OSHKOSH CORPORATION

ISO 9001 CERTIFIED

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7 February 2011

Via electronic mail (publiccomments@bis.doc.gov)

Mr. Timothy Mooney
Office of Exporter Services
Regulatory Policy Division
Bureau of Industry and Security
Room 2705
U.S. Department of Commerce
Washington, DC 20230

Re: Comments Responding to Notice of Inquiry—Commerce Control List

Dear Mr. Mooney:

Oshkosh Corporation ("Oshkosh") respectfully submits the comments below concerning the proposed revision of the Commerce Control List ("CCL") announced by the U.S. Department of Commerce's Bureau of Industry and Security ("BIS").[1] We applaud the President's Export Control Reform ("ECR") Initiative, and appreciate the opportunity to begin providing input that we hope the U.S. Government finds useful in developing a more rational, efficient, and secure export control regime.

Oshkosh is a supplier of heavy-duty military wheeled vehicles and telehandlers to the U.S. Army and Marine Corps and several allied military forces. Our military vehicles subject to the Export Administration Regulations, as well as certain parts, fall under Export Control Classification Number ("ECCN") 9A018.b. Our telehandlers fall under ECCN 0A018.a. Accordingly, our comments concerning the description of items on the CCL and the foreign availability of those items will focus on these ECCNs.

I. Description of Items on the CCL

A. ECCN 9A018.b

We recommend that ECCN 9A018.b be restructured, consistent with the approach of the ECR Initiative, to rank items by tier in accordance with their technological sophistication and national security sensitivity. We propose a working draft revision along the following lines:

[1] Commerce Control List: Revising Descriptions of Items and Foreign Availability, 75 Fed. Reg. 76664 (Dec. 9, 2010) (hereinafter, the "CCL Notice").

9A018 Equipment on the Wassenaar Arrangement Munitions List.

. . . .

b. Specialized ground vehicles and components, as follows:

b.1. (Tier 2) Unarmored ground transport vehicles that are

b.1.a. "specially designed" for "combat support;"[2]

b.1.b. capable of off-road use; and

b.1.c. "specially designed" for autonomous or remote operation.

b.2. (Tier 3) Unarmored ground transport vehicles that are

b.2.a. "specially designed" for "combat support;"

b.2.b. capable of off-road use; and

b.2.c. treated with a specialized military coating or paint not ordinarily used in civilian applications.

b.3. (Tier 2) Parts, components, and kits "specially designed" for the autonomous or remote operation of vehicles described in b.1 of this ECCN.

b.4. (Tier 3) Parts, components, and accessories for the vehicles described in b.1 or b.2 of this ECCN, n.e.s., that are "specially designed" to accommodate the integration of defense articles subject to the export jurisdiction of the U.S. Department of State.

b.5. (Tier 3) Non-military ground vehicles, n.e.s., that are

b.5.a. capable of off-road use; and

b.5.b. equipped with materials to provide ballistic protection to Type III (National Institute of Justice standard 0108.01, September 1985) or better.

b.6. (Tier 3) Ballistic protection parts, components, and accessories "specially designed" for the vehicles in b.5 of this ECCN.

Our approach to 9A018.b places autonomous and remote ground vehicle systems in Tier 2. This reflects our sense that the U.S. government and its allies may wish to exercise elevated controls over the use of unmanned technologies as applied to defense vehicles of any kind.

More conventional specialized vehicle platforms and components would fall into Tier 3. Essentially commercial-type vehicle components for which only minor "form" or "fit" design modifications are made would not be subject to control under this proposed draft ECCN.

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[2] In connection with this proposed language, we suggest that the following definition might be added to Part 772 of the EAR:

> "Combat support."—Describes military vehicles or equipment, the primary mission function of which is logistical (*i.e.*, the transportation and deployment of military personnel and materiel), and which have been designed, configured, or modified to achieve performance levels not ordinarily required in civilian applications.

It is our understanding that BIS will solicit comments on the definition of "specially designed" in the near future.

B. ECCN 0A018.a

We recommend that ECCN 0A018.a be revised to reflect a similarly tiered approach:

0A018 Items on the Wassenaar Munitions List

a. Military construction and material-handling equipment, n.e.s., as follows:

a.1. (Tier 2) Construction or material-handling equipment that is

a.1.a. "specially designed" for "combat support;" and

a.1.b. "specially designed" for autonomous or remote operation.

a.2. (Tier 3) Construction or material-handling equipment (including crew protection kits and integrated protected cabs) that is

a.1.a. "specially designed" for "combat support;" and

a.1.b. treated with a specialized military coating or paint not ordinarily used in civilian applications.

a.3. (Tier 2) Parts, components, and kits "specially designed" for the autonomous or remote operation of equipment described in a.1 of this ECCN.

a.4. (Tier 3) Parts, components, and accessories for the equipment described in a.1 of this ECCN, n.e.s., that are "specially designed"

a.4.a. for use in crew protection systems; or

a.4.b. to accommodate the integration of defense articles that are subject to the export jurisdiction of the U.S. Department of State.

Note: Armor parts, components, and kits used in crew protection systems for the equipment in this ECCN are not subject to the export jurisdiction of the U.S. Department of State.

C. General Comments

We have kept our proposed drafts of ECCN 9A018.b vehicles and 0A018.a construction equipment separate because they are currently organized this way in the CCL. To our knowledge, however, there is no reason not to consolidate these items (as well as perhaps other Wassenaar Arrangement Munitions List items on the CCL) into a single structured category in the final version of a revised CCL.

II. Worldwide Availability of EAR-controlled Military Vehicles

Non-combat military vehicles of the sort described in ECCN 9A018.b (in both the current text and our proposed text) are readily available abroad. Key manufacturers within Wassenaar Arrangement participating states include MAN S.E. and Mercedes-Benz in Germany, and BMC in Turkey. (Product data attached.) Unarmored military support vehicles are also available from TATA Motors and BEML Limited in India, Kia Motors Corp. in South Korea, KAMAZ in Russia, and other companies globally. (Product data attached.)

