

TAC-6 *(MKII)*

TMSI



Engineered for the uncompromising demands of combat, the TAC-6 is a versatile military vehicle. Designed for exceptional mobility, protection, and adaptability across various terrains and mission profiles, it offers unparalleled strength, reliability, and ease of maintenance. The TAC-6 delivers a robust, multi-segment solution, ensuring peak performance and survivability where product failure is not an option.

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OVERVIEW - TAC-6 (MKII)

- Operates in **urban and remote settings**, ensuring effective utilisation and operational versatility.
- **Proven 7,000 kg GVM** platform supporting up to **4,200 kg configuration capacity**.
- **Configurable suspension** for tailored performance on the fly Vector Stability Suspension System - VS³®
- Enhanced handling across varied terrain, from **superior off-road to high speed urban environments**.
- **Purpose-engineered chassis**, for superior durability.
- Built to **endure high-tempo mission cycles**, extending service life and operational reliability.

BASIC SPECIFICATION SHEET

Engine:

1GD-FTV 4 Cylinder 2.8 L Diesel

Type:

Turbo inter-cooled, direct electronic injection, common rail, JP8 capable

Maximum Power:

172 kw @ 3,000 rpm

Torque:

620 Nm @ 1,600 rpm

Transfer Case:

6x6 AWD High/Low

Transmission:

8HP90 ZF - 8 Speed Automatic with full Hybrid Electric Drive Option

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BASIC SPECIFICATION SHEET

Suspension:

Heavy Duty VS³® Rigid Axle Configuration

Body Types:

Single / Double / APC – (Toyota / Soft-Skin / Armoured)

Armoured Protection:

STANAG 4569 LEVEL 1 with additional Appliqué Armour options (Up-Armour)

GVM:

7,000 kg

Curb Weight:

2,800 kg to 5,800 kg – Configuration dependent

Width:

1,900 mm

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BASIC SPECIFICATION SHEET

Hight:

Vector Auto Adjustable from 1,890 mm to 2,250 mm

Drive Train:

Features front and rear electronic locking differentials

Human Factors Engineering (HFE):

All designs @ 95%+ size occupants and applicable standard

Payload:

1,200 kg to 4,200 kg – Configuration dependent

Fording Depth:

700 mm – Without Preparation

Performance:

High speed handling – capable of 160 Km/h (Governable)

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BASIC SPECIFICATION SHEET

Standard Features:

- Interior/exterior blackout lighting
- 12v/24v electrical system
- 360-degree camera
- HVAC System
- 310L Fuel Capacity Standard (Additional 300L Optional)

Key Differentiators:

CHASSIS DESIGN

Unique **Structural Blind Fastening** Pin-and-Collar Lockbolt Joint Full Chassis Design:

- **AHSS & UHSS steel utilisation**, specifically STRENX 700 & DOCOL 1400 for enhanced performance.
- Benefits over Welding
 - No heat-affected zones or material distortion
 - No skilled welding labour required
 - Faster, cleaner, and consistent installation
 - No weld cracking or fatigue issues
 - Works reliably with coated, painted, or dissimilar materials
 - Improved structural consistency and repeatability (Higher Consistent Quality)

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Key Differentiators:

CHASSIS DESIGN

Unique **Structural Blind Fastening** Pin-and-Collar Lockbolt Joint Full Chassis Design:

- **Extends platform lifespan** through enhanced durability, serviceability, and ease of upgrade.
- Benefits over Standard Bolted Systems
 - No need for torque or re-torque (maintenance-free)
 - Vibration-proof, cannot loosen in service
 - Higher and more consistent clamp force
 - No thread rotation or relaxation issues
 - Faster installation with fewer tooling variables
 - Superior fatigue performance in dynamic structures

Key Differentiators:

TOYOTA COMPONENTRY

Fleet Uniformity and Parts Compatibility:

- **High compatibility** with existing fleets through the use of Toyota Land Cruiser 79 Series serviceable components.
- **Reduced logistical complexity** due to widespread availability of familiar, proven parts.
- **Streamlined maintenance processes**, enabling quicker servicing and reduced vehicle downtime.
- Strong parts commonality **simplifies inventory management** and limits the need for specialised spares.
- Logistical support and superior lifecycle > 15-year

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Key Differentiators:

TOYOTA COMPONENTRY

Fleet Uniformity and Parts Compatibility:

- **Enhanced field sustainability**, with components easily replaced or **supported in remote or austere environments**.
- **Global parts support**, leveraging Toyota's extensive dealership and logistics network for reliable resupply.
- Retention of field-replaceable, globally supported components ensures **dependable sustainment across all deployment locations**.

Key Differentiators:

VS³[®] (VECTOR STABILITY SUSPENSION SYSTEM)

Key Features:

- **Real-time stabilisation:** Actively adjusts for pitch, roll, and yaw to keep the vehicle stable.
- **Automatic levelling:** Levels the platform on uneven ground for accurate weapon deployment.
- **Height modulation:** Adjustable ride height for different mission needs (low profile or high clearance).
- **Suspension lock:** Locks the suspension during firing to improve accuracy.
- **Fail-safe system:** Defaults to normal suspension mode with no electrical system.

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Key Differentiators:

VS³[®] (VECTOR STABILITY SUSPENSION SYSTEM)

Key Features:

- **On-the-fly damping adjustment:** Adapts suspension in real time as terrain changes.
- **Adaptive terrain response:** Handles soft soil, rocky, or urban terrain effectively.
- **Predefined ride profiles:** Quick reconfiguration for different mission needs.
- **Dual-path control:** Redundant system ensures mobility in every eventuality.
- **Axle and wheel weight indicator:** Increases load and weight distribution management.

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Key Differentiators:

VS³[®] (VECTOR STABILITY SUSPENSION SYSTEM)

Key Benefits:

- **Better weapon accuracy:** Especially during movement or on uneven terrain.
- **Faster setup time:** Quicker to get into firing position.
- **Improved vehicle control:** Smooth ride over rough terrain.
- **More mission flexibility:** Light vehicles can perform heavy weapon roles.
- **Reduced platform signature:** Lower profile for better stealth.

