

01 / THE FRAME BELONGS INSIDE THIS VAN

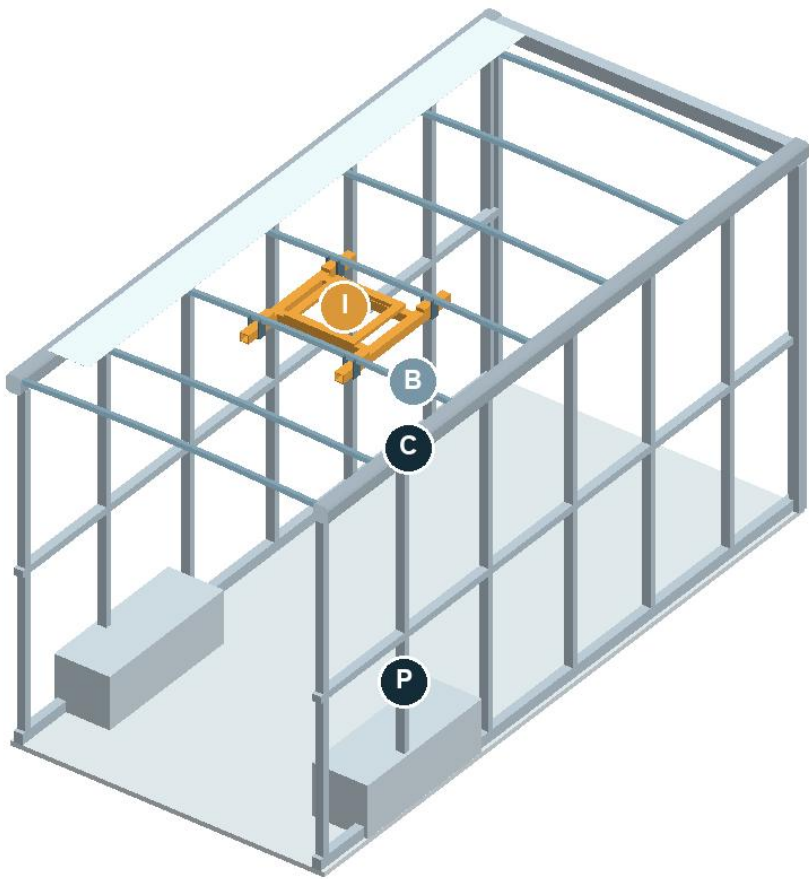
GM body structure + proposed A/C cradle | factory structure is documented; attachment and load capacity are not

A / THE ACTUAL GM BODY-IN-WHITE — MANUAL p9



GM red = aluminum. Gray = steel. Source image, not our CAD.
Composite roof and side skins removed in this factory illustration.

B / PROPOSED CRADLE IN A 600-PROPORTION CARGO BOX



Interior proportions: 168.9 in L × 83.68 in W × 82 in H (GM p12).
Roof / near-side skin removed. Frame shown inside, not on the solar rack.
Bow pitch/count and sections are illustrative—not a measured layout.

C / THE INTENDED LOAD PATH — CONDITIONAL ON STRUCTURAL APPROVAL



WHAT IS REAL / WHAT IS ADDED

B, C, P, F = existing bow / upper side rail / post / lower body structure visible in GM's cage. Profiles are simplified in our cutaway.

I = proposed custom cradle. It surrounds the air opening and supports the A/C's outboard bearing zones. It is not an existing BrightDrop part.

The 1.6 mm composite roof (GM p9) is not assigned unsupported appliance load capacity. The gasket still seals at roof level.

WHAT MUST STILL BE VERIFIED — IN THIS DRAWING

Bow spacing, count, section and crown; exact bulkhead-to-first-bow location. Measure the actual van; the render is not dimensioned.

Bow/cant-rail strength, attachment approval, clamp access and local crushing. Any drilling / through-bolting remains unapproved.

Two adjacent bows are a proposed load path—not proof two are enough. Appliance pad footprint or loads may require a different span or more bows.