U.S. military logistics vehicles and equipment are among the best in the world, but their capabilities are more a function of economics and a mature industrial base than of an indigenous technological superiority that could never be matched elsewhere. Accordingly, we feel that assigning Tier 1 to any items discussed above might unnecessarily restrict exports of U.S. goods and technologies when competitive foreign alternatives would often be available.

* * *

Please don't hesitate to contact the undersigned with any questions about this submission. Thank you.

Sincerely,
/s/
J. Patrick Briscoe
Export Counsel and Senior Compliance Manager

attach.

BEML-TATRA T815 VTI 8x8 - TANK TRANSPORTER

BEML-Tatra T815 VTI 8x8 is a terrain vehicle mainly used for tank transporter role in Indian Army. The vehicle is also used for transport of personnel and is having a payload capacity of 10000 kg. The vehicle is used for towing trailers on public roads upto 1,00,000 kg and on terrain conditions trailer weighing upto 16000 kg. The equipment is provided with a winch for self recovery and loading of dead tanks on to the trailer. Also the vehicle is provided with centralized tyre inflation / deflation system inside the cabin which enables inflation / deflation of tyres depending on terrain conditions.

Specifications

Engine	T3-930-55, 12-cylinder, V-type, Air-cooled, Multi-fuel turbocharged with direct fuel injection
Horsepower	265 kW (355 HP) @ 2200 rpm
Transmission	Synchromesh type, 10 Forward, 2 Reverse, gear shifting by manual, mechanical with pneumatic booster
Axles	Swing half axles separately sprung
Suspension	Leaf springs and telescopic shock absorbers on front axles and leaf springs on rear axles
Tyres	Tubed type, size – 15.00 x 21 – 8 Nos.
Speed	80 kmph max.

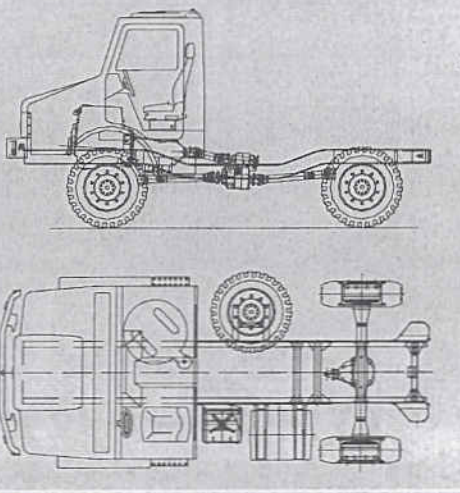
BEML-Tatra T815 VI 4x4 HIGH MOBILITY VEHICLE

BEML-Tatra T815 VI 4x4 high mobility vehicle is used for GS role in Indian Army. This is a terrain vehicle intended for transport of personnel and having a carrying capacity of 7500 kg on road & 5000 kg on off-road. The 10 speed gear box is of synchromesh type except for first and reverse speeds.

Specifications

Engine	T3B-928-10 EURO I, 8 separate cylinders in 2 bands forming a 'V' with 90 included angle. Air cooled Multi-fuel and with direct fuel injection
Horsepower	230 kW (308 HP) @ 2200 rpm
Transmission	Synchromesh type, 10 Forward, 2 Reverse, except for first and reverse speeds, gear shifting by manual, mechanical with pneumatic booster
Axles	Swing half axles separately sprung
Suspension	Torsion bars with shock absorbers on front axle & air bellows and telescopic shock absorbers on rear axles
Tyres	Tubed type, size – 15.00 x 21 – 4 Nos.
Speed	90 kmph max.

BMC 185-09 B (4x4) 2.5 Ton Tactical Wheeled Vehicle



CABIN	1 adjustable driver seat and 2 personnel seats, steel cabin with heater and windshield defroster, water type additional cabin heater
WEIGHTS	
Gross Vehicle Weight	9.500 kg
Payload	3.500 kg (including superstructure)
ENGINE	
Make/Model	CUMMINS 4ISBe 185
Type	Turbo diesel, intercooler
Number of Cylinders	4
Total Displacement	4.5 lt
Power	185 PS (136 kW) @ 2500 rpm
Maximum Torque	650 Nm @ 1700 rpm
Cooling System	Water cooled
Other	Operation with F34 fuel
TRANSMISSION	Automatic or manual
TRANSFER CASE	(4x4) or (4x2) driven, low/ high speed control
AXLES	Portal type. Differential locks both in the front and rear
SUSPENSION	Front and rear helical springs, telescopic shock absorbers; anti-roll bars in the front and rear
STEERING	Hydraulic assisted
CHASSIS	High strength, flexible U-cross section profile with U-cross section reinforcement
TYRES/RIMS	335/80 R 20 tyres on 11x20" rims; suitable for on/off road use

ELECTRICAL SYSTEM	Cables durable against wear, tearing and fire
Voltage	24 V
Batteries	2x12V

TACTICAL SPECIFICATIONS	
Water Fording	80 cm
Ground Clearance	42 cm
Gradeability	70%
Maximum Speed	100 km/h
Cruising Range	800 km
Approach Angle	42°
Departure Angle	52°
Gun mounts inside the cabin	
Cold start aid	
Blackout and camouflage lighting	
NATO standard towing hook	
Electrical and air connectors for towing and being towed	
Transportability on railway	
Roof hatch	

OPTIONS

- PTO (Power Take Off)
- Self-recovery winch
- ABS
- Central Tyre Inflation System (CTIS)
- Run-flat (Tyres)
- Air Conditioner
- Various superstructures on demand

CERTIFICATES

- ISO 9001: 2000 Quality Management System Certificate
- AQAP 2110 Industrial Quality Assurance Level Certificate

The manufacturer reserves the right to modify the models, technical specifications, equipment, and accessories without prior notice. There can be changes after printing of this document (August 2009). No rights can be claimed over the marks and numbers used by the dealer and manufacturer to identify the order or the ordered good. The figures and photos may include optional, non-standard accessories and special equipment. Color differences are due to printing techniques.