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Key Differentiators:

VS³[®] (VECTOR STABILITY SUSPENSION SYSTEM)

Key Benefits:

- **Assisted self recovery mode:** In sand and mud.
- **Crew comfort:** Less fatigue due to stable and smooth rides.
- **Transport readiness:** Easily adjustable for transport loading and onboard stability.
- **Lower maintenance costs:** Reduced mechanical stress extends vehicle life.
- **Manages safety factors:** Overload and load distribution warning notification.
- **Driver characteristics logging:** Accountability, training and mission revue.

Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Core Engineering Features)

- **Original Equipment (OE) design:** Ensuring seamless compatibility and compliance.
- **Heavy-duty torque and GCWR capability:** Managing 1,000 Nm at 100% duty cycle and 11-ton GCWR for demanding military applications.
- **ZF-engineered software:** Optimised for the Toyota 1GD-FTV 2.8-litre engine, ensuring accurate torque matching and refined performance.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Core Engineering Features)

- **Bi-directional torque communication with the ECU:** Precise, real-time gear selection and smooth clutch operation.
- **ZF-tuned torque converter,** calibrated specifically for the 1GD-FTV engine to maximise drivability and long-term durability.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Integration & Installation Advantages)

- **No bellhousing adaptor required:** Ensuring direct fitment to the 1GD-FTV engine.
- **No flex-plate adaptor required:** With ZF-engineered torque converter and flex plate providing seamless compatibility.
- **No output-shaft adaptor required:** The output shaft is built to match the 70-Series transfer case.
- **Consistent installation space:** Simplifying integration across LC70-based platforms.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Cooling & Thermal Management)

- **Adaptable cooling system:** Manages oil flow intelligently under varying loads and temperatures.
- **Efficient cooling package:** Designed to ZF's required flow rates and thermostatic thresholds for maximum reliability.
- **Stainless-steel oil sump:** Providing added robustness, cooling and impact resistance.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Performance & Driveability Enhancements)

- **Automatic torque-converter lock-up** across all gears for improved efficiency, power delivery, and driver feel.
- **Optimised low-range shifting** delivering superior off-road torque handling and terrain response.
- **Automatic tow-mode detection**, adjusting shift logic to improve towing performance.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Performance & Driveability Enhancements)

- **Seamless downhill lock-up**, engaging automatically to enhance braking stability on steep descents.
- **Advanced control systems**, including predictive shift control, for highly responsive and intuitive operation.
- **ZF-programmed gear-ratio matrix** ensuring accurate shifts and efficient power transfer.

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Key Differentiators:

TMS ZF 8HP90 AUTOMATIC TRANSMISSION

Key Benefits: (Advanced System Optimisations)

- **Wider transmission-ratio** spread of 7.81, improving performance flexibility.
- **Multi-disc brake separation** for more precise control and reduced drag losses.
- **Optimised cooling system** for sustained high-load performance.
- **Gear-shift point optimisation** for enhanced efficiency and driveability.

Key Differentiators:

FULL HYBRID ELECTRIC DRIVE:

Key Benefits:

- **Silent mobility:** True stealth, reducing acoustic signature (5 Miles).
- **Extended operational range:** Improved energy efficiency and reduced fuel consumption.
- **Lower logistical burden:** Decreasing reliance on fuel resupply and improving sustainment.
- **Reduced emissions:** Supporting modern environmental standards within defence operations.
- **Fully integrated hybrid solution:** Developed in partnership with ZF Friedrichshafen AG, a global driveline technology leader.

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Key Differentiators:

FULL HYBRID ELECTRIC DRIVE:

Key Benefits:

- **Electrification-ready platform:** Supporting full hybrid configuration.
- **Integrated hybrid design:** Enabling cost-effective electrification of LC70-based vehicles.
- **All-electric capability:** For short distances, improving stealth and efficiency during low-speed or urban movement.
- **Decoupling clutch:** Enables the combustion engine to be disengaged completely, drastically reducing fuel use during hybrid operation.

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Key Differentiators:

FULL HYBRID ELECTRIC DRIVE:

Key Benefits:

- **Electric motor up to 40 kW / 230 Nm:** Providing enhanced low-speed torque, acceleration, and responsive driveline performance.
- **Compact integration:** Maintains the same installation space as the conventional ZF 8HP90 transmission.
- **Ideal for modern military operations** requiring reduced signatures, improved efficiency, and future-proofed mobility solutions.

Key Differentiators:

ARMOURED HULL DESIGN:

Key Features:

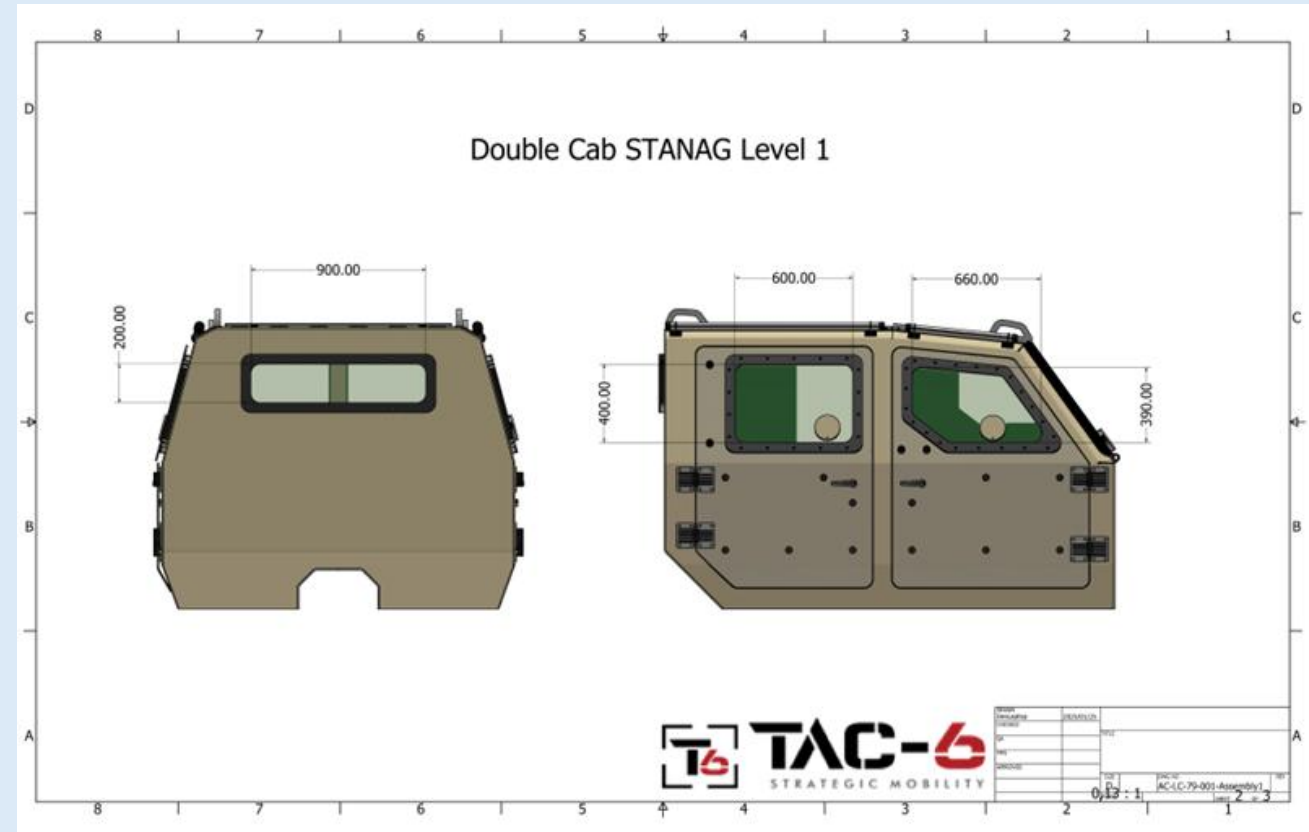
- **Kitted hull design** for easy repair of compromised armour due to a ballistic event.
- **Kitted hull design** incorporates **advanced Armox 620T ballistic plate** for reduced weight.
- **Internal Uni-body** structural frame provides enhanced survivability with significant structural strength, durability and rollover protection.
- Built to **STANAG LEVEL 1** ballistic protection with advanced internal coating for environmental management and head protection from external sources.

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Key Differentiators:

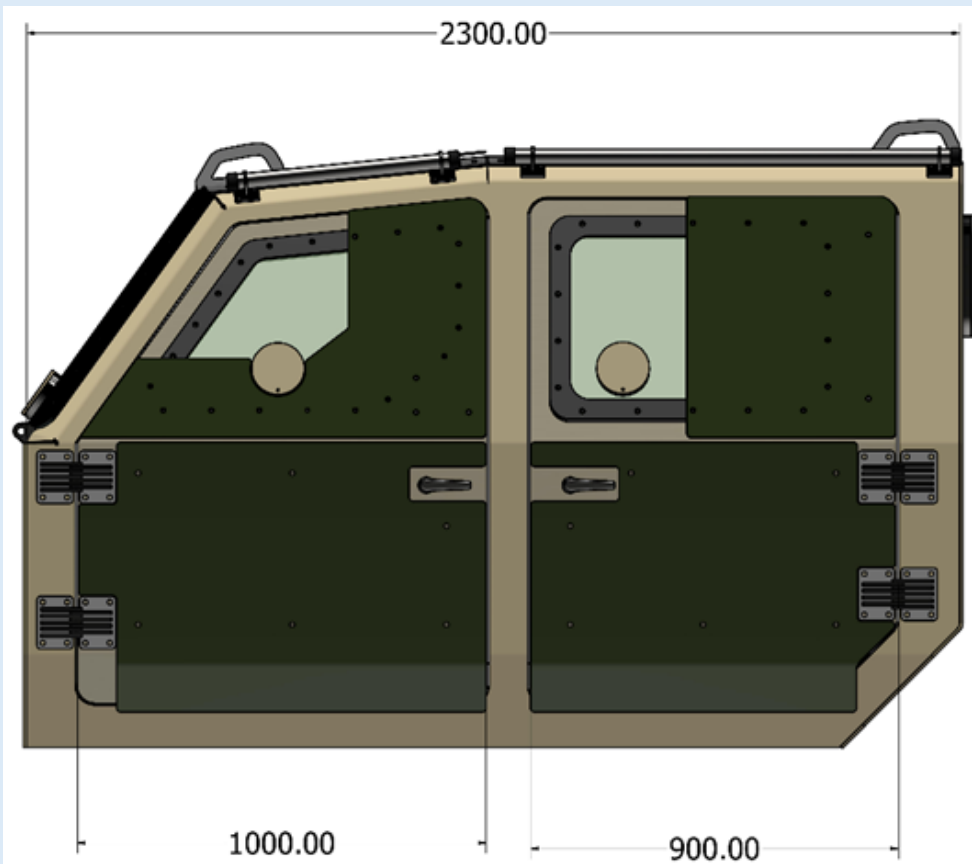
- Paradigm Shift in Armoured Vehicle Design
 - Tailored for operational efficiency
 - Effective in real-world combat and deployment scenarios
- Built to STANAG Level 1 Specifications
 - Prioritises functional effectiveness
 - Emphasises user adaptability
- Avoids Unnecessary Features
 - Reduces weight
 - Enhances operator efficacy



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Key Differentiators:



- Maximised Operational Effectiveness
 - Enhanced protection with STANAG Level 1 armour
 - Designed for high durability and resilience
- Engineered to STANAG Level 1 standards
 - Perfect balance between ballistic protection and operational agility
- Focused design approach
 - Avoids higher protection levels with minimal additional benefit
 - Enhanced effectiveness in active engagement scenarios

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REQUIREMENTS FLOWDOWN:

MISSION → SYSTEM → SUBSYSTEM → COMPONENT

Highest-level Statements

A. Mission / Capability Level Requirements

Compliant



B. System-level Requirements (Vehicle Level)

Compliant



C. Subsystem-level Requirements

Compliant



D. Component-level Requirements

Compliant



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REQUIREMENTS FLOWDOWN:

A. MISSION / CAPABILITY LEVEL REQUIREMENTS

Highest-level operational capability statements

- [A1. Survivability](#)
- [A2. Mobility & Manoeuvre](#)
- [A3. Integration & Interoperability](#)
- [A4. Human Factors & Crew Operations](#)
- [A5. Sustainment & Lifecycle](#)

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REQUIREMENTS FLOWDOWN:

Highest-level operational capability statements

A1. Survivability

- Operate in high-threat environments where **STANAG 4569 Level 1** ballistic protection is required.
- Provide crew **protection against fragmentation, blast, and fire** per DEF STAN 00-056 safety management requirements.
- Provide secure crew capsule **seating for 95th percentile** soldiers (DEF STAN 00-25).

