Can you 3D print car parts?

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Abstract. Yes for trim, clips and mounts, never brakes, steering or airbags. Sunlit dashboards average 157 °F (69 °C), past PLA's 57 °C HDT; ASA and PC clear it.

Keywords: replacement-parts, asa, polycarbonate, warranty

1 Can you 3D print car parts?

Yes, for non-structural plastic parts: interior trim, clips, knobs, covers, vent parts, brackets and mounts. Never for brakes, steering, suspension, seat belts, airbags, the fuel system or wheels. Heat decides the material: sunlit dashboards averaged 157 °F (69 °C) in Arizona tests, above PLA's limit, so sun-facing cabin parts need ASA or polycarbonate.

1.1 The cabin temperatures

Table 1. The cabin temperatures

Where in a parked car, after one hour	Temperature
Dashboard, in the sun	157 °F (69 °C) average
Steering wheel, in the sun	127 °F (53 °C)
Seats, in the sun	123 °F (51 °C)
Cabin air, in the sun	116 °F (47 °C) average
Dashboard, in the shade	118 °F (48 °C)
Filament heat deflection temperature (HDT) with little or no margin over the sunlit dashboard	PLA Basic 57 °C (135 °F), 12 °C under; PETG Basic 71 °C (160 °F), 2 °C over
Filament HDT with a clear margin	ASA 100 °C (212 °F); polycarbonate (PC) 112 °C (234 °F)

Cabin figures are from ASU News on the Arizona State University and UC San Diego study (Vanos et al., 2018) of cars parked in Tempe on days above 100 °F. HDT figures, at 0.45 MPa, are from Bambu Lab's data sheets for PLA Basic

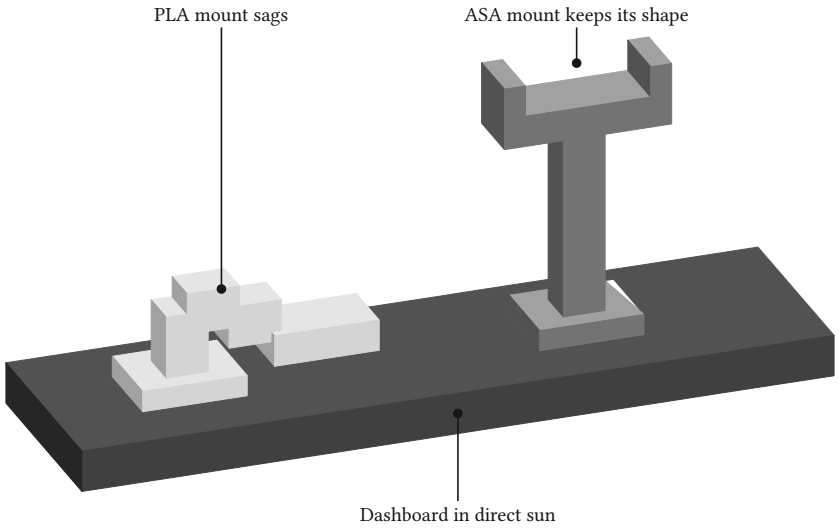


Figure 1. A sunlit dashboard runs hotter than PLA's heat deflection temperature, so a PLA mount sags while an ASA mount keeps its shape.

(polylactic acid), PETG Basic (glycol-modified PET), ASA (acrylonitrile styrene acrylate) and PC.

1.2 Why heat decides the material

A cabin part carries little load, so heat is what ruins it. HDT is where a loaded test bar starts to bend. A PLA mount on a sunlit dashboard sits 12 °C above its HDT and sags. PETG Basic's glass transition, where the polymer turns rubbery, is 69 °C: the dashboard average itself. ASA and PC keep at least 31 °C in hand.

1.3 Which car parts can you 3D print?

The parts that print well are plastic parts that broke because a small feature snapped. Most are inside the cabin:

- Interior trim pieces, panel clips and push-pin retainers
- Knobs, switch caps and cup-holder inserts
- Vent louvers and vent clips
- Battery and fuse-box covers, blanking plugs
- Brackets and mounts for phones, dash cams and cargo nets
- Discontinued plastic parts for older cars that no dealer stocks

These are also the 3D printed replacement car parts worth the effort: a cheap part that holds up a costly repair, or one no longer made. Engine-bay parts are not on the list. The cabin figures above say nothing about under-hood heat; car engine parts covers that.

1.4 Are 3D printed car parts safe?

Not for anything that stops, steers or protects you. Brake parts, steering parts, suspension parts, seat belts and other restraints, airbag components, fuel-system parts and wheels are do-not-print. A printed part is weakest across its layers. If one of these parts fails, people get hurt.

Interior parts carry a second risk: fire. Federal Motor Vehicle Safety Standard (FMVSS) 302 requires interior materials such as trim panels, arm rests and headlining not to burn at more than 102 mm (4 in) per minute. The molded original was built to meet that limit. Nobody has tested your print against it.

The warranty usually survives. The Federal Trade Commission (FTC) states that a manufacturer may not deny warranty coverage unless it can show the aftermarket equipment caused the need for repairs. If your printed part fails and damages something, the manufacturer can deny coverage for that damage.