CATALOGUE

KAMAZ TRUCKS

KAMAZ

SIDE PRIME MOVERS AND VANS

DUMP TRUCKS

PRIME MOVERS

MULTIPURPOSE VEHICLES

Today traditional war doctrine is replaced by new types of conflicts. The international community face the threats of a very different kind - local and regional conflicts and the danger of the international terrorism. Global peacekeeping organizations and paramilitary forces requests world truckmakers to provide them with flexible and mobile multipurpose vehicles to guarantee a rapid presence at the scene of a crisis. Perfect logistics and tactical support of the forces is crucial for success.

KAMAZ, Inc. is one of the leading international multipurpose truck manufacturers with great expertise and experience in building military vehicles. KAMAZ created three classes of multipurpose vehicles with 6t, 8t, 10t axial load and in each of them developed full range of 4x4, 6x6, 8x8 vehicles with armored cab option, including hidden armoring of the cab. These vehicles have been specially developed to meet military requirements, play an outstanding role. Designed in particular for global logistics and tactical off-road operation they combine maximum reliability, robustness and mobility with great operating economy and efficiency, with high level unification up to 85% between classes.

KAMAZ multipurpose 4WD chassis has been already ideally prepared for every kind of body – water/fuel tank bodies, loading cranes, special purpose vans, and various weapon systems. In KAMAZ multipurpose product segment almost any special superstructure is possible to be mounted.

KAMAZ all-wheel-drive vehicles keep on moving through desert sands and along stony tracks, over scree and mud, snow and ice. Climb the most extreme gradients, ford rivers and chase across any terrain. By turning the page you will find out about the KAMAZ multipurpose vehicles, which mission is to keep the peace.

MULTIPURPOSE VEHICLES

KAMAZ

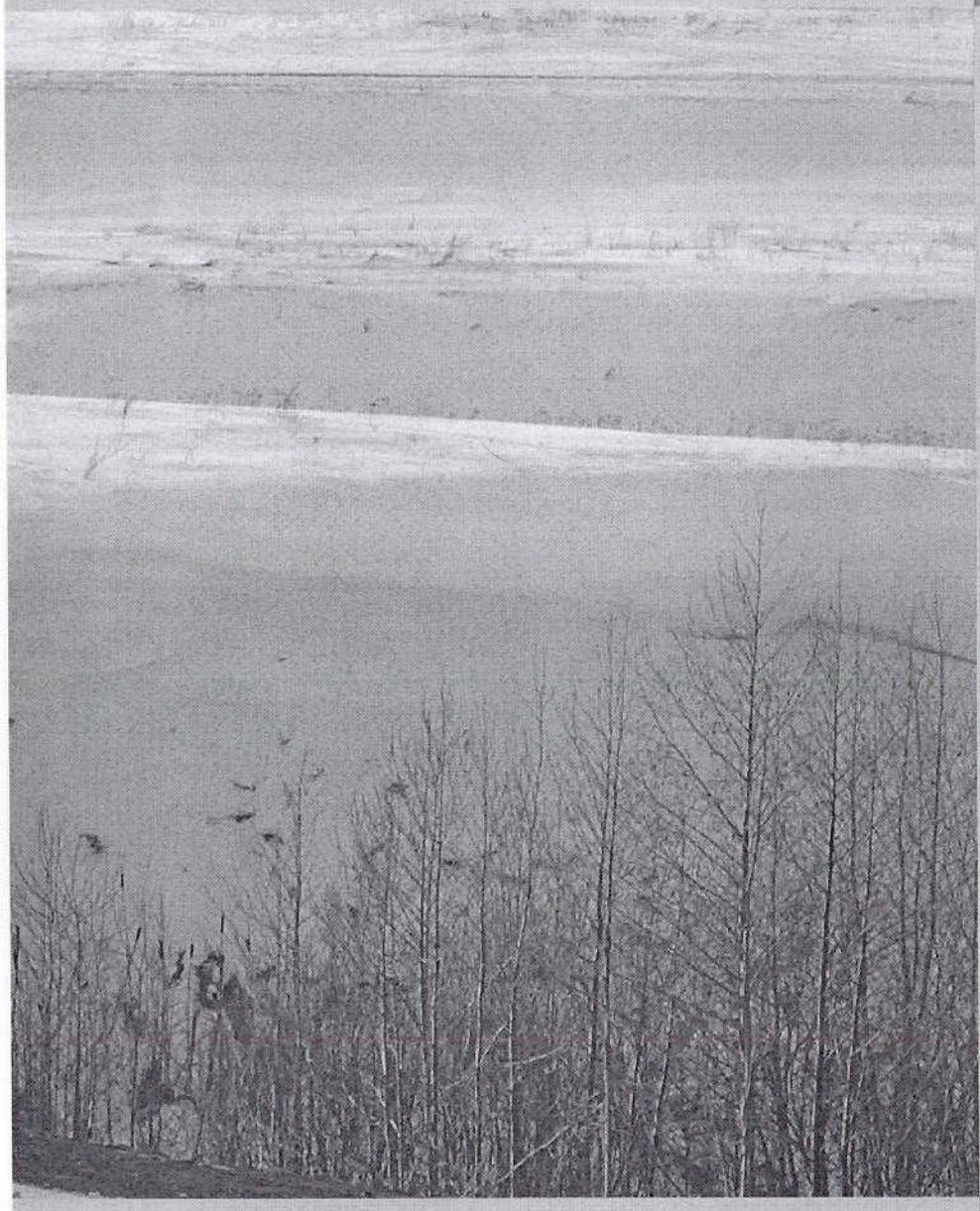
43261

Axial load 6 t

Wheel arrangement	4x4
Wheel base, mm	3670
Weights capacities	
Payload, kg	3000
GVW, kg	10850
GTW, kg	7000
GRTW, kg	17850
Engine	
Model	KAMAZ 740.31
Emission standart	EURO-2
Type	diesel, turbocharged,V8
Rated horsepower, kWt (HP)	
- net	165 (225)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	912 (93)
Engine (optional version)	
Model	KAMAZ 740.11
Emission standart	EURO-1
Type	diesel,turbocharged,V8
Rated horsepower, kWt (HP)	
- net	169 (230)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	814 (83)
Gearbox	
Model	KAMAZ 142
Control	mechanical
Number of speed	5
Low gears	7.82
High gears	1.00
Transfer case	
Maker	KAMAZ
Number of speed	2
Low gears	1.692
High gears	0.917
Final drive	
Type	double-reduction
Gear ratio	5.43 or 5.94 or 6.53
Cab	
Type	front, above engine
Execution	short (long)
Number of sleeping berth	no (1)
Tyres	
Type	425/85 R21 or 14.75/80 R20
Platform inner size, mm	
- length	4012
- width	2470
Trafficability characteristics	
Max. angle of climb at GVW, degrees (%)	31 (60)
Max. depth of the waded, m	1.75 (for 425/85 R21 tyres)
Height of vertical wall, m	0.55
Width of ditch, m	0.6