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REQUIREMENTS FLOWDOWN:

Highest-level operational capability statements

A2. Mobility & Manoeuvre

- Maintain mobility in desert, arctic, jungle, mud, and amphibious environments.
- Achieve **high strategic mobility** with road speeds exceeding 110 km/h.
- Ability to ford 700 mm of water without preparation.
- Sustain payloads of 1,200–4,200 kg.
- Traverse gradients, slopes, and obstacles per DEF STAN 23-06.

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REQUIREMENTS FLOWDOWN:

Highest-level operational capability statements

A3. Integration & Interoperability

- Support integration of mission equipment, sensors, electronic architecture per DEF STAN 23-09 (GVA baseline).
- Provide 12V/24V and hybrid-electric compatibility.
- Provide situational awareness enhancements (360-degree cameras, blackout lighting).

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REQUIREMENTS FLOWDOWN:

Highest-level operational capability statements

A4. Human Factors & Crew Operations

- Accommodate 4 fully equipped soldiers in protected cab, supporting 95% anthropometric range.
- Provide blast-protected seating with appropriate restraint systems.
- Ensure climatic comfort from -32°C to $+49^{\circ}\text{C}$.

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REQUIREMENTS FLOWDOWN:

Highest-level operational capability statements

A5. Sustainment & Lifecycle

- Provide logistics support to achieve a 15-year lifecycle (DEF STAN 00-600 ILS).
- Ensure field maintainability with MTTR \leq 20 minutes for field-replaceable units.

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REQUIREMENTS FLOWDOWN:

B. System-Level Requirements (Vehicle Level)

Highest-level engineering requirements statements

- [B1. Survivability System Requirements](#)
- [B2. Mobility System Requirements](#)
- [B3. Automotive Performance Requirements](#)
- [B4. Electrical & Power Requirements](#)
- [B5. Human Factors Requirements](#)
- [B6. Supportability & Diagnostics Requirements](#)

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B1. Survivability System Requirements

- Vehicle structure must incorporate ballistic protection per STANAG 4569 Level 1.
- Armor materials must comply with DEF STAN 00-035 environmental testing standards.
- Vehicle must integrate fire suppression, spall liner, and internal safety systems per DEF STAN 00-056.
- Provide blackout modes for covert operations.

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B2. Mobility System Requirements

- Full Hybrid drive with 5 Miles range for silent drive capability
- $GVM \leq 5,700$ kg while accommodating payload requirements.
- Maintain a power-to-weight ratio enabling ≥ 110 km/h speeds under full load.
- Support independent suspension with double wishbone geometry.
- Drivetrain must support 4×2, 4×4 High/Low, and optional AWD.
- Support fording depth of 700 mm without preparation.

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B3. Automotive Performance Requirements

- Engine must provide ≥ 172 kW and ≥ 620 Nm torque, JP8-compatible.
- Transmission must support hybrid-electric drive.
- Cooling system must operate at -32°C to $+49^{\circ}\text{C}$.
- Braking system must meet performance requirements in DEF STAN 23-06.

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B4. Electrical & Power Requirements

- Provide dual-voltage 12V/24V architecture.
- Provide exportable electrical power for mission systems.
- Vehicle must meet EMC/EMI requirements per DEF STAN 59-411.

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B5. Human Factors Requirements

- Cabin internal volume must meet DEF STAN 00-25/00-251 guidance.
- Seating must accommodate 95th percentile troops with load carriage.
- HVAC must maintain environmental control for all crew conditions.

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REQUIREMENTS FLOWDOWN:

Highest-level engineering requirements statements

B6. Supportability & Diagnostics Requirements

- Maintainability requirements per DEF STAN 00-600 and 05-057.
- Vehicle must provide diagnostics access points for critical components.

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REQUIREMENTS FLOWDOWN:

C. Subsystem-Level Requirements

Highest-level allocated engineering requirements statements for each subsystem

- [C1. Powerpack Subsystem](#)
- [C2. Driveline & Suspension Subsystem](#)
- [C3. Hull & Protection Subsystem](#)
- [C4. Electrical System Subsystem](#)
- [C5. Human Machine Interface \(HMI\) Subsystem](#)
- [C6. Thermal & Environmental Subsystem](#)
- [C7. Logistics & Support Subsystem](#)

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C1. Powerpack Subsystem

- Engine must sustain output under DEF STAN 00-35 environmental conditions.
- JP8/F-34 compliant fuel system per DEF STAN 01-005.
- Hybrid system must support power flow to and from traction motors.
- Transmission (ZF 8HP90) must integrate with driveline and support low/high ranges.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C2. Driveline & Suspension Subsystem

- Double wishbone suspension must withstand DEF STAN 23-06 mobility loads.
- Electronic locking differentials must provide traction on mud, snow, sand.
- Axle load ratings must comply with GVM limit (5,700 kg).
- Steering geometry must meet mobility requirements for turning radius.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C3. Hull & Protection Subsystem

- Armor must satisfy STANAG 4569 Level 1 ballistic requirements.
- Hull geometry must mitigate anti-personnel blast event.
- Spall liners must comply with safety requirements of DEF STAN 00-56.
- Windows, doors, and locks must meet mechanical robustness standards.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C4. Electrical System Subsystem

- Power architecture must include 12V/24V dual system.
- Harness routing must follow DEF STAN 61-005 wiring standards.
- EMC protection must comply with DEF STAN 59-411.
- Integration of blackout lighting and 360-degree camera system must follow GVA (23-09) interface rules.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C5. Human Machine Interface (HMI) Subsystem

- Crew displays, lighting, and controls must meet human factors guidance in DEF STAN 00-25 and 00-251.
- Internal ergonomics must support all 95% anthropometric dimensions.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C6. Thermal & Environmental Subsystem

- HVAC must operate per DEF STAN 00-035 environmental profiles.
- Vehicle materials must withstand temperature, humidity, solar load, dust, and corrosion.

