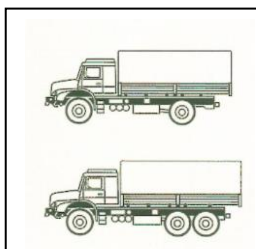


Medium Tactical Trucks (4x4) and (6x6) S-types

The S2000 Family



Mercedes-Benz



Actros-based Medium Tactical Trucks S-types (4x4) and (6x6) 2000

Actros-based Medium Tactical Trucks

S-types (4x4) and (6x6)

Vehicle Type	Payload	Wheelbase (mm)	Type	Engine Output EURO IV	Mx. Torque
S 1823 A (4x4)	5 – 7 to	4,800	R6	170 kW / 231 hp	810 Nm
S 1828 A (4x4)	5 - 7 to	4,800	R6	205 kW / 280 hp	1,100 Nm
S 1832 A (4x4)	5 – 7 to	4,800	R6	240 kW / 326 hp	1,300 Nm
S 1833 A (4x4)	4 – 6 to	4,800	R6	240 kW / 326 hp	1,300 Nm
S 2028 A (6x6)*	8 – 12 to	4,800 + 1,450	R6	205 kW / 280 hp	1,100 Nm
S 2032 A (6x6)*	8 – 12 to	4,800 + 1,450	R6	240 kW / 326 hp	1,300 Nm
S 2633 A (6x6)	7 – 10 to	4,750 + 1,450	R6	240 kW / 326 ho	1,300 Nm
S 2733 A (6x6)	7 – 10 to	4,750 + 1,450	R6	240 kW / 326 hp	1,300 Nm
S 3243 A (8x8)**	up to 18 to	4,800 + 1,450	R6	315 kW / 428 hp	2,100 Nm

* under development and later replaced by S 2633 A and S 2733 A

** as proposed in 2002

Background

Requirements concerning performance and reliability placed on vehicles during humanitarian, disaster relief, and peacekeeping missions and particularly during peacemaking operations and military combat missions are dramatically more demanding since the Cold War has ended. An up-to-date wish-list of today includes extreme mobility, crew protection levels surpassing that of MBTs in recent history corresponding with higher payloads are directly confronting parallel demands on air and rail transportability, thus making advanced solutions more necessary than ever, especially with increasingly tightening budgets. These demands, which formerly could be met only by an expensive set of different and specialised vehicles, can now be fully covered by the new range of Mercedes-Benz S-type series of trucks. A pre-series-like (4x4) vehicle was shown as early as 2000, thus christening the series S 2000, and followed by a (6x6) unit two years later. By integrating proven components of the Mercedes-Benz Atego and Actros series of trucks, in large-scale production for years, time of development could be shortened considerably and tests and trials for the completed system S-type truck could be reduced accordingly.



Technical Description

The Mercedes-Benz S-type truck returns to the classic long-bonneted design of the LA 911B and LA 1113 series of trucks still in service worldwide. However, the new design incorporates advanced protection technologies combined with state-of-the-art ergonomics, while standard production line chassis components could be utilised.

Offered in (4x4) and (6x6) configurations the layout of the cab has been standardised with a common range of controls for save and easy operation. Components and controls have been taken from the **Atego** commercial truck range. The three-seat cab gives ample space for storage of personal equipment of the crew as well as one sleeping bench. By positioning the cab behind a long bonnet the Center of Gravity (CofG) of the vehicle could be shifted rearwards by a considerable margin, thus distributing loads and stress moments onto all axles in a more balanced way as possible before. This is important, because the additional