43114

KAMAZ Axial load 6 t

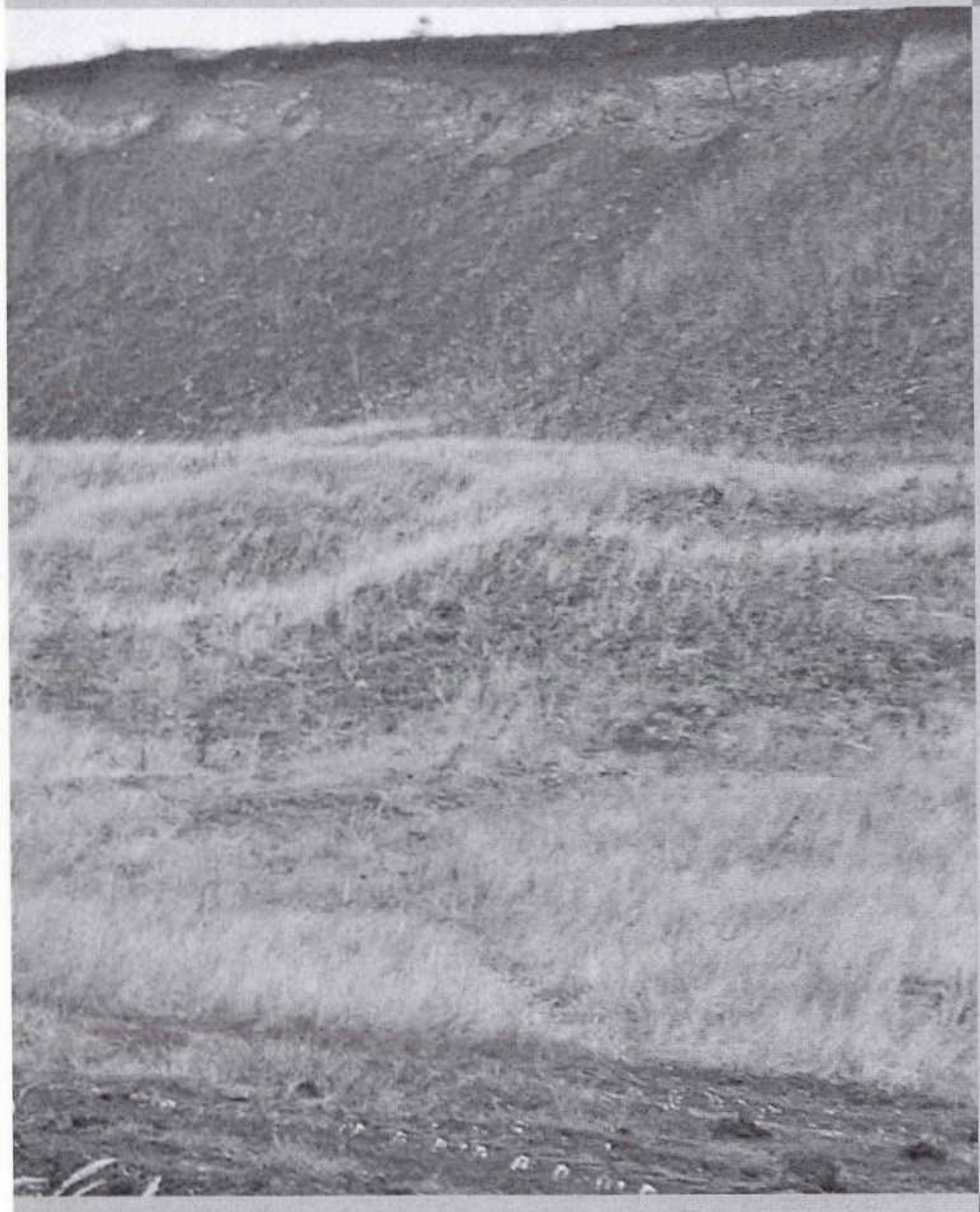


Wheel arrangement	6X6
Wheel base, mm	3340 or 3690
Weights capacities	
Payload, kg	6000
GVW, kg	15350
GTW, kg	12000
GRTW, kg	27350
Engine	
Model	KAMAZ 740.31
Emission standart	EURO-2
Type	diesel, turbocharged,V8
Rated horsepower, kWt (HP)	
- net	165 (225)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	912 (93)
Engine (optional version)	
Model	KAMAZ 740.11
Emission standart	EURO-1
Type	diesel, turbocharged, V8
Rated horsepower, kWt (HP)	
- net	169 (230)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	814 (83)
Gearbox	
Model	KAMAZ 142 or 152
Control	mechanical
Number of speed	5 or 10
Low gears	7,82
High gears	1.00 or 0.815
Transfer case	
Maker	KAMAZ
Number of speed	2
Low gears	1.692
High gears	0.917
Final drive	
Type	double-reduction
Gear ratio	5.94 or 6.53 or 7.22
Cab	
Type	front, above engine
Execution	short (long)
Number of sleeping berth	no (1)
Tyres	
Type	425/85 R21 pressure adjustment
Platform inner size, mm	
- length	5200 or 4800
- width	2320
Trafficability characteristics	
Max. angle of climb at GVW, degrees (%)	31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	0.6