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REQUIREMENTS FLOWDOWN:

Highest-level allocated engineering requirements statements for each subsystem

C7. Logistics & Support Subsystem

- Vehicle must support 15-year lifecycle per DEF STAN 00-600.
- Must provide modular component-level replacements with MTTR \leq 20 min.
- Must include tools and diagnostic interfaces.

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REQUIREMENTS FLOWDOWN:

D. Component-Level Requirements

Highest-level statements for specific, testable requirements for individual components

- [D1. Armor Plate](#)
- [D2. Shock Absorbers](#)
- [D3. Engine Components](#)
- [D4. Electrical Connectors](#)
- [D5. Driveline Gears](#)
- [D6. Environmental Components](#)

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D1. Armor Plate

- Material hardness \geq 500–600 BHN.
- Must pass ballistic validation against STANAG 4569 Level 1.
- Must be environmentally tested per DEF STAN 00-035.
- Weldable per metallurgy guidelines and heat affected zone limits.

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D2. Shock Absorbers

- Must provide damping characteristics required for mobility performance.
- Operate in -32°C to $+49^{\circ}\text{C}$ ranges.
- Endurance to $\geq 250,000$ cycles at max operating load.

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D3. Engine Components

- Must operate on JP8/fuel standards per DEF STAN 01-005.
- Turbocharger must withstand desert dust exposure per DEF STAN 00-35.
- Sensors must meet MIL-grade vibration/shock limits.

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D4. Electrical Connectors

- Must meet MIL-DTL-38999 or equivalent.
- IP67 sealing against water and dust.
- EMC shielding must satisfy DEF STAN 59-411.

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D5. Driveline Gears

- Must withstand torque loads of ≥ 620 Nm.
- Lubrication per DEF STAN lubricant standards.
- Surface finish and tolerances per automotive spec.

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REQUIREMENTS FLOWDOWN:

Highest-level statements for specific, testable requirements for individual components

D6. Environmental Components

- Filters, seals, and vents must comply with DEF STAN 00-035.