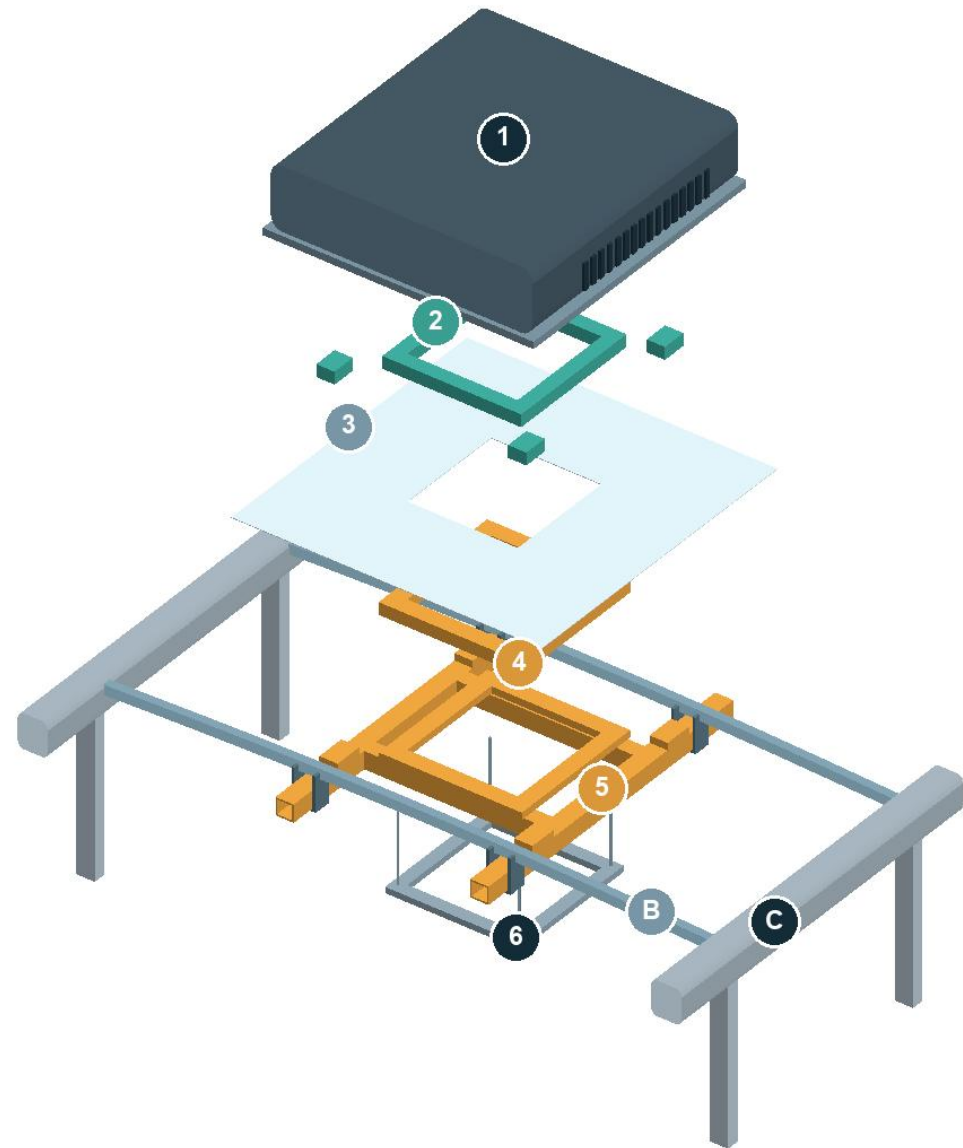
THREE STATES: documented GM body topology / proposed added cradle / unverified connections and capacity.

Source: 25MY Chevrolet BrightDrop 400/600 Body Builder Manual pp9,12. Exact vehicle/model-year applicability must be checked.
Solar rack stays separate. No fabrication sizes, drilling coordinates, fastener schedule or load rating are released.

02 / A/C STACK + THE BOW CONNECTION

Exploded to explain the parts; installed mating faces touch. Bow attachment: proposed, not load-rated or approved.

