

ADTHOC®

MERCEDES-BENZ G-CLASS CABRIO LWB (W460)

Technical Dossier & Comprehensive Proposal for Restoration, Engine Swap, and Custom Build



1. PROJECT CONCEPT

The project originates from a long-wheelbase (LWB) Mercedes-Benz G-Class W460 Cabrio (Wolf), which will be transformed into a unique V8 build. It combines the classic aesthetic of the convertible G-Class with the performance and comfort of a modern vehicle. Designed as a fully customizable build, the client can specify every detail regarding finishes, upholstery, colors, and bespoke equipment.

2. DISASSEMBLY, CATALOGING, AND RECOVERY

- Full bare-chassis strip-down: Complete teardown of both the W460 and the donor ML55 to audit the chassis structural condition, corrosion, and overall geometry.
- Part cataloging and quality control: Individual inspection of reusable components to check for wear, fully documenting the parts mapping for final assembly and future replacements.
- Pre-assembly reconditioning: Ultrasonic/sandblast cleaning of selected parts, stripping grease and sulfation, followed by an initial protective coating prior to painting and machining.

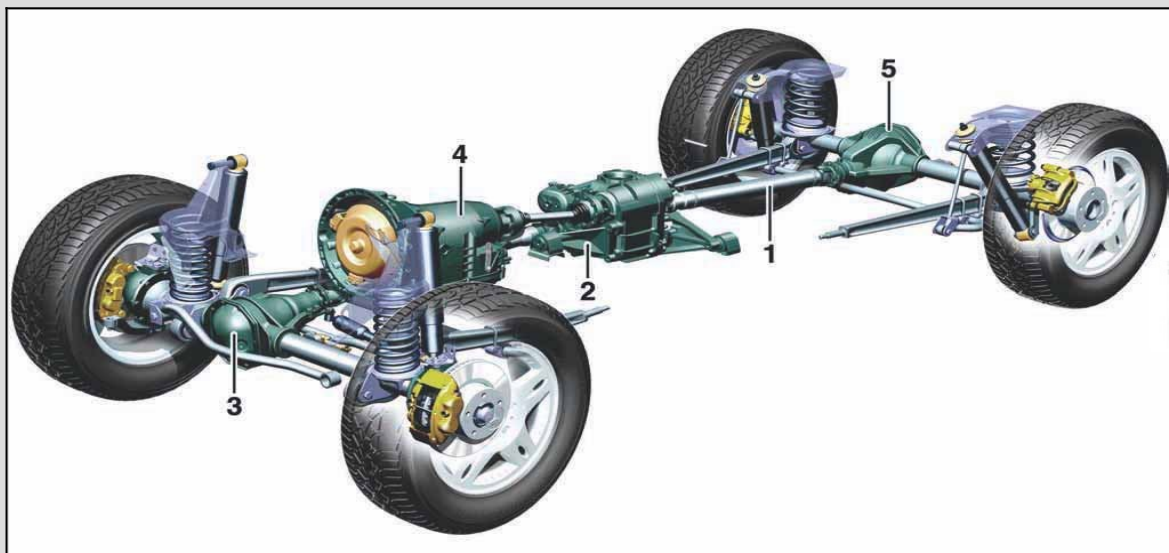
3. POWERTRAIN ADAPTATION (V8 SWAP)

- The 5.5L M113 V8 engine and 5-speed 722.6 NAG1 automatic transmission from the ML55 AMG will be adapted to the W460 chassis, including custom mounts, driveshafts, high-performance cooling, custom stainless steel exhaust, and auxiliary systems.
- Mount engineering: Dynamic load analysis to position new silentblocks and define their Shore A hardness, guaranteeing complete absorption of the V8 torque without transmitting vibrations.
- Oil sump adaptation, custom driveshafts, high-efficiency cooling system, and hand-built stainless steel exhaust system.



