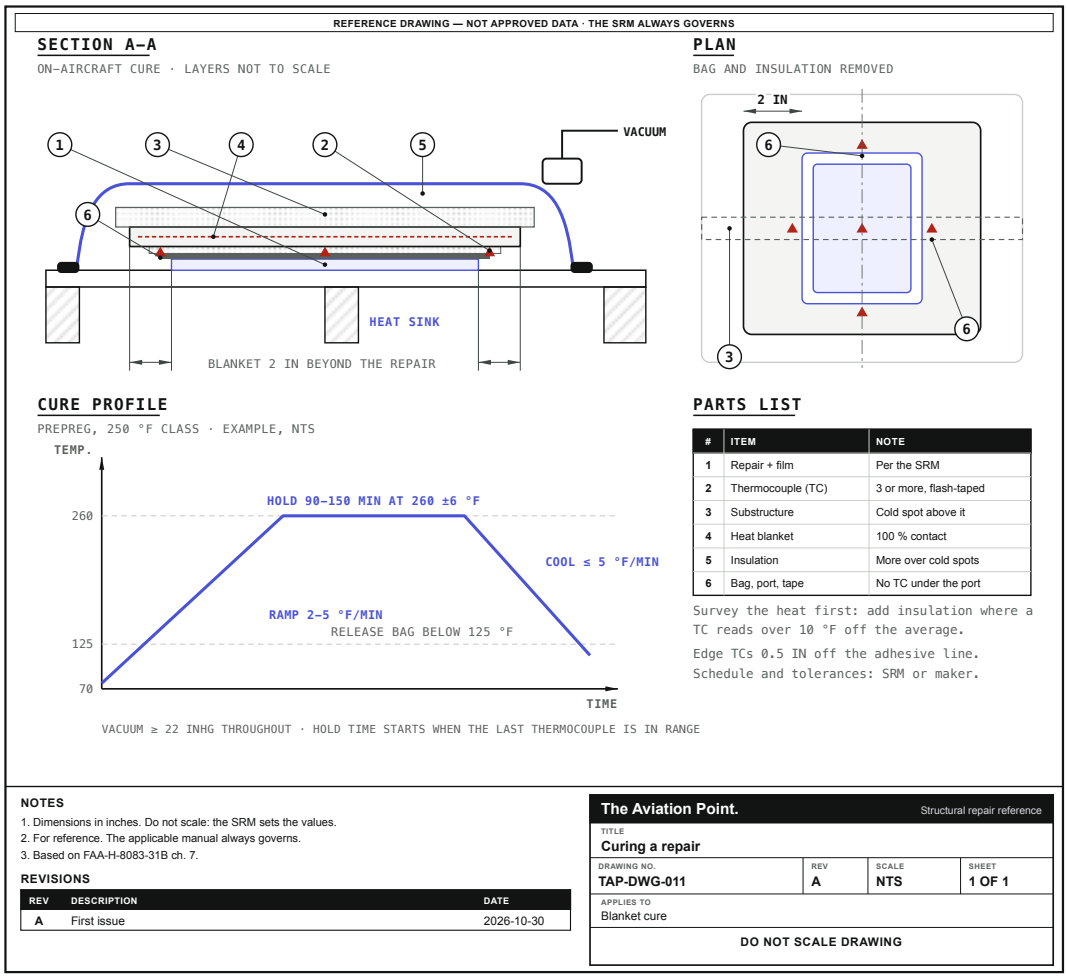
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Curing a Repair: Heat Blankets and Thermocouples

Heat sources · thermocouple rules · survey · ramp, hold, cool-down



Section, plan, an example cure profile and parts list, after FAA-H-8083-31B pp. 7-23 to 7-25, 7-32, 7-33 and 7-37.

Heat sources for a repair

Source	Good for	Watch
Heat bonder	On-aircraft cures: it controls the heat from thermocouples and runs the vacuum	Up to 10 thermocouples; it prints or uploads the cure record
Heat blanket	The usual on-aircraft heater; run with a bonder	Heat goes in by conduction, so it needs 100 percent contact, which the bag pressure gives
Heat lamp	Large or irregular surfaces under thermostat control, without a bag	Not effective above 150 °F or over about two square feet; hard to control
Hot air	Small repairs and drying the repair area	Insulated enclosure round the bagged repair
Oven, autoclave	Parts that come off the aircraft	The part, not the oven air, sets the cure: put thermocouples on the part

Thermocouple rules

Rule	Detail
How many	Never fewer than three on a heating cycle
Precured patch	One near the centre of the patch
Perimeter	About 0.5 in away from the edge of the adhesive line
Control thermocouple	Not beyond the blanket's 2 in overlap of the repair, or the controller chases the cold reading
Protect	Flash tape above and below each tip against resin and shorts
Keep clear	Not under the vacuum port; wires not crossing or beside the blanket power cord
Slack	Leave slack under the bag so vacuum does not pull the tip away
Wire	Type J or K to match the equipment; Teflon insulation to 390 °F, Kapton above

Key points

- **Schedule from the SRM** or the material sheet. The profile shown is an example.

Step by step

1. Read the cure schedule in the SRM or the material sheet.
2. Survey the heat with a dummy patch and thermocouples.
3. Place thermocouples; flash-tape the tips.

 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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- **Three thermocouples at least**, 0.5 in from the adhesive line, none under the port.
- **Blanket** in full contact, 2 in beyond the repair, insulated.
- **Survey first:** insulate where a thermocouple is more than 10 °F off the average.
- **Hold starts** when the last thermocouple is in range.
- **Vacuum:** 22 inHg at least; release below 125 °F.

4. Bag, blanket, insulation; check the vacuum holds.
5. Ramp, hold, cool down to the schedule; log temperature and vacuum.
6. Release below 125 °F; inspect; keep the record.

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

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