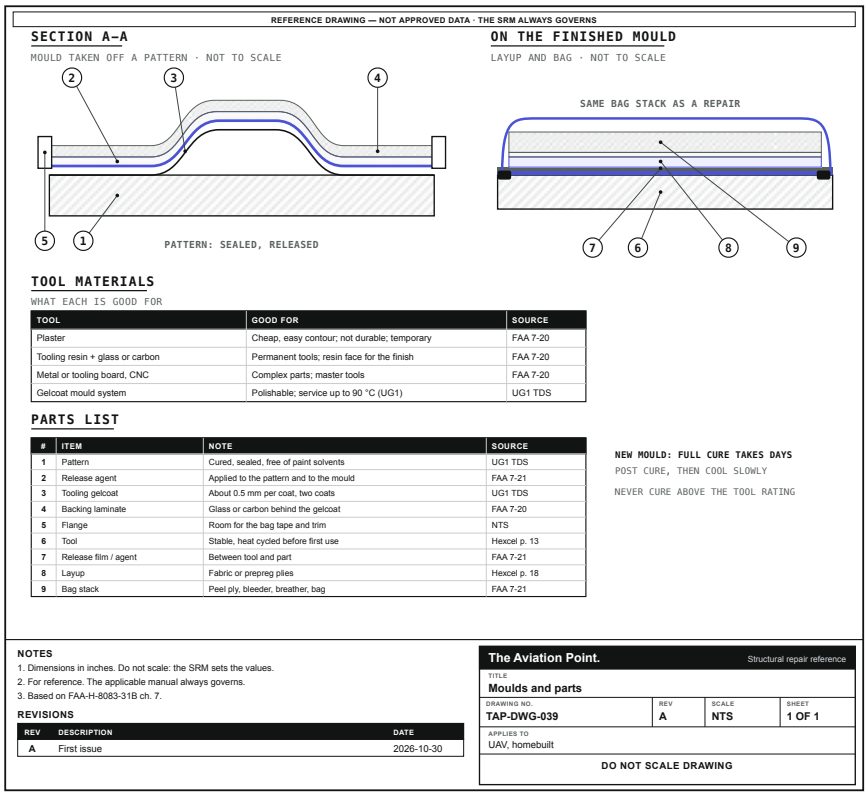
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Moulds and Parts for UAV and Homebuilt Work

Pattern · release · gelcoat · backing · layup



Section of the mould and of the layup, tool table and parts list, after FAA-H-8083-31B pp. 7-20 and 7-21, Hexcel Prepreg Technology FGU 017c pp. 13 and 18, and the Easy Composites UG1 data sheet.

Which tool material

Material	Good for	Limit	Source
Plaster	Contour tooling that is cheap and easy to make; can be filled with fibreglass or hemp	Not very durable: a temporary tool. A fibreglass-epoxy layer on the tool face improves the finish	FAA-H-8083-31B p. 7-20
Tooling resin with glass or carbon	Permanent tools	Tool rating limits the cure temperature	FAA-H-8083-31B p. 7-20
Metal or high-temperature tooling board, 5-axis CNC	Complex parts; master tools for aircraft parts	Machining cost	FAA-H-8083-31B p. 7-20
Filled vinylester gelcoat system (Uni-Mould UG1)	Hard-wearing, polishable moulds for epoxy, polyester or vinylester parts	Service up to 90 °C; styrene system, so test the pattern	Easy Composites UG1 data sheet

Key points

- **Pattern first:** cured, sealed, released. Test paint for release.
- **Gelcoat:** two coats of about 0.020 in (0.5 mm) in the UG1 system; cure between.
- **Cure the mould** fully and post cure; cool slowly.
- **Heat cycle** a new tool; keep it stable.
- **Never cure above the tool rating** (UG1: 90 °C).
- **Release, then plies, then bag.**

Step by step

1. Prepare and release the pattern.
2. Gelcoat in two coats.
3. Laminate the backing and flanges.
4. Cure and post cure the mould.
5. Release; lay up; bag.
6. Cure, demould, trim.

SOURCES · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7 · Hexcel, Prepreg Technology, Publication FGU 017c · Easy Composites, Uni-Mould Tooling Gelcoat UG1, Technical Datasheet

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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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