4. AXLES AND DRIVETRAIN

- Axle replacement: Replacement of the original axles with reinforced solid axles featuring a wider track width, engineered to handle the increased V8 torque and ensure stability at the new ride height.
- Drivetrain alignment: Relocation and adjustment of mounting points, guide bars (Panhard, control arms), suspension geometry, and driveshafts to absorb V8 engine torque smoothly.

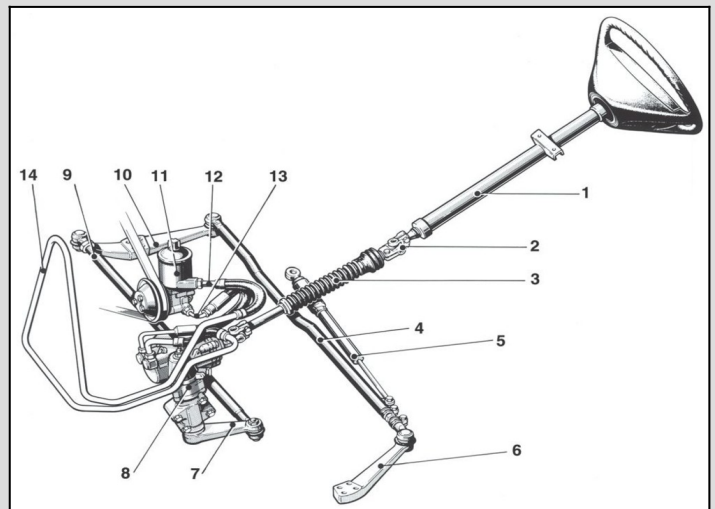


5. BRAKING SYSTEM

- Upgraded brake package: Oversized brake systems on both axles (ventilated discs and higher-flow/multi-piston calipers).
- Brake booster & master cylinder: Adaptation of a high-flow master cylinder and brake booster, dimensioned for new dynamic demands and to pass official laboratory brake testing.

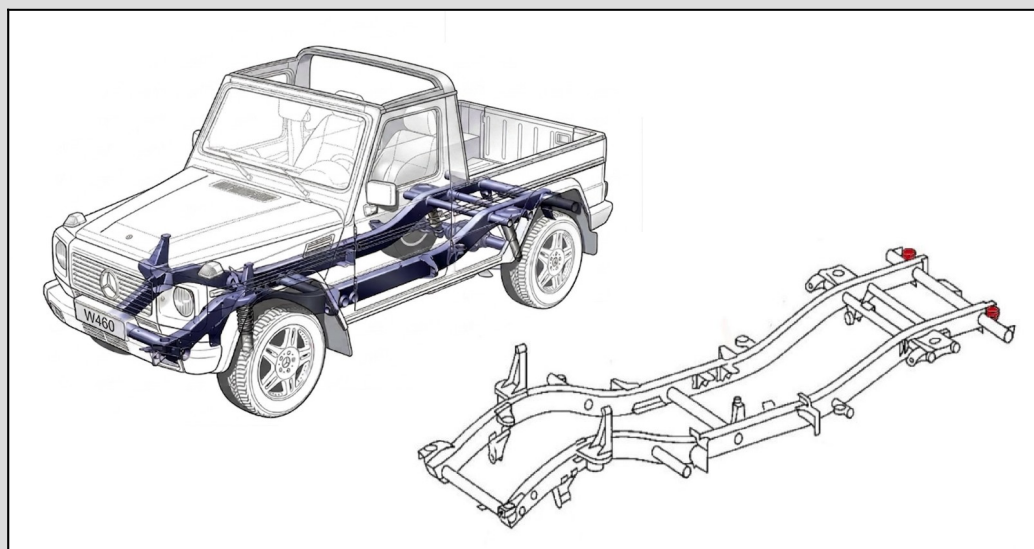
6. STEERING AND POWER ASSIST

- Reinforced steering box and high-flow power steering pump adapted to the V8 block.
- Kinematics calibration: Testing and alignment of steering angles, alignment, and kinematics to ensure precise, safe road feedback.