A / EXPLODED ASSEMBLY — THE FACTORY BODY IS STILL PRESENT



1 A/C · 2 factory gasket + perimeter pads · 3 composite roof with opening
4 rigid backing / contour interface · 5 new cradle · 6 factory lower bracket + rods
B actual roof-bow role · C actual upper side-rail role · vertical posts continue below

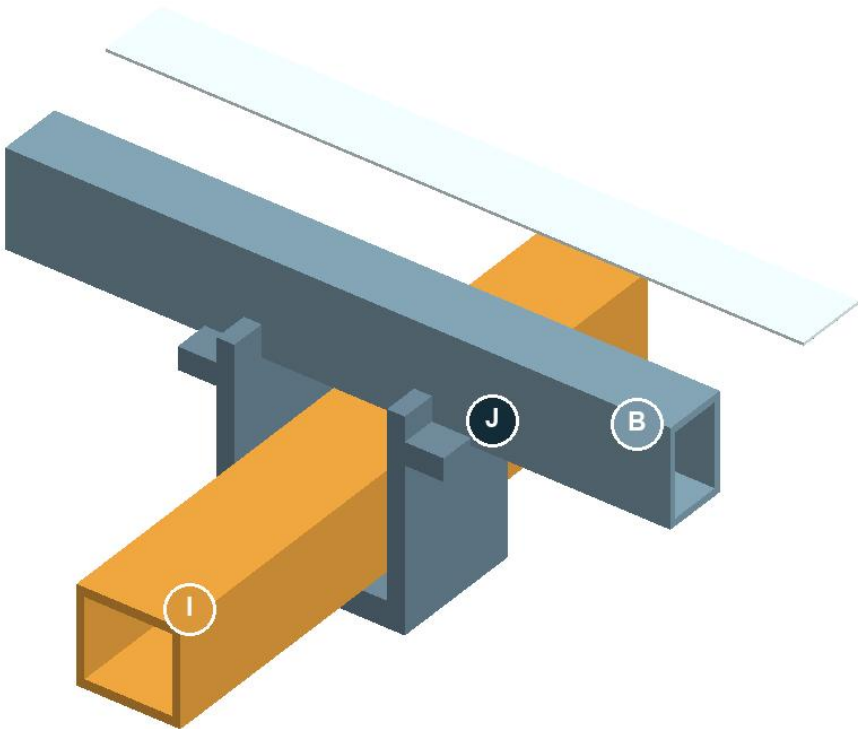
C / WHY THE OUTER SUPPORTS MATTER

The Velit manual calls for perimeter foam support blocks as well as the opening gasket. The rigid backing must support their actual contact zones—not just the square hole.

Pad locations and the actual A/C footprint must be transferred from the unit/manual. The pads in this drawing are schematic, not a placement template.

B / ENLARGED JOINT — EXPLORATION, NOT A SPEC

Roof skin cut away in this illustration to expose joint J.



B = factory bow I = new cradle J = candidate joint

PROPOSED, NOT LOAD-RATED OR APPROVED

A no-drill clamp/saddle is a candidate to investigate, not a selected attachment. Grip, bearing and positive retention are unresolved.

The roof may block access above the bow. Do not pry a bonded roof loose or assume a wraparound clamp fits.

No factory-bow drilling, bolt pattern or clamp torque is prescribed here. Bow section, local crush resistance and fatigue must be checked.