4326

KAMAZ

Axial load 8 t

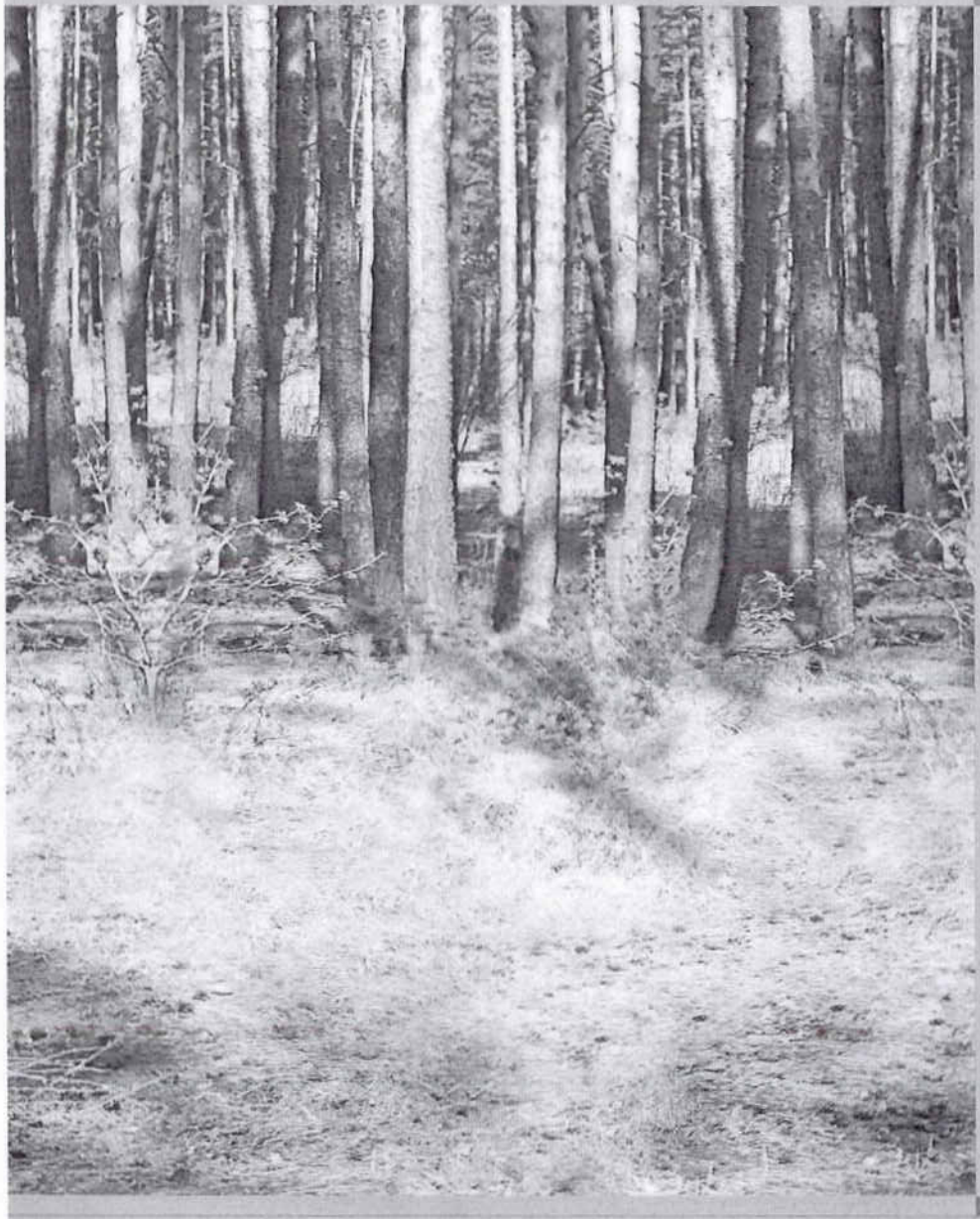


Wheel arrangement	4x4
Wheel base, mm	4200
Weights capacities	
Payload, kg	4000
GVW, kg	12300
GTW, kg	7000
GRTW, kg	19300
Engine	
Model	KAMAZ 740.31
Emission standart	EURO-2
Type	diesel, turbocharged,V8
Rated horsepower, kWt (HP)	
- net	165 (225)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	912 (93)
Engine (optional version)	
Model	KAMAZ 740.11
Emission standart	EURO-1
Type	diesel,turbocharged,V8
Rated horsepower, kWt (HP)	
- net	169 (230)
- gross	176 (240)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	814 (83)
Gearbox	
Model	KAMAZ 142 or 152
Control	mechanical
Number of speed	5 or 10
Low gears	7.82
High gears	1.00 or 0.815
Transfer case	
Maker	KAMAZ
Number of speed	2
Low gears	1.692
High gears	0.917
Final drive	
Type	double-reduction
Gear ratio	5.94 or 6.53 or 7.22
Cab	
Type	front, above engine
Execution	short (long)
Number of sleeping berth	no (1)
Tyres	
Type	425/85 R21 or 390/95 R20 pressure adjustment
Platform Inner size, mm	
- length	4800
- width	2320
Trafficability characteristics	
Max. angle of climb at GVW, degrees (%)	31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	0.6

43118

KAMAZ

Axial load 8 t



Wheel arrangement	6X6
Wheel base, mm	3690 or 4100 or 4400 or 4600
Weights capacities	
Payload, kg	10000
GVW, kg	20800
GTW, kg	12000
GRTW, kg	32800
Engine	
Model	KAMAZ 740.30
Emission standart	EURO-2
Type	diesel ,turbocharged, V8
Rated horsepower, kWt (HP)	
- net	180 (245)
- gross	191 (260)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	1060 (108)
Engine (optional version)	
Model	KAMAZ 740.13
Emission standart	EURO-1
Type	diesel, turbocharged, V8
Rated horsepower, kWt (HP)	
- net	183 (249)
- gross	191 (260)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	914 (93)
Gearbox	
Model	KAMAZ 152
Control	mechanical
Number of speed	10
Low gears	7.82
High gears	0.815
Transfer case	
Maker	KAMAZ
Number of speed	2
Low gears	1.692
High gears	0.917
Final drive	
Type	double-reduction
Gear ratio	5.94 or 6.53 or 7.22
Cab	
Type	front, above engine
Execution	short (long)
Number of sleeping berth	no (1)
Tyres	
Type	425/85 R21 pressure adjustment
Platform inner size, mm	
- length	6100 or 5200
- width	2320
Trafficability characteristics	
Max. angle of climb at GVW, degrees (%)	31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	0.6