7. STRUCTURAL REINFORCEMENTS

- Frame restoration: Comprehensive structural diagnosis of the original ladder frame, performing rust removal, dimensional verification, and anti-corrosion treatments.
- Dynamic reinforcements & torsional rigidity: Strategic plate reinforcement on critical frame points to absorb M113 V8 torque, guaranteeing optimal structural rigidity for a convertible body style.



8. FUEL SYSTEM

- High-pressure fuel delivery system adapted to M113 V8 fuel injection: fuel tank, high-flow submerged/external pump, pressure regulator, filter, and EVAP-compliant fuel lines.

9. ELECTRICAL AND ELECTRONIC ARCHITECTURE

- Engine wiring & management: Simplification and integration of the ML55 AMG wiring harness into the W460 network, adapting ECU and TCU units. Includes immobilizer removal (FBS3 bypass) and an OBD-II diagnostic port installation for modern serviceability.
- Lighting & auxiliary system: Integration of modern Full-LED exterior lighting (main headlights with integrated DRLs, high-intensity taillights), complemented by discrete ambient LED interior lighting and a refreshed auxiliary electrical system.

10. BODYWORK AND RESTORATION

- Full anti-corrosion treatment: Chemical stripping, rust remediation, sheet metal replacement, epoxy priming, and high-precision preparation for final paint work.



11. HVAC AND CLIMATE CONTROL

- Climate control integration: Full adaptation and integration of the air conditioning and heating system, interconnecting the AMG compressor with the evaporator and heater core, replacing all air ducts, and fitting new dashboard controls.

12. DASHBOARD, STEERING WHEEL AND COLUMN.

- Cockpit restoration: Rebuilding and restoring the original W460 dashboard. A new binnacle will house AMG-style gauges along with new HVAC and comfort switchgear.
- Steering wheel integration: Classic/sport Mercedes-Benz steering wheel installation (without airbag module) via a dedicated hub adapter, retaining the original articulated steering column for structural safety. This setup eliminates accidental deployment risks off-road and maintains electrical compatibility.

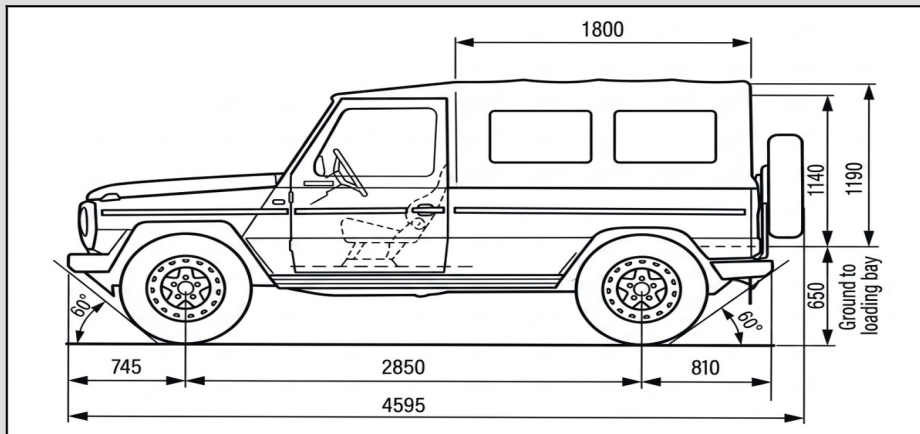


13.THERMAL AND ACOUSTIC INSULATION

- High-performance soundproofing and thermal insulation (elastomeric materials and heat barriers) applied to floors, firewall, transmission tunnel, and side panels to minimize noise, vibration, and harshness (NVH)

14.EXTERIOR AND BODY STYLING

- Muscular, widebody AMG-inspired styling line without excessive spoilers or ostentatious trim. Features 12 cm wheel arch flares, integrated front/rear bumpers, side steps, and headlight surrounds with integrated LED technology.
- Body fitment: Custom fitment of fender flares, bumpers, and bodywork components to house the wider track and larger wheel package while maintaining clean proportions.