D / WHAT HAPPENS WHEN THIS IS ASSEMBLED

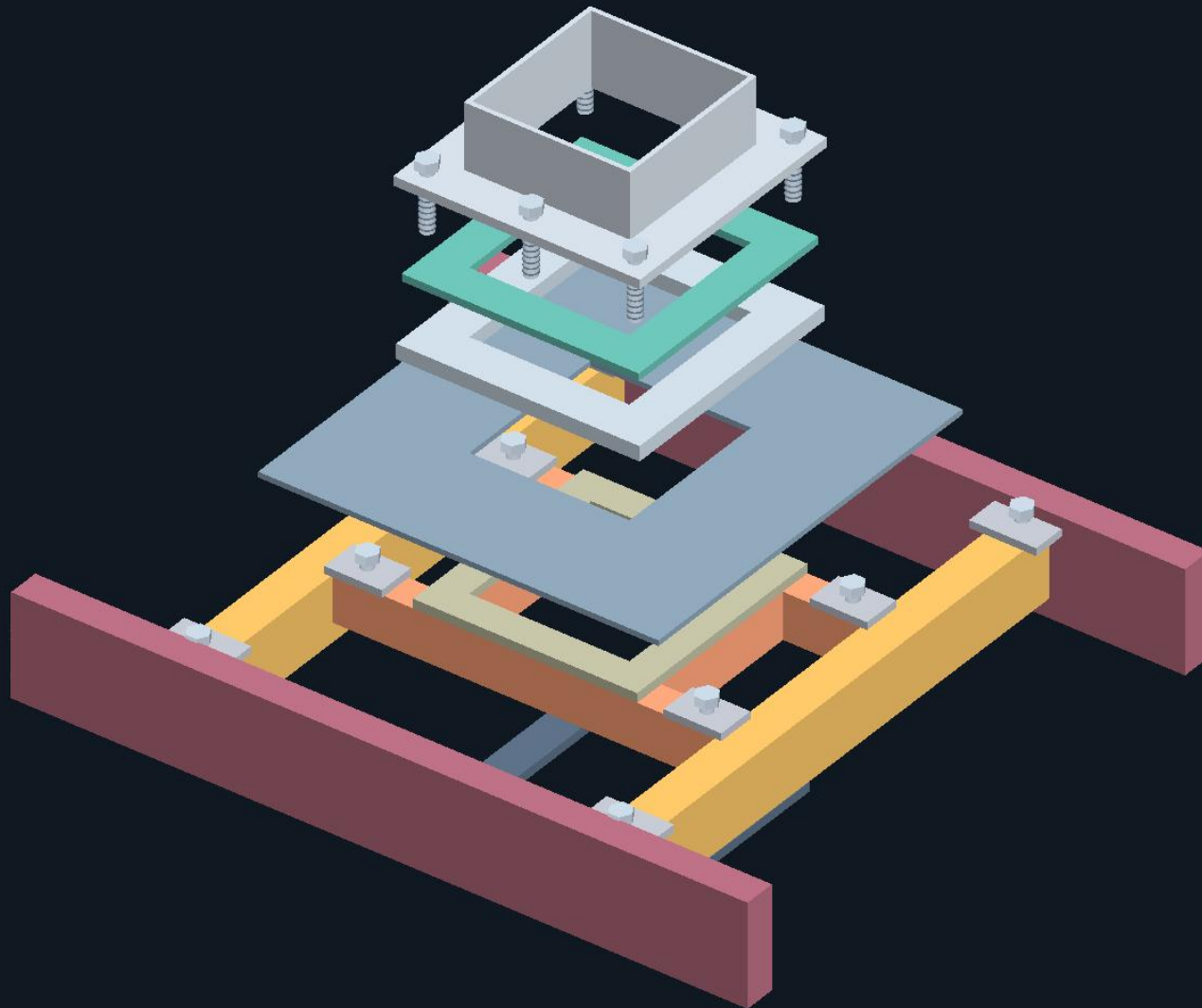
The roof-level gasket compresses between the A/C and supported roof/interface. The lower factory bracket clamps against suitable rigid backing. The air passage stays open.

Do not stretch the assembly with longer rods or a tall curb. Check total thickness, duct/ADB engagement, roof crown, door travel and access before choosing the frame.

FACTORY BODY = GM-documented topology. NEW CRADLE = proposal. JOINT J = unverified, not approved or load-rated.
GM p9 does not rate roof bows or authorize this connection. No skin, bow or rail is given an invented capacity.
Sources: GM 2025 Body Builder Manual p9; Velit 3000R manual installation pp05–07. Shown appliance geometry is illustrative.

03 / FAN: SEALED ABOVE, BACKED BELOW

factory screw flange differs from the AC clamp bracket • exact fan model / installation manual controls holes and mounting depth