4911

Axial load 8 t

KAMAZ 43261
KAMAZ 43114
KAMAZ 4326
KAMAZ 43118
KAMAZ 4911
KAMAZ 63501
KAMAZ 65224
KAMAZ 6560

Wheel arrangement	4X4
Wheel base, mm	4200
Weights capacities	
Payload, kg	5000
GVW, kg	15600
Engine	
Model	YMZ 7E846
Emission standart	EURO-1
Type	diesel,turbocharged,V8
Rated horsepower, kWt (HP)	
- net	515 (700)
- gross	538 (730)
at crankshaft rotation, rpm	2500
Maximum torque, Nm (kgfm)	2700 (275)
Gearbox	
Model	ZF 16S251
Control	mechanical
Number of speed	16
Low gears	13.8
High gears	0.84
Transfer case	
Model	ZF STEYR VG 2000/300
Number of speed	2
Low gears	1.536
High gears	0.890
Final drive	
Type	Hypoid
Gear ratio	3.55
Cab	
Type	front, above engine
Execution	long
Number of sleeping berth	1
Tyres	
Type	425/85 R21 or 14.00 R20 pressure adjustment
Platform Inner size, mm	
- length	4200
- width	2320
Trafficability characteristics	
Max. off-road speed not less	km/h 165*
Max. angle of climb at GVW	degrees(%) 31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	0.6
Width Michelin tubeless tyres	model XZL 14.00 R20

63501

Axial load 8 t

Wheel arrangement	8X8
Wheel base, mm	3340 or 3690
Weights capacities	
Payload, kg	14000
GVW, kg	26900
GTW, kg	11000
GRTW, kg	37900
Engine	
Model	KAMAZ 740.50
Emission standart	EURO-2
Type	diesel, turbocharged, V8
Rated horsepower, kWt (HP)	
- net	255 (347)
- gross	265 (360)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	1450 (148)
Gearbox	
Model	ZF 16S151
Control	mechanical
Number of speed	16
Low gears	13.8
High gears	0.84
Transfer case	
Model	ZF STEYR VG 2000/300
Number of speed	2
Low gears	1.536
High gears	0.890
Final drive	
Type	dounle-reduction
Gear ratio	5.94 or 6.53 or 7.22
Cab	
Type	front, above engine
Execution	long
Number of sleeping berth	1
Tyres	
Type	425/85 R21 pressure adjustment
Platform inner size, mm	
- length	6600
- width	2420
Trafficability characteristics	
Max. angle of climb at GVW, degrees (%)	31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	1.4

KAMAZ 43261
KAMAZ 43114
KAMAZ 4326
KAMAZ 43118
KAMAZ 4911
KAMAZ 63501
KAMAZ 65224
KAMAZ 6560

65224

KAMAZ Axial load 10 t

KAMAZ 43261
KAMAZ 43114
KAMAZ 4326
KAMAZ 43118
KAMAZ 4911
KAMAZ 63501
KAMAZ 65224
KAMAZ 6560

Wheel arrangement	6X6
Wheel base, mm	4200
Weights capacities	
Payload, kg	14000
GVW, kg	26350
GTW, kg	12000
GRTW, kg	38350
Engine	
Model	KAMAZ 740.50
Emission standart	EURO-2
Type	diesel,turbocharged,V8
Rated horsepower, kWt (HP)	
- net	255 (347)
- gross	265 (360)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	1450 (148)
Gearbox	
Model	ZF 16S151
Control	mechanical
Number of speed	16
Low gears	13.8
High gears	0.84
Transfer case	
Model	ZF STEYR VG 2000/300
Number of speed	2
Low gears	1.536
High gears	0.890
Final drive	
Type	hub-reduction
Gear ratio	5.55 or 6.88
Cab	
Type	front, above engine
Execution	long
Number of sleeping berth	1
Tyres	
Type	16/00 R20 or 385/95 R25 pressure adjustment
Platform inner size, mm	
- length	6112
- width	2470
Trafficability characteristics	
Max. angle of climb at GVW	degrees (%) 31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	0.6

6560

Axial load 10 t

Wheel arrangement	8X8
Wheel base, mm	3600
Weights capacities	
Payload, kg	22900
GVW, kg	38000
GTW, kg	12000
GRTW, kg	50000
Engine	
Model	KAMAZ 740.35
Emission standart	EURO-2
Type	diesel, turbocharged,V8
netto	272 (370)
Rated horsepower, kWt (HP)	294 (400)
at crankshaft rotation, rpm	2200
Maximum torque, Nm (kgfm)	1539 (157)
Engine (optional version)	
Model	KAMAZ 740.63
Emission standart	EURO-3
Type	diesel, turbocharged, V8
Rated horsepower, kWt (HP)	294 (400)
at crankshaft rotation, rpm	1900
Maximum torque, Nm (kgfm)	1764 (180)
Gearbox	
Model	ZF 6HP602
Control	automatic
Number of speed	6
Low gears	5.6
High gears	0.83
Transfer case	
Model	ZF STEYR VG 2000/300
Number of speed	2
Low gears	1.536
High gears	0.890
Final drive	
Type	hub-reduction
Gear ratio	5.55 or 6.88
Cab	
Type	front, above engine
Execution	long
Number of sleeping berth	1
Tyres	
Type	385/95 R25 or 14.00 R20 or 16.00 R20 pressure adjustment
Platform inner size, mm	
- length	6112
- width	2470
Trafficability characteristics	
Max. angle of climb at GVW	degrees (%) 31 (60)
Max. depth of the waded, m	1.75
Height of vertical wall, m	0.55
Width of ditch, m	1.4