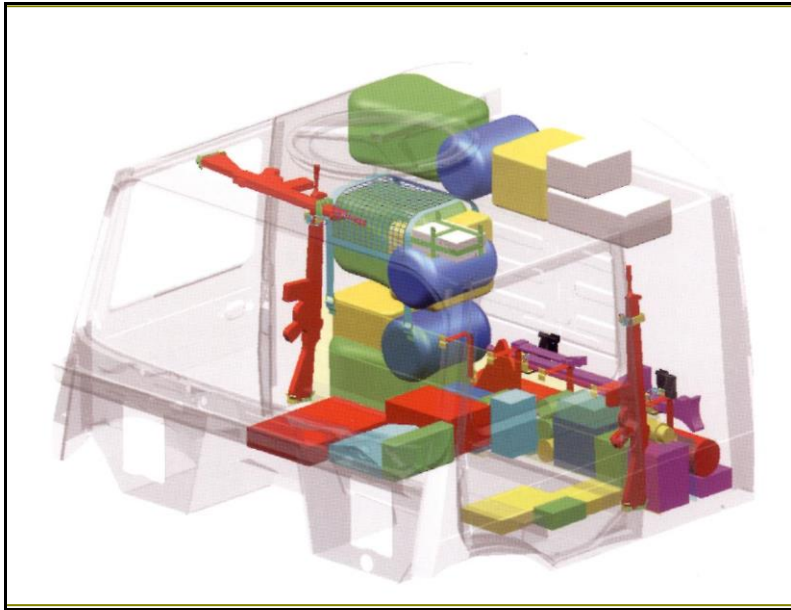
weight of cab armour had to be taken into consideration. From the outset protection was part of the design, thus there was no need to compromise other design criteria after a possible up-armouring measure. Additional armour may be fitted as required in the form of internal applique kits. This keeps a low profile and a potential adversary has to count every single vehicle as armoured per se. The flat floor of the cab gives additional interior space because the drive train does not protrude into the cab. In praxi a similar arrangement was first introduced with the Mercedes-Benz LP 810, LP 1013, and LP 1213 COE trucks of the mid 1960s. Optional are modular cabs for up to nine personnel.

The forward tilting bonnet gives quick access to the engine and the front wheel arrangement to ease maintenance and repair procedures. No part of the engine intrudes into the cab, thus reducing the noise level within the cab through design. The bonnet-type solution reduces front-axle loads for greater payloads adding to the excellent off-road handling characteristics.



The Mercedes-Benz S-type truck uses standard production chassis and drive trains, thus cutting costs while optimising logistic support. A C-section chassis frame taken from the **Actros** range of trucks consisting of 9.5 mm thick steel components has been taken to keep the laden weight limits for off-road operations within defined limits. Only the front end of the chassis had to be reinforced, though higher axle loads are under consideration.

For series production both, the cab and most of the components of the drive train, can be easily incorporated in all envisaged configurations, either (4x4), (6x6) or even the still to be built (8x8) version.



The three-seat cab gives ample space for the storage of personal equipment of the crew.

Modular in design the cab is offered in an enlarged version for a crew of up to nine soldiers. The larger cab would fulfil a requirement for an artillery prime mover to accommodate the gun crew as well.

Additional armour may be fitted as required in the form of internal applique kits.

The Mercedes-Benz S-type trucks are powered by an OM926 LA in-line multi-valve 6-cylinder turbocharged and intercooled 4-stroke diesel engine developing 326 hp and 1,530 Nm torque at 1,080 rpm. This engine represents an advanced development derived from the 900 series of 1995, which are in large-scale service with other Mercedes-Benz trucks, special-purpose vehicles and the Unimog.

The cooling system has been enlarged. At the time of writing all S2000 trucks are equipped with engines complying to Euro III emission standards, though series vehicles will be delivered fulfilling higher standards as required.

All major driveline components are designed, developed and manufactured by Mercedes-Benz. Only the optional gearbox comes from Allison. The basic manual option is a Mercedes-Benz 9-speed unit.

