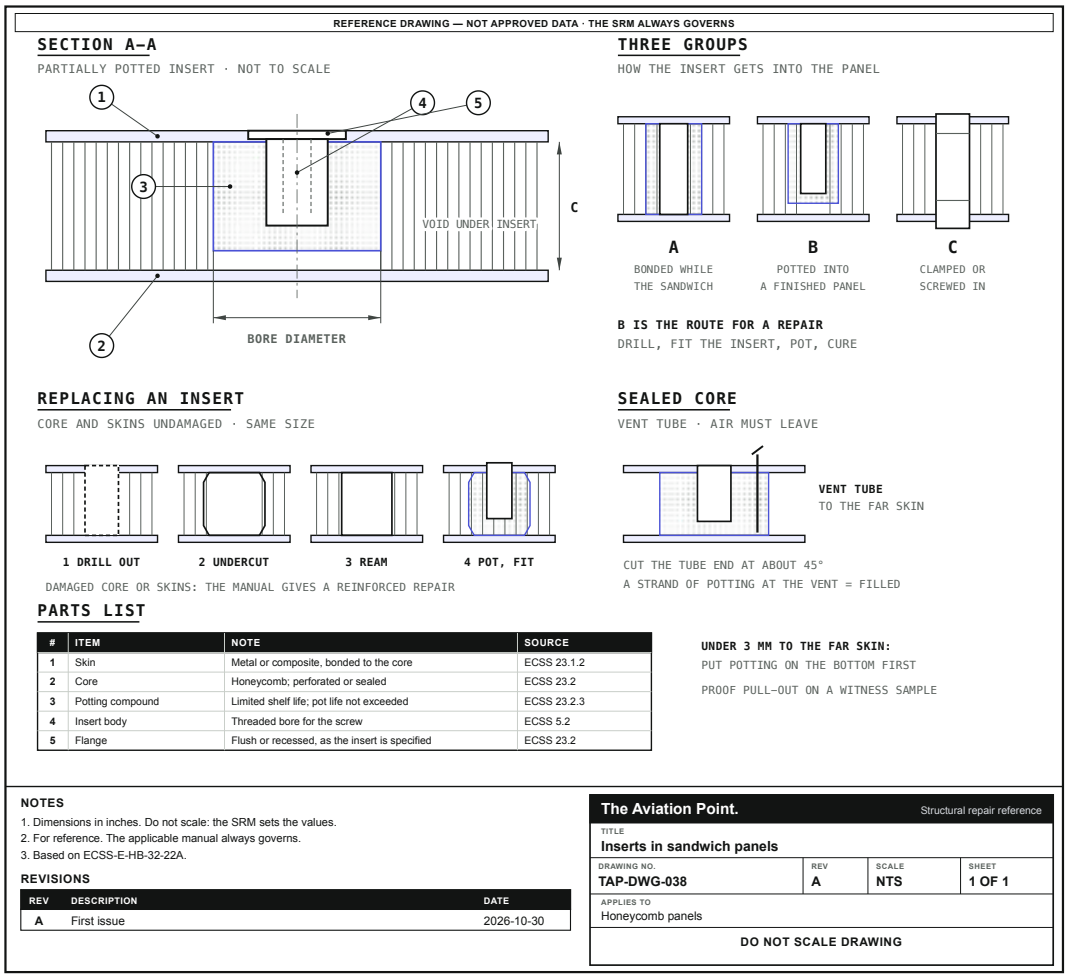
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Inserts and Potted Fasteners in Sandwich Panels

Potted inserts · fitting · venting · replacing



#	ITEM	NOTE	SOURCE
1	Skin	Metal or composite, bonded to the core	ECSS 23.1.2
2	Core	Honeycomb; perforated or sealed	ECSS 23.2
3	Potting compound	Limited shelf life; pot life not exceeded	ECSS 23.2.3
4	Insert body	Threaded bore for the screw	ECSS 5.2
5	Flange	Flush or recessed, as the insert is specified	ECSS 23.2

REV	DESCRIPTION	DATE
A	First issue	2026-10-30

Section, groups, replacement steps, vent tube and parts list, after ECSS-E-HB-32-22A (20 March 2011) paras 5.2, 23.2, 23.3 and 23.9.

Three ways an insert goes into a panel

Group	How it is fitted	Where it fits
A	Bonded with a core filler while the sandwich is made; the bore is drilled and threaded afterwards	Thin sandwiches with a low core only; hard to place exactly, so the insert is large to allow for misalignment
B	Potted into an existing panel with a thermosetting resin, or by an equivalent bonding process	The common route, and the one a repair uses. Partially or fully potted
C	Clamped mechanically or screwed into the finished panel	Where potting is not wanted

What goes wrong, and what it costs

Fault	What the handbook reports
Compound stored badly	Lower insert capability. In the handbook's single-insert test (1.57 in (40 mm) honeycomb, 0.039 in (1 mm) 7075-T6 skins) the average tensile load fell from 6,830 N to 5,575 N, and the lowest result from 6,080 N to 4,190 N
Compound badly distributed	Voids; with bad injection the adhesive may be only between flange and skin, and the tensile load falls sharply
Insert not flush or angled	Uneven load transfer; shear and tensile capability reduced or inconsistent
Bore oversized	The shear capability falls as the bore grows

Key points

- **Group B** (potted into a finished panel) is the repair route.
- **Drill, inspect the bore, fit, inject, cure, proof.** Bent cell walls first.
- **Sealed core:** vent tube to the far skin; a 0.24 in (6 mm) strand at the vent means filled.
- **Under 0.12 in (3 mm) to the far skin:** compound on the bottom of the bore first.
- **Pot life** cannot be exceeded; compound has a limited shelf life.

Step by step

1. Drill the bore; inspect it.
2. Fit the insert square to the panel.
3. Vent a sealed core.
4. Inject; watch the vent.
5. Cure; trim flush.
6. Proof on a witness sample.

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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- **Damaged core or skin:** reinforced repair from the SRM, not this sheet.

SOURCES · ECSS-E-HB-32-22A, Space engineering: Insert design handbook · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7 · Hexcel, HexWeb Rigicell Corrosion Resistant Aluminum Corrugated Honeycomb, Product Data

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