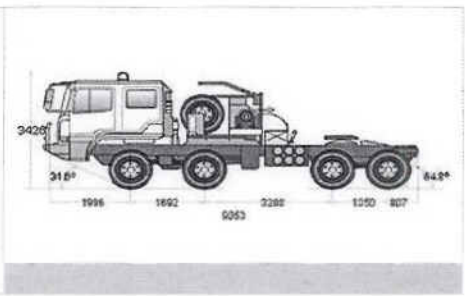
KAMAZ 43261
KAMAZ 43114
KAMAZ 4326
KAMAZ 43118
KAMAZ 4911
KAMAZ 63501
KAMAZ 65224
KAMAZ 6560

KM100 Series

Overview
KM1001
KM1002

KM1002

Tractor (10 - TON, 8 x 8)



Specifications

DIMENSIONS	
Drive	8×8
Cab Seating (Double Cap)	6 Person
Overall Length	9,070 mm
Overall Width	2,600 mm
Overall Height	3,460 mm
Wheel base	1,700 / 3,200 / 1,350
Tread : 1st / 2nd / 3rd / 4th	2,010 / 2,010 / 1,890 / 1,890 mm
Over-Hang : Frt / Rr	1,996 / 807 mm
Ground Clearance	340 mm
Angle of Approach	31.6°
Angle of Departure	60°

WEIGHTS	
Curb Weight	17,700 Kg
Pay Load	20,000 kg
Gross Weight	37,700Kg

PERFORMANCE	
Max. Horse Power	450 hp / 1,900 rpm
Max. Torque	190 kg.m / 1,200 rpm
Max. Speed	80 km/h
Max. Grade	60 %
Side Slope	20 %
Brake Distance	32 km/h, 11.9 m
Cruising Range	400 km
Min. Turning Radius	14.5 m
Fording Depth	760 mm(w/o Kit)
Weather Condition	-32~50 °C
EMI	Satisfy MIL-STD-461C
Emission	CO:1.6g/km, NOX:9.53g/km, HC:0.08g/km
TWIN Winch Capacity	25×2EA ton

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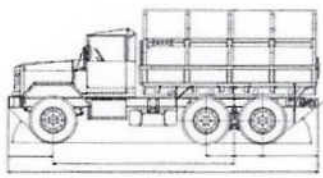
Overview
KM250
KM251
KM255
KM256
KM258
KM259

KM250

Cargo Truck (2 1/2 - TON, 6 x 6)



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Specifications

DIMENSIONS		
Overall Length		6,785 mm
Overall Width		2,435 mm
Overall Height		2,840 mm
Wheel base		3,912 mm
Tread : Front / Rear		1,735/1,780 mm
Ground Clearance		274 mm
Angle of Approach		47°
Angle of Departure		41°

WEIGHTS		
Curb Weight		6,165 Kg
Pay Load	Highway	4,550 Kg
	Cross-Country	2,270 Kg
Gross Weight	Highway	10,715 Kg
	Cross-Country	8,435 Kg

ENGINE	
Mode	KK-7.4
Type	6Cylinder, Water Cooled
Displacement	7,412 cc
Compression Ratio	19.0 : 1
Fuel	Diesel
Horse Power, Max	180 hp / 2,900 r.p.m
Torque, Max	50 kg.m / 1,600 r.p.m

CLUTCH	
Type	Single Plate Dry Disc
Facing Diameter	32.5 cm
Control	Hydraulic

TRANSMISSION		
Type		Synchromesh
Number of speeds	Forward	5
	Reverse	1

TRANSFER CASE	
Number of speeds	2

AXLE	
Front Axle	Full-Floating, Double Reduction

BRAKES		
Service	Type	Internal Expanding
	Actuation	Air over Hydraulic
Parking	Internal Expanding & External Contracting	

STEERING	
Type	Power Assisted / tilting type
Gear Ratio	21.6 : 1
Position	Left Drive or Right Drive

ELECTRICAL	
Voltage	24V
Battery	12V, 85AH, 2ea
Alternator	70Amp

PERFORMANCE	
Max. Speed	95 km/h
Max. Grade	60 %
Cruising Range	955 km
Min. Turning Radius	10.4 m
Fording Depth	762 mm(w/o Kit)

OTHERS	
Tire	9.00x20-8pr
Fuel Tank Capacity	200 lt

OPTION		
Winch	Type	Hydraulic
	Capacity	4,536 kg

ON VEHICLE EQUIPMENT	
1. Bag, Tool, Cotton Duck	1ea
2. Bag, Pamphlet	1ea
3. Bar, Socket Wrench Handle	1ea
4. Jack Ass'y	1set
5. Pliers, Comb. Slip-Joint	1ea
6. Screwdriver, Cross	3ea
7. Screwdriver, Flat Tip	1ea
8. Wrench, Wheel Stud Nut	1ea
9. Wrench, Adjust Open End	1ea
10. Wrench, Straight Bar Plug	1ea

Rear Axle	Full-Floating, Double Reduction
Gear Ratio	6.72:1
SUSPENSION	
Front	Semi-Elliptical Leaf Springs with Shock Absorber
Rear	Semi-Elliptical Inverted Leaf Springs

11. Gage & Hose Assy, Tire Pressure	1ea
12. Shovel	1ea
13. Axe	1ea

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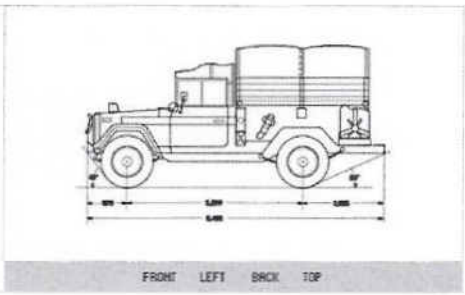
Overview
KM450
KM451
KM452
KM453

KM450

Cargo Truck [1/4 - TON, 4 x 4]



Specifications

DIMENSIONS	
Overall Length	5,400 mm
Overall Width	2,180 mm
Overall Height	2,500 mm
Wheel base	3,200 mm
Tread : Front / Rear	1,740/1,775 mm
Ground Clearance	257 mm
Angle of Approach	45°
Angle of Departure	29°