15. INTERIOR CONFIGURATION AND LAYOUT

- 7-Passenger seating: Ergonomic front seats, rear bench, and two rear jump seats providing a fully homologated 7-passenger capacity.
- Restraints & materials: Fabrication and adaptation of structural mounting points and 3-point seatbelts. Clients can select seat patterns, stitching, leather grades, floor coverings, and exclusive interior trims (fine woods, brushed aluminum, or carbon fiber).

16. MULTIMEDIA AND DRIVER ASSIST

- Infotainment integration: Touchscreen infotainment system (Apple CarPlay / Android Auto), backup camera, and ultrasonic parking sensors.
- High-fidelity sound system: Hidden, waterproof speakers installed in interior panels for durability and acoustic performance in an open-top vehicle.

17. WHEELS AND TIRES

- 22" Aluminum wheels & offset: 22-inch reinforced alloy wheels featuring custom ET and offset parameters tailored to the widened axle track.
- All-Season performance tires: Premium All-Season / Crossover tires with an aggressive tread pattern, combining visual presence with low road noise and off-road capability.

18. SUSPENSION AND DRIVING DYNAMICS

- Bespoke suspension setup: Progressive coil springs and high-performance shock absorbers calibrated specifically for the revised weight distribution (V8 engine + Cabrio body).

19. ROLL CAGE STRUCTURE AND CUSTOM SOFT TOP

- Handmade technical soft top: Custom weather-sealed fabric soft top offering thermal and acoustic insulation.
- Roll cage & frame: Reinforced safety arch/roll cage structure designed for the Cabrio body, allowing quick and secure full or partial open-air driving.

20. INTEGRATION, START-UP, AND TESTING

- Verification protocol: Inspection of fluids, leak checks, and pressure testing across hydraulic, braking, and steering circuits.
- Electronic calibration: Calibration of throttle pedal potentiometer, 722.6 automatic transmission sensors, and cluster signals (speedometer, tachometer, and coolant temperature).
- Dyno & road testing: OBD-II diagnostics scanning, shift-mapping setup, emissions checks, and dynamic road testing for suspension fine-tuning and alignment.

22. HOMOLOGATION AND LEGALIZATION

Engineering project & compliance: Management of technical modifications under current vehicle regulations:

Engine swap legalization (V8 M113) and automatic transmission fitment.

Modifications to track width, axles, oversized brakes, suspension, wheels, and seat capacity certification.

Cockpit configuration compliance (sports steering wheel without SRS/airbag module in accordance with donor vehicle baseline specs).

Official brake performance test at an accredited testing laboratory.

23. TECHNICAL DOSSIER AND PROJECT BOOK

- Delivery of a bound Project Book to the client: step-by-step photographic build journal, adapted wiring schematics, replacement parts catalog, and a complete copy of the engineering homologation file.

24. WARRANTY AND COVERAGE

- Engineering & Craftsmanship Coverage (24 Months): Full coverage on labor, custom brackets, welds, structural reinforcements, custom wiring harnesses, brake/fuel lines, and overall assembly quality.
- Powertrain & Mechanical Warranty (24 Months or 20,000 km): Coverage for the M113 V8 engine and 722.6 automatic transmission assembly (whichever comes first), following baseline compression testing and diagnostic protocols prior to delivery.
- Preventative Maintenance Requirement: To maintain warranty validity during Year 2, an annual fluid inspection and maintenance service (or every 10,000 km) must be completed at our workshop or an authorized facility.
- Warranty Exclusions: Coverage excludes damage resulting from motorsport competition, overload/severe off-road use beyond specified operational limits, underbody impacts, water submersion/flooding, low fluid levels, or unauthorized tampering with electronics and sealed components.



