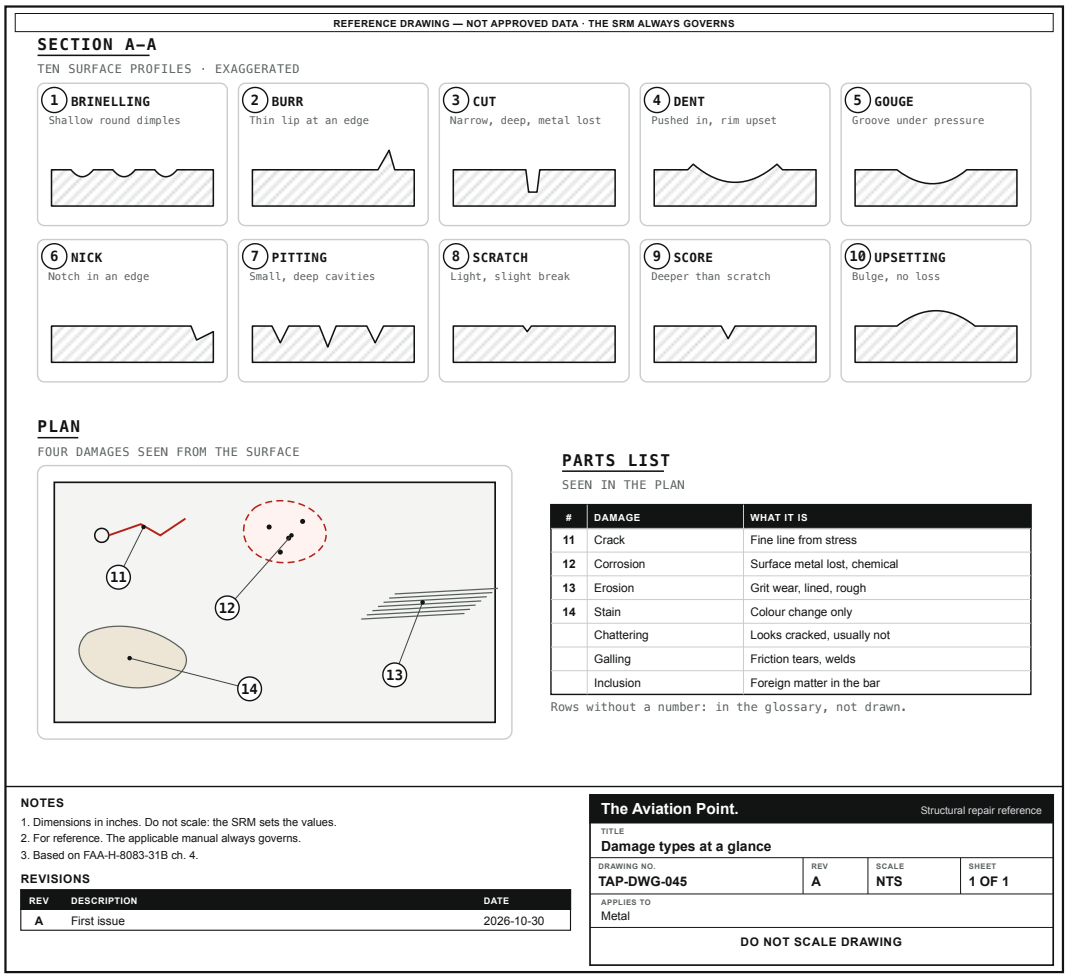
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Metal Damage Terms at a Glance: Brinelling to Upsetting

Brinelling to upsetting · depth · force · metal lost or moved



Profiles, plan and parts list, after FAA-H-8083-31B pp. 4-89 to 4-90. Exaggerated; not to scale.

The terms

Term	What it is	Tell-tale
Brinelling	Shallow spherical depressions from a small-radius part pressed hard on the surface	Round dimples
Burnishing	Polishing by sliding contact with a smooth, harder surface	Usually no metal moved or removed
Burr	A small, thin section of metal beyond a regular surface	At a corner or a hole edge
Chattering	Surface breakdown from vibration	Looks like metal loss or cracking; usually neither happened
Corrosion	Loss of metal from the surface by chemical or electrochemical action	Products come off mechanically; iron rust
Crack	Physical separation of two parts of the metal from excessive stress	Fine line; a few thousandths in to through the thickness
Cut	Loss of metal over a long narrow length, by saw, chisel or a sharp stone	Appreciable depth
Dent	Indentation from an object striking with force	Surround slightly upset
Erosion	Loss of metal by mechanical action, such as grit or fine sand	Rough, lined in the direction of travel

Term	What it is	Tell-tale
Galling	Breakdown or build-up of surfaces from friction between parts moving against each other	Softer metal torn off and welded to the harder
Gouge	A groove or breakdown from foreign material under heavy pressure	Metal lost, or mostly moved
Inclusion	Foreign material wholly inside the metal	Put in when the bar or tube was rolled or forged
Nick	A local break or notch on an edge	Metal moved rather than lost
Pitting	Sharp, localised breakdown: a small, deep cavity	Defined edges
Scratch	A slight tear or break from light, momentary contact	Shallow
Score	A tear deeper than a scratch, from contact under pressure	May show discolouration from friction heat
Stain	A local change of colour	Looks different from the area around
Upsetting	Material displaced beyond the normal contour: a local bulge	Usually no metal lost

Key points

- **Scratch, score, gouge, cut:** light, deeper under pressure, groove, long narrow loss.
- **Nick** is on an edge; **burr** is a lip at an edge or hole.

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- **Dent** is pushed in; **upsetting** is a bump, usually no loss.
- **Corrosion** is chemical, **erosion** is mechanical.
- **Chattering** looks like a crack; confirm it.
- **Limits are in the SRM**; the Handbook only names the damage.

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

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