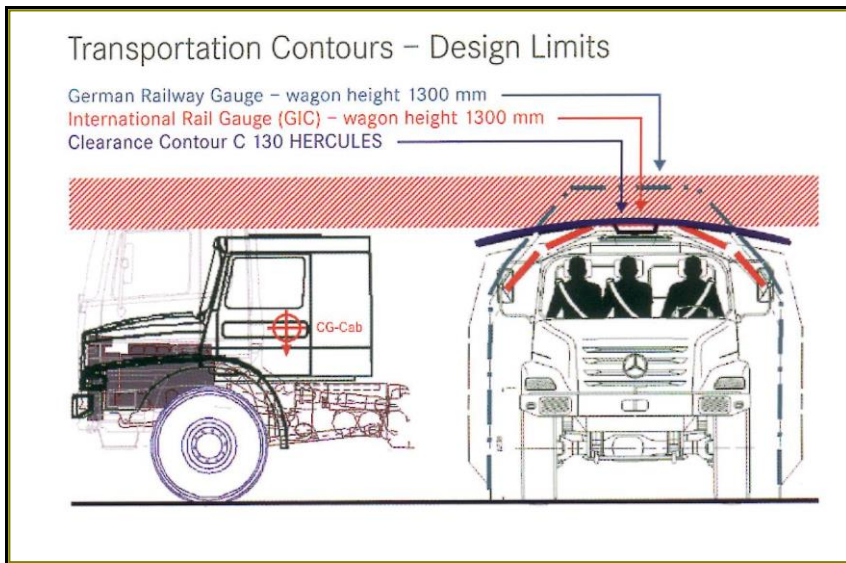


All axles are of heavy-duty planetary hub reduction type and are fitted with multi-leaf parabolic steel springs, with the (6x6) version employing a fully articulated twin rear axle bogie assembly. To enhance off-road capabilities further all axles are equipped with pneumatically operated differential locks.

Like all other Mercedes-Benz tactical trucks the S-type trucks are equipped with a dual circuit air pressure „S“ cam drum braking system supplemented by a combined engine and exhaust brake. ABS is standard and a load-sensing valve on the rear axles

optimises braking power under load. Off-road performance is above the medium-mobility class and fording capability can be enhanced as required from 80 centimetres to 120 centimetres.

Two payload varieties, one of 6,000 kg and one of 9,000 kg, are represented by the two configurations of (4x4) and (6x6) vehicles, respectively, thus representing the base for the S2000 family of tactical trucks. In principle higher axle loads are available. A proposed (8x8) vehicle would have to return to a COE design because of the second front axle.



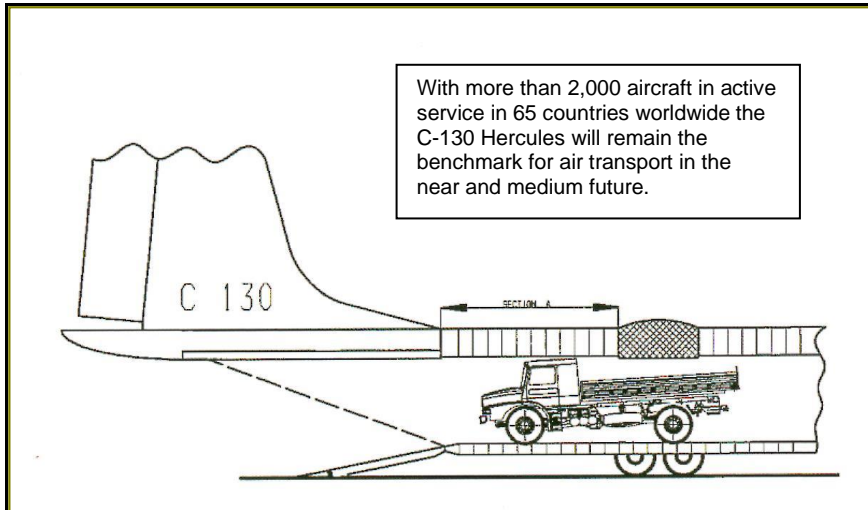
Design Limits

The cab alone has a weight of 1,600 kg, though even up-armoured no international gauge limitations have been compromised.

All S-type trucks can be transported by C-130 Hercules or C-160 Transall aircraft without major preparations.