- 1 FACTORY FAN / SCREW FLANGE**
flange screws secure to suitable backing
use actual screw pattern, not this drawing
- 2 SEAL SYSTEM + ROOF ADAPTER**
adapter only where profile requires it
compatible sealants / tape per fan instructions
- 3 ROOF SHEET / OPENING**
fan stays at roof level
air passage remains unobstructed
- 4 STRUCTURAL FLANGE BACKING**
flat continuous support and screw engagement
connected to the internal reinforcement
- 5 INTERNAL LOAD-CARRYING FRAME**
not just a loose ring glued to roof skin
fan may need less structure than the AC
- 6 INTERIOR GARNISH = TRIM**
covers the finish gap
does not carry the fan or clamp the roof

check lid travel / airflow / service access

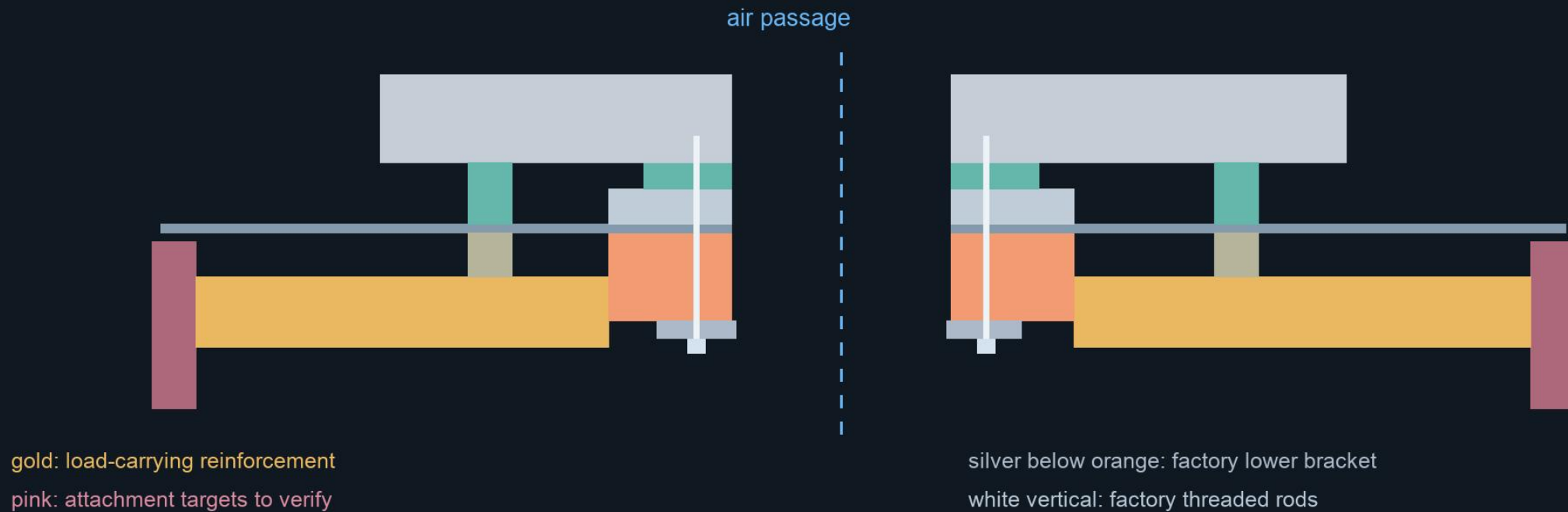
the fan and AC share the support principle, NOT necessarily beam sizes, hardware, mounting depth or sealing materials.
a contour adapter or backing ring alone does not prove capacity. actual manufacturer screw pattern and substrate requirements govern.

04 / ASSEMBLED SECTION: HOW THE SEAL AND FRAME WORK TOGETHER

not exploded • contact shown • section is schematic, not a manufacturer template or a BrightDrop structural drawing

OUTSIDE: appliance + factory gasket / support pads

INSIDE: backing / opening frame + reinforcement connected to verified vehicle structure



A WEATHER SEAL
gasket seals at exterior mounting surface
roof remains the weather enclosure

C OUTBOARD BEARING PADS
also supported from underneath
not resting over an unsupported roof span

B WEIGHT + CLAMP SUPPORT
backing carries local compression
beams transfer loads to vehicle structure

D SOLAR RACK NOT IN THIS STACK
appliance does not hang from the solar rack
ceiling trim and insulation carry no load

the roof sheet participates locally in a supported mounting sandwich; it is not being asked to span and carry the appliance alone.

adapter contour, seal stack, backing, thermal isolation and joints require exact-unit / vehicle design. no construction dimensions shown.