1.5 Can you 3D print metal car parts?

Not on a home filament printer. Metal-look filament is still plastic. colorFabb lists its copperFill as PLA/PHA with fine copper powder and markets it for statues and mementos.

Bound-metal filament comes closer. Forward AM's Ultrafuse 316L, now listed as discontinued, held about 90 percent metal in a polymer binder. The printed "green part" turned into metal only after debinding and furnace sintering, steps Forward AM sent to outside service partners.

Real metal car parts are printed industrially. Porsche Classic prints the clutch release lever for its 959 from tool steel powder by selective laser melting. The printed lever passed a pressure test of almost three tonnes and a tomographic scan for internal faults.

1.6 Do people 3D print car parts?

Carmakers do, at volume. BMW Group printed about 300,000 parts in 2019 and runs about 50 industrial metal and plastic printers at its additive manufacturing campus. Its MINI John Cooper Works GP has four printed parts as standard. Porsche Classic stocks some 52,000 parts and prints the rarest. As of 2018 it printed the 959 lever and eight others. Its plastic parts come off a selective laser sintering (SLS) printer and resist oils, fuels, acids and light.

Hobbyists print the cabin-side parts listed above. Model libraries such as Printables and Thingiverse carry user designs by make and model.

1.7 How to 3D print your own car parts

1. Confirm the part is not on the do-not-print list. If it holds a wheel, a brake line, a belt or a seat, buy the factory part.
2. Search a model library by make, model, year and part number. If nothing exists, measure the broken part with calipers using the steps in how to measure a broken part without a 3D scanner.
3. Pick ASA or PC for any part that sees sun (the zone table for car parts lists each location). PETG Basic clears the 48 °C (118 °F) shaded dashboard with margin, so it covers parts kept out of the sun. The material table, including the car-interior row, is in which filament to use for a replacement part. Prusa rates ASA for high UV resistance, so it suits a sun-facing part.
4. Orient the print so the load runs along the layers. The replacement parts guide covers orientation and strength.
5. Heat-test the print before fitting: warm it to 69 °C (157 °F) in water or an oven and press it. If it gives, the material is too close to its limit.
6. Fit it and check it after a week of sun. If it warps, reprint in PC. If a clip snaps, see how to design snap-fit clips.

Whether you may copy a carmaker's part design is covered in is it legal to 3D print replacement parts.

References

[1] Study: Hot cars can hit deadly temperatures in as little as one hour (ASU News, on Vanos et al., Temperature, 2018). https://news.asu.edu/20180516-discoveries-asu-study-hot-cars-can-hit-deadly-temperatures-within-one-hour. Accessed October 13, 2026.

[2] Bambu Filament Technical Data Sheet, PLA Basic. https://wiki.bambulab.com/filament-acc/abs-asa-pc/bambu_pla_basic_technical_data_sheet.pdf. Accessed October 13, 2026.

[3] Bambu Filament Technical Data Sheet, PETG Basic. https://store.bblcdn.com/s1/default/cb94589bf7994fdcbfa833badefae9cd/Bambu_PETG_Basic_Technical_Data_Sheet.pdf. Accessed October 13, 2026.

[4] Bambu Filament Technical Data Sheet, ASA. https://wiki.bambulab.com/filament-acc/abs-asa-pc/6eaf4c432d1d4014a1975e55a55ed00b.pdf. Accessed October 13, 2026.
[5] Bambu Filament Technical Data Sheet, PC. https://wiki.bambulab.com/filament-acc/abs-asa-pc/a52afdccddfd448583d119587122c8c5.pdf. Accessed October 13, 2026.
[6] ASA (Prusa Knowledge Base). https://help.prusa3d.com/article/asa_1809. Accessed October 13, 2026.
[7] 49 CFR 571.302, Standard No. 302: Flammability of interior materials (Cornell Legal Information Institute). https://www.law.cornell.edu/cfr/text/49/571.302. Accessed October 13, 2026.
[8] FTC Offers Tips on Making the Most of Your Auto Warranty (Federal Trade Commission press release, January 2011). https://www.ftc.gov/news-events/news/press-releases/2011/01/ftc-offers-tips-making-most-your-auto-warranty. Accessed October 13, 2026.
[9] Porsche Classic supplies classic parts from a 3D printer (Porsche Newsroom, February 2018). https://newsroom.porsche.com/en/company/porsche-classic-3d-printer-spare-parts-sls-printer-production-cars-innovative-14816.html. Accessed October 13, 2026.
[10] New technology campus for 3D printing goes on stream (BMW Group press release, 25 June 2020). https://press.bmwgroup.com/global/article/detail/T0309872EN/new-technology-campus-for-3d-printing-goes-on-stream-bmw-group-builds-on-additive-manufacturing-with. Accessed October 13, 2026.
[11] Ultrafuse 316L metal filament, process at a glance (Forward AM). https://forward-am.com/material-portfolio/ultrafuse-filaments-for-fused-filaments-fabrication-fff/metal-filaments/ultrafuse-316l/. Accessed October 13, 2026.
[12] copperFill (colorFabb product page). https://colorfabb.com/copperfill. Accessed October 13, 2026.

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