The overall low height makes the Mercedes-Benz S-type of vehicles rail and air transportable. With the rear platform reduced to the height of the cab a (4x4) vehicle can be even carried within a C-130 Hercules. This capability could be ensured by the long-bonneted design of the cab, because while negotiating the ramp of a transport plane a Cab-Over-Engine (COB) design would deny access due to its height in front of the first wheel. However, the C-130 syndrome may not be the last word for air transportability. With the introduction of the A400M within the next few years the European military forces will not be bound to such limits anymore and larger vehicles can be transported over larger distances as C-130 compatible vehicles today.



The standard of all air transports is the C-130 Hercules of the USAF which will stay on duty for several more years to come worldwide.

Though, this standard is evaporating into history with the introduction of new transport aircraft like the C-17 Globemaster III of the USAF, the RAF and the RAAF, and the still unborn A400M in Europe.

Optional are a retarder, a Central Tyre Inflation System (CTIS), an automatic transmission, winches and torsion-free platforms.

In June 2000 the first (4x4) prototype was shown to the public, while the (6x6) prototype followed in July 2003. The (4x4) prototype of 2000 was powered by a OM 906 LA 6-cylinder in-line diesel engine developing 280 hp and 1,100 Nm at 1,200 to 1,600 rpm. A (6x6) MRL version designed for an airmobile rocket artillery component for out-of-area deployments of the German Armed Forces (Bundeswehr) was actively proposed by Kraus-Maffei Wegmann (KMW) in the same year.

The Mercedes-Benz S2000 (4x4) 6,000 kg and (6x6) 9,000 kg cargo trucks with standard troop-carrying cargo-type rear body have been offered for the UK MoD Support Vehicle (SV) programme including a (6x6) based Unit Support Tanker (UST) vehicle. A (8x8) vehicle has not entered the prototype stage, yet. Though, proposals for such a vehicle have been made already. It is understood that this truck will have a cab-over-engine layout, thus reducing air transportability while increasing the payload to up to 16,000 kg. The envisaged (8x8) truck will be powered by a water-cooled OM 457 LA 6-cylinder in-line diesel engine developing 428 hp and 2,100 Nm at 1,100 to 1,400 rpm.



The Mercedes-Benz S-series is the only tactical support vehicle to fulfil developing military requirements completely and cost-effective. All versions have been designed to operate in climatic conditions between -32°C and +49°C. A winterisation kit expands the lower envelope to -45°C without compromising the upper end of the scale. With the Mercedes-Benz S-type truck series neither the user nor the tax-payer has to field or finance a compromise in performance and costs in the end serving no ends. In praxi the user would receive a truck for special purposes with a price-tag of a commercial one. Because of the integration of components of the Mercedes-Benz Atego and Actros series of trucks maintenance and spare parts delivery can be fulfilled through the existing worldwide Mercedes-Benz / DaimlerChrysler commercial network of maintenance facilities.