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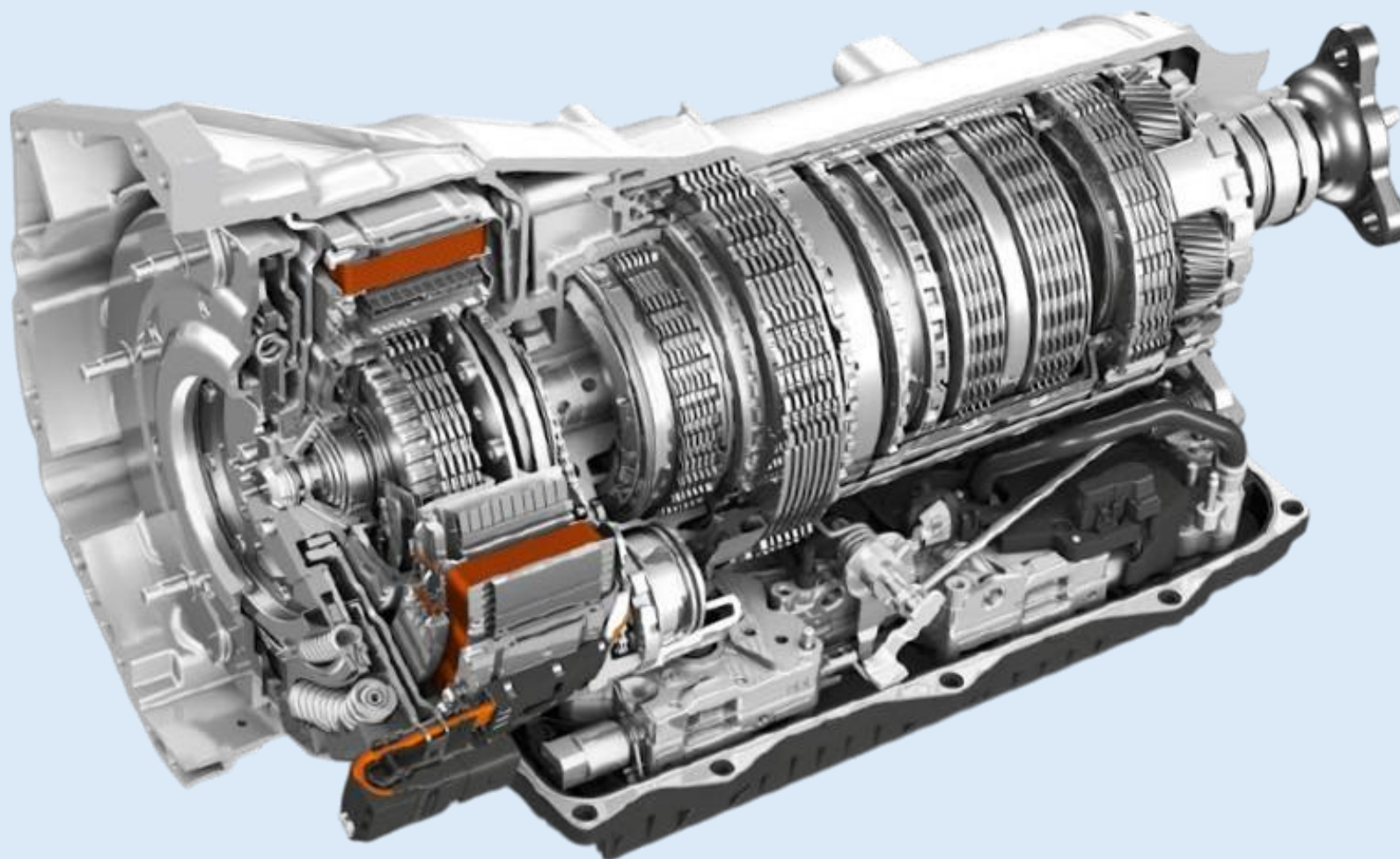
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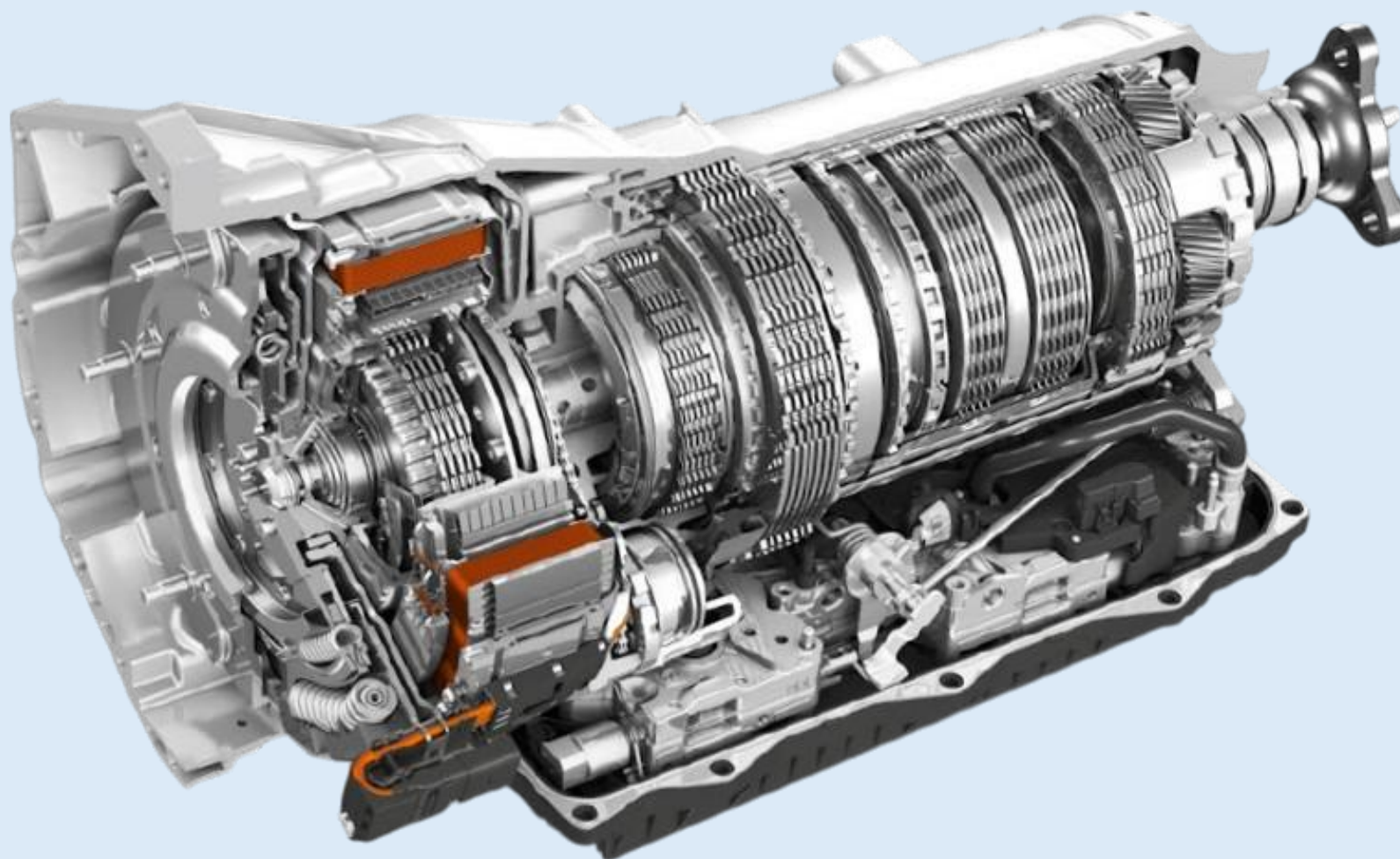
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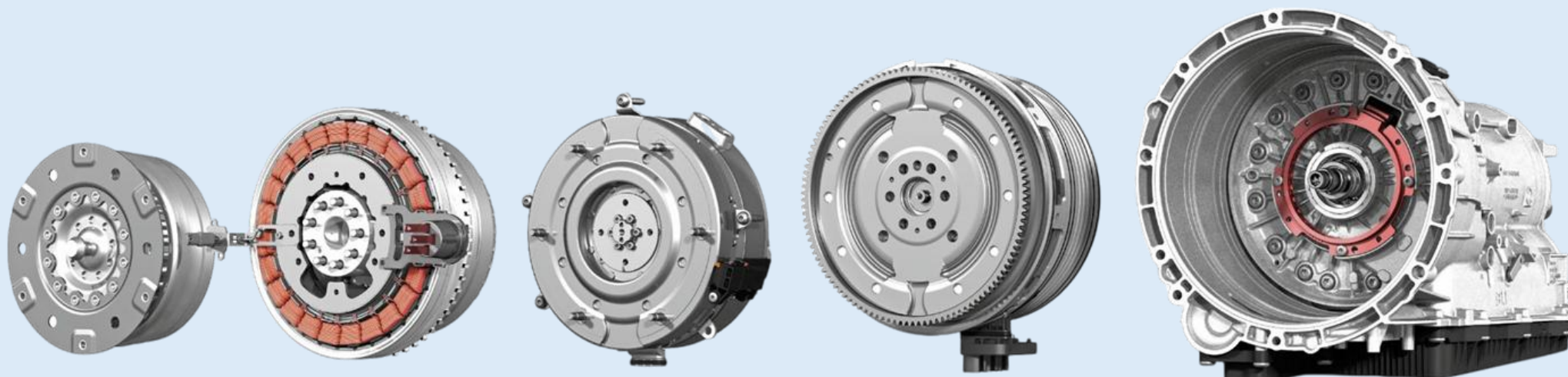