Medium Tactical Trucks S-type (4x4)		
Model	Ausführung	Medium Tactical Truck
Type	Typ	S-type (4x4)
Manufacturer	Hersteller	Mercedes-Benz / DaimlerChrysler AG, Department VL/FR – HPC 161 D-76742 Woerth, Germany
Introduction into service	Einführung	in development
Cab seating	Sitzplätze Fahrerhaus	3 + integrated sleeping berth
Seats (rear)	Sitzplätze (hinten)	depending on chosen platform
Configuration	Antriebsformel	4 x 4
Weight	Gewicht	
Weight empty chassis	Militärisches Leergewicht	8.600 kg
Weight loaded, road (GVW)	zulässiges Gesamtgewicht	16,000 kg
Weight on front axle (loaded)		7,500 kg (9,000 kg optional)
Weight on rear axle (loaded)		9,000 kg (depending on tyre size)
Payload	Nutzlast	4,000 kg
Max. load (road)	außergewöhnliche Belastung (Straße)	6,000 kg
Max. load (cross-country)	außergewöhnliche Belastung (Gelände)	n/a
Towed load (road)	zulässige Anhängelast (Straße)	n/a
Towed load (cross-country)	zulässige Anhängelast (Gelände)	n/a
Load area	Ladefläche	510 x 255 cm
Length	Länge	n/a
Width	Breite	n/a
Height (side)	Höhe Seite	n/a
Height (chassis, front)	Höhe (Chassis vorne)	n/a
Height (chassis, rear)	Höhe (Chassis hinten)	n/a
Height (load area)	Ladehöhe über Boden	n/a
Ground clearance	Bodenfreiheit	n/a
Track (front)	Spurweite (vorne)	n/a
Track (rear)	Spurweite (hinten)	n/a
Wheelbase	Radstand	4,800 mm
Angle of approach	Böschungswinkel vorne	35°
Angle of departure	Böschungswinkel hinten	n/a
Chassis frame	Rahmen	n/a
Max speed (road)	Höchstgeschwindigkeit	88 km/h
Min speed (road)	Mindestgeschwindigkeit	n/a
Range	Fahrbereich (Straße)	n/a
Fuel capacity	Kraftstoff-Vorrat	300 ltr.
Fuel consumption	Kraftstoff-Verbrauch	n/a ltr./100km
Gradient	Steigfähigkeit	n/a %
Side slope	Querneigung, Kippgrenze	n/a %
Fording (standard)	Watfähigkeit (ohne Watsatz)	80 cm
Fording (with kit)	Watfähigkeit (mit Watsatz)	120 – 150 cm available with 14.00 R 20
Engine	Motor	6-cylinder in-line EURO III emissions compliant turbocharged 4-stroke diesel engine
Designation	Bezeichnung	OM 926 LA
Bore x Stroke	Bohrung x Hub (mm)	n/a
Displacement	Hubraum (ccm)	n/a
Output	Leistung KW (PS)/min ⁻¹	240(326) at 1,200 – 1,600 rpm
Torque, max.	Drehmoment (Nm / kpm)	1,300 Nm at 1,200 - 1,600 rpm
Cooling	Kühlung	water-cooled
Power transfer	Kraftübertragung	All-wheel drive
Transmission	Getriebe	manual, 9 forward (8 plus crawler) and one reverse gears; Allison automatic gearbox optional
Clutch	Kupplung	Diaphragm GF 430
Transfer box	Antriebsübersetzung	Mercedes-Benz VG 1700 – 3W/1,4
Steering	Lenkung	Mercedes-Benz LS 8 power-assisted
Turning circle (short and long)	Wendekreis	20.6 m

wheelbase)		
Axles (front)	Vorderachsen	Hub-reduction axles type AL 7 / 52 DS-9
Axles (rear)	Hinterachsen	Hub-reduction axles type HL 7 / 52 DS-13
Suspension (front)	Radaufhängung (vorne)	Multi-leaf parabolic steel springs (hydropneumatic optional)
Suspension (rear)	Radaufhängung (hinten)	Multi-leaf parabolic steel springs (hydropneumatic optional)
Tyres	Bereifung	14.00 R 20 (10.00 V 20); alternatives available
Brake (main)	Betriebsbremse	Dual circuit, air, drums all-around. ABS with off-road cut-out function fitted.
Brake (parking)	Feststellbremse / Handbremse	mechanical
Brake (engine)		Engine and exhaust brake
Electrical system	Fahrzeugelektrik	24 V
Alternator (reinforced)	Wandler	n/a
Starter motor	Starteinrichtung	n/a
Batteries	Batterien	n/a
Trailer socket type	Anhängeranschluß	n/a
Trailer couplings (optional)	Anhängerkupplung	n/a
Armour	Panzerung	optional



Medium Tactical Trucks S-type (6x6)		
Model	Ausführung	Medium Tactical Truck
Type	Typ	S-type (4x4)
Manufacturer	Hersteller	Mercedes-Benz / DaimlerChrysler AG, Department VL/FR – HPC 161 D-76742 Woerth, Germany
Introduction into service	Einführung	in development
Cab seating	Sitzplätze Fahrerhaus	3 + integrated sleeping berth
Seats (rear)	Sitzplätze (hinten)	depending on chosen platform
Configuration	Antriebsformel	6 x 6
Weight	Gewicht	
Weight empty chassis	Militärisches Leergewicht	10.500 kg
Weight loaded, road (GVW)	zulässiges Gesamtgewicht	23,000 kg
Weight on front axle (loaded)		7,500 kg (9,000 kg optional)
Weight on rear axle (loaded)		2 x 9,000 kg (depending on tyre size)
Payload	Nutzlast	7,000 kg
Max. load (road)	außergewöhnliche Belastung (Straße)	10,000 kg
Max. load (cross-country)	außergewöhnliche Belastung (Gelände)	n/a
Towed load (road)	zulässige Anhängelast (Straße)	n/a
Towed load (cross-country)	zulässige Anhängelast (Gelände)	n/a
Load area	Ladefläche	620 x 255 cm
Length	Länge	n/a
Width	Breite	n/a
Height (side)	Höhe Seite	n/a
Height (chassis, front)	Höhe (Chassis vorne)	n/a
Height (chassis, rear)	Höhe (Chassis hinten)	n/a
Height (load area)	Ladehöhe über Boden	n/a
Ground clearance	Bodenfreiheit	n/a

Track (front)	Spurweite (vorne)	n/a
Track (rear)	Spurweite (hinten)	n/a
Wheelbase	Radstand	4,750 + 1,450 mm
Angle of approach	Böschungswinkel vorne	35°
Angle of departure	Böschungswinkel hinten	n/a
Chassis frame	Rahmen	n/a
Max speed (road)	Höchstgeschwindigkeit	88 km/h
Min speed (road)	Mindestgeschwindigkeit	n/a
Range	Fahrbereich (Straße)	n/a
Fuel capacity	Kraftstoff-Vorrat	300 ltr.
Fuel consumption	Kraftstoff-Verbrauch	n/a
Gradient	Steigfähigkeit	n/a
Side slope	Querneigung, Kippgrenze	n/a
Fording (with kit)	Wadfähigkeit (mit Watsatz)	120 – 150 cm available with 14.00 R 20
Engine	Motor	6-cylinder in-line EURO III emissions compliant turbocharged 4-stroke diesel engine
Designation	Bezeichnung	OM 926 LA
Bore x Stroke	Bohrung x Hub (mm)	n/a
Displacement	Hubraum (ccm)	n/a
Output	Leistung KW (PS)/min ⁻¹	240(326) at 1,200 – 1,600 rpm
Torque, max.	Drehmoment (Nm / kpm)	1,530 Nm at 1,080 rpm
Cooling	Kühlung	water-cooled
Power transfer	Kraftübertragung	All-wheel drive
Transmission	Getriebe	manual, 9 forward (8 plus crawler) and one reverse gears; Allison automatic gearbox optional
Clutch	Kupplung	Diaphragm GF 430
Transfer box	Antriebsübersetzung	Mercedes-Benz VG 1700 – 3W/1,4
Steering	Lenkung	Mercedes-Benz LS 8 recirculating ball power-assisted
Turning circle (short and long wheelbase)	Wendekreis	22.8 m
Axles (front)	Vorderachsen	Hub-reduction axles type AL 7 / 52 DS-9 with shock absorbers and anti-roll bars
Axles (rear)	Hinterachsen	Hub-reduction axles type HL 7 / 52 DS-13 with shock absorbers and anti-roll bars