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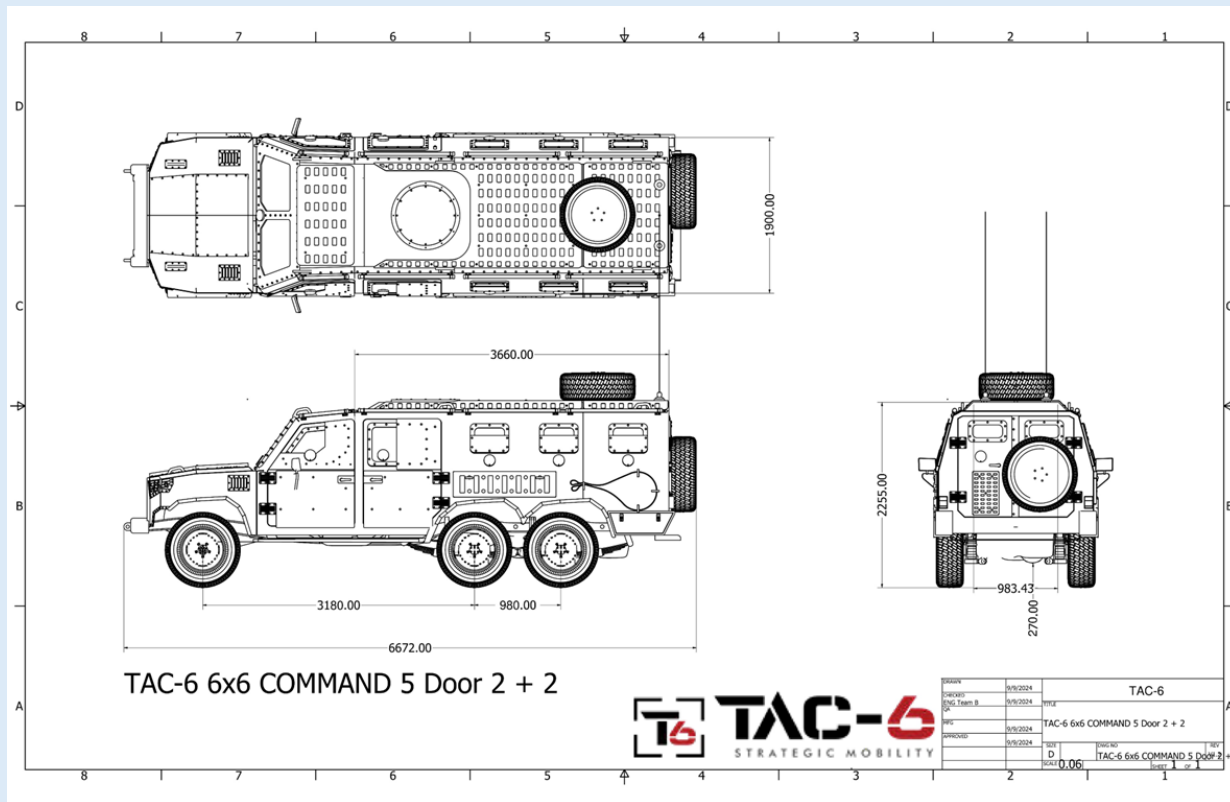
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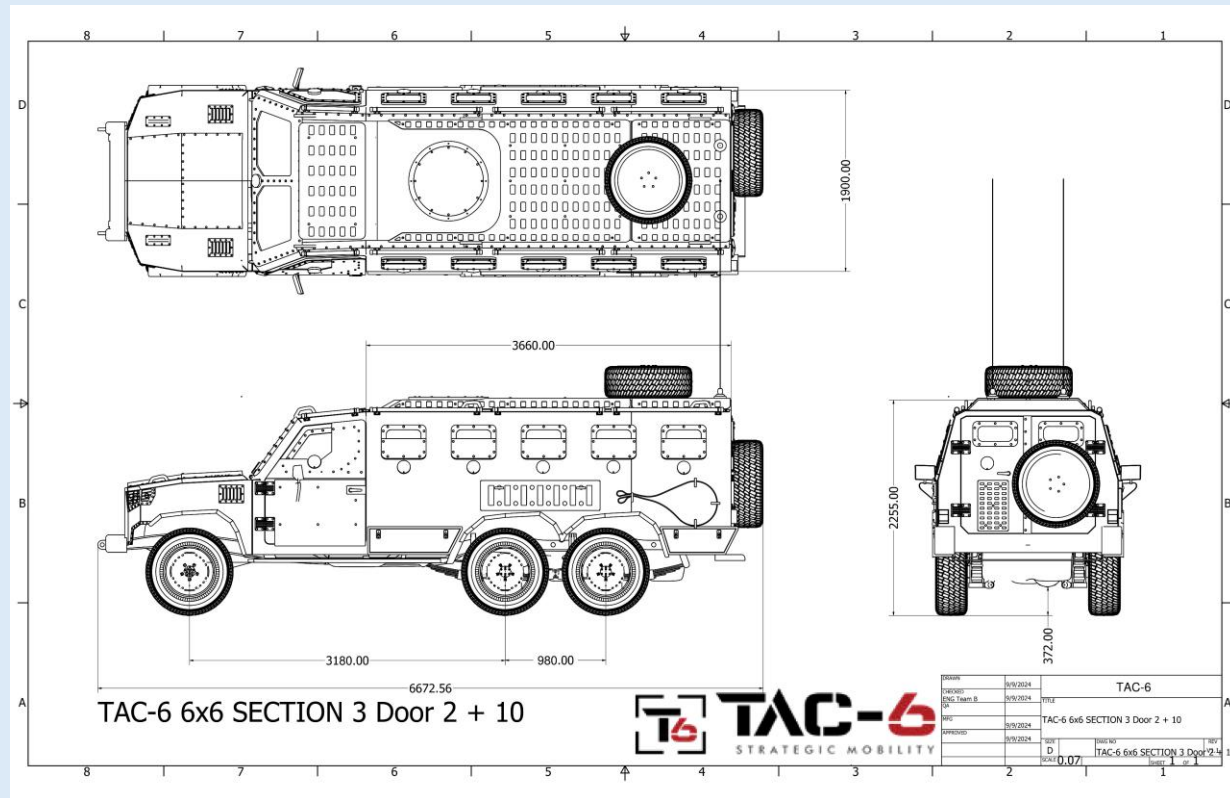
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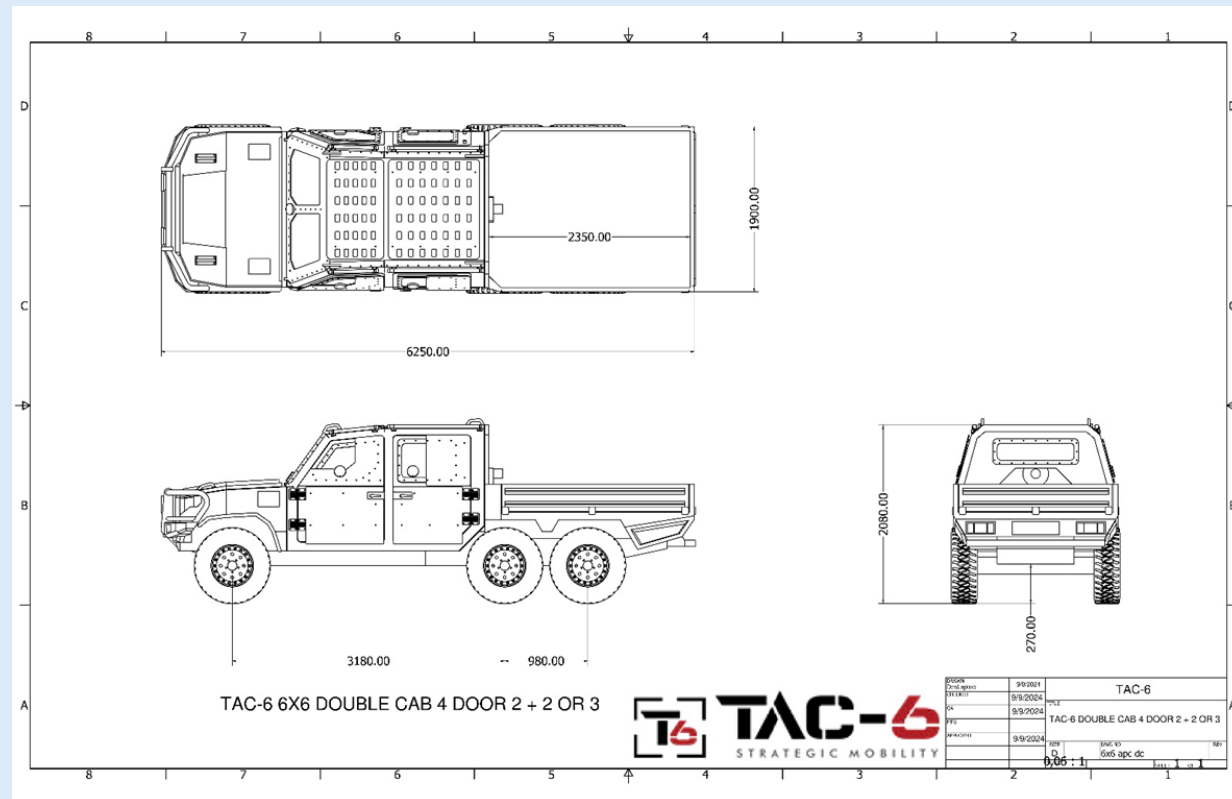