Suspension (front)	Radaufhängung (vorne)	Multi-leaf parabolic steel springs (hydropneumatic optional)
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Suspension (rear)	Radaufhängung (hinten)	Multi-leaf parabolic steel springs (hydropneumatic optional)
Fording (standard)	Walfähigkeit (ohne Watsatz)	80 cm
Tyres	Bereifung	14.00 R 20 (10.00 V 20); alternatives available
Brake (main)	Betriebsbremse	Dual circuit, air, drums all-around. ABS with off-road cut-out function fitted.
Brake (parking)	Feststellbremse / Handbremse	mechanical
Brake (engine)		Engine and exhaust brake
Electrical system	Fahrzeugelektrik	24 V
Alternator (reinforced)	Wandler	n/a
Starter motor	Startereinrichtung	n/a
Batteries	Batterien	n/a
Trailer socket type	Anhängeranschluß	n/a
Trailer couplings (optional)	Anhängerkupplung	n/a
Armour	Panzerung	optional



The S-series of trucks closes the gap between the high-mobility Unimog family of vehicles and the heavier military versions of the commercial Atego and Actros family of vehicles.



Sales and Service Entry

The Mercedes-Benz S-type or S2000 family of trucks is still at the prototype stage. Interest for the procurement of such vehicles has been declared by Belgium, the German Armed Forces, Egypt, Hungary and the UK. Meanwhile the Australian Project Overlander (Land 121) has been identified for a new sales effort by Mercedes-Benz.

Tactical and strategic mobility combined with high levels of protection under extreme climatic conditions are increasingly on demand and can not be fulfilled by existing tactical trucks or COTS-derived vehicles.



Surveys revealed that existing truck fleets are ageing worldwide and will be most probably replaced with tactical off-road vehicles rather than militarised commercial designs which proved unsuitable during recent out-of-area operation.

Lessons learned – the S-series of trucks stands for cost-effective military support vehicles and worldwide supportability.

The heavy-duty variable ratio recirculating ball power steering system of the S2000 family is of 1995 vintage and has been supplied with over 250,000 units delivered until 2006. Thus, such a system has a genuine reliability.

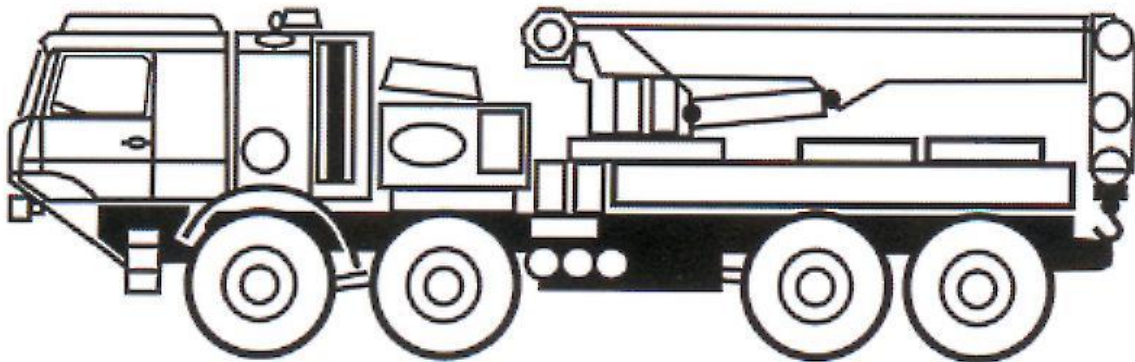


That is the environment of a tactical truck. Here, Mercedes-Benz technology comes into its own as shown by this S-type unit negotiating marginal terrain with ease.



At least one of the (6x6) versions of the S2000 family of trucks have been fitted with a load handling system.

The S-series of trucks represents a fourth-generation truck family emanating from earlier studies for a new generation of trucks for the German Armed Forces (Bundeswehr). Seen *below* is a proposal for a heavy wrecker based on such a design.



The designation system of the S2000 family follows the regulation to combine the vehicle's type with an abbreviated number of the available output of the engine. Thus the S-type 1828 truck belongs to the type 18 which has an engine with a power rating of 280 hp.

The pay-off: Total capability with an outstanding value for money.

***On road and off-road – the perfect armoured transport solution
for payloads of 4,000 kg – 10,000 kg.***