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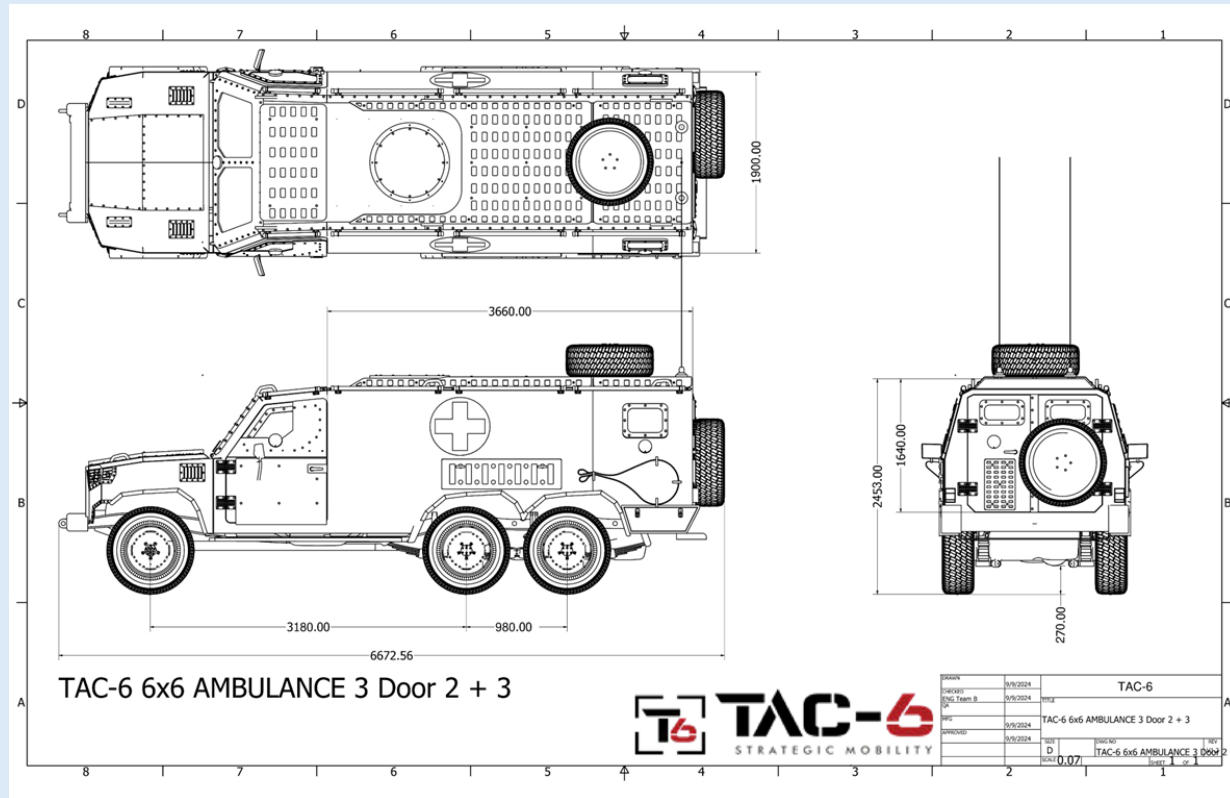
APC ARMoured

DC ARMoured

TMS 8HP90 AUTO TRANS

HYBRID





- TABLE
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- APC ARMoured
- DC ARMoured
- TMS 8HP90 AUTO TRANS
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