WEIGHTS		
Curb Weight		3,100 Kg
Pay Load	Highway	1,530 Kg
	Cross-Country	1,340 Kg
Gross Weight	Highway	4,630 Kg
	Cross-Country	4,430 Kg

ENGINE	
Mode	D4DA
Type	4Cylinder in-line, Water Cooled
Displacement	3,907 cc
Compression Ratio	18.0 : 1
Fuel	Diesel
Horse Power, Max	139hp / 2,900 r.p.m
Torque, Max	38.0 kg.m / 1,600 r.p.m

CLUTCH	
Type	Single Dry Disc
Control	Hydraulic

TRANSMISSION		
Type		Synchromesh
Number of speeds	Forward	5
	Reverse	1

TRANSFER CASE	
Number of speeds	2

AXLE	
Front Axle	Full-Floating
Rear Axle	Full-Floating

BRAKES	
Type	Dual line, Internal Expanding
Actuation	Vacuum Servo Hydraulic
Parking	Mechanical, Internal Expanding

STEERING	
Type	Ball & Nut (Power assisted)
Gear Ratio	22.64 : 1
Position	Left Drive & Right Drive

ELECTRICAL	
Voltage	12V(PTC 100) × 2EA
Alternator	28V - 100A

PERFORMANCE	
Max. Speed	104 km/h
Max. Grade	60 %
Cruising Range	884 km
Min. Turning Radius	8.12 m
Fording Depth	760 mm(w/o Kit)

OTHERS	
Tubeless Radial	36"-12.5R 16.5T
Fuel Tank Capacity	106 lt

OPTION		
Winch	Type	Electric
	Capacity	3,600 kg

ON VEHICLE EQUIPMENT	
1. Bag, Tool Set	1ea
2. Bag, Pamphlet	1ea
3. Adjustable Wrench(10")	1ea
4. Spanner	1set
5. Wrench, Wheel Nut	1ea
6. Screwdriver	1ea
7. Plier	1ea
8. Jack Ass'y	1ea
9. Shovel	1ea
10. Axe	1ea
11. Spare Can	1ea

Gear Ratio	5.86:1
SUSPENSION	
Front	Leaf Spring & Solid Axe
Rear	Leaf Spring & Solid Axe

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The Mobility Elite.

MAN Military Trucks HX, SX.

MAN

Logistic challenge.

Traditional thinking about enemy doctrine is replaced by new types of conflicts. Today the international community is faced with threats of a very different kind – on the one hand natural disasters, local and regional conflicts and on the other the danger of international terrorism. Global crisis prevention, conflict management and peacekeeping organisations are confronted with complex security challenges. Flexibility and mobility are necessary to guarantee a rapid presence at the scene of a crisis. Perfect logistic and tactical support of the forces is crucial to success.

As one of the leading international commercial vehicle manufacturers with great expertise and experience in building military vehicles, MAN makes a major contribution to conflict resolution and crisis management. Beside the militarized vehicles in the TGA, TGM and TGL ranges the HX and SX ranges, specially developed to meet military requirements, play an outstanding role. Designed in particular for global logistic and tactical off-road operation they combine maximum mobility and reliability with great operating economy and efficiency. Their mission is to keep the peace.

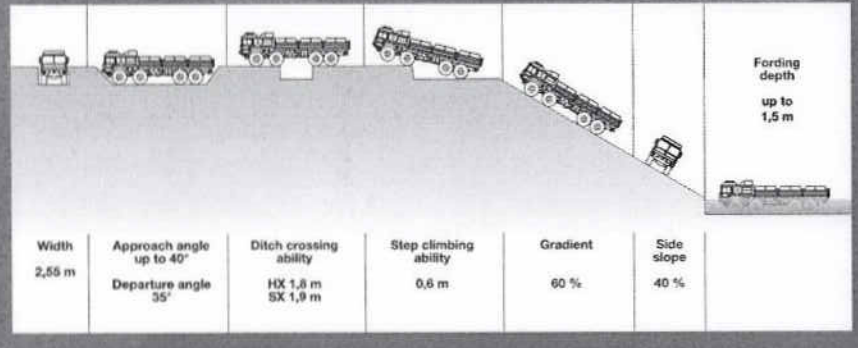
Some of the equipment illustrated is specified in this brochure is not a standard feature.

Off-road. No limits.

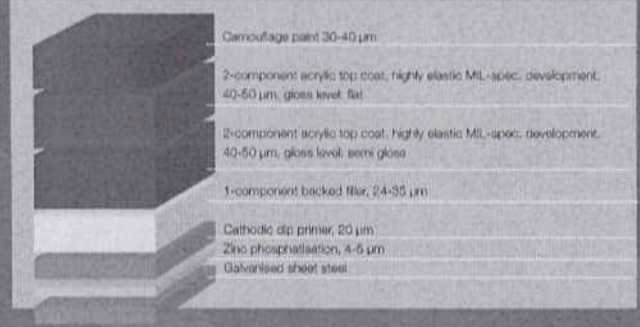
They battle through desert sands and along stony tracks, over scree and mud, snow and ice. Climb the most extreme gradients, ford rivers and chase across any terrain. MAN HX and SX all-wheel-drive trucks just keep on moving. Capitulation is not an option whatever the terrain.

With their excellent off-road qualities the all-wheel-driven, single-tyre mobility trucks are a match for practically any surface they come across. The SX in particular takes things in stride. Full speed ahead is the name of the game. It's no coincidence that we also call it the Extreme Mobility Truck System. And not on the heels of the SX comes the High Mobility Truck System HX. The name says it all.

Could the HX and SX ever get in it up to their neck? Not a chance, since they are ideally equipped even for deep water. Without preparation for instance the HX has a fording depth of 1200 mm in accordance with STANAG 2805. Their service profile includes a large ground clearance, very good angles of approach and departure and enormous permanent climbing capacity (61 %) together with a ditch crossing ability of up to 1,8 m (depending on the wheel formula), a step climbing ability of 0,6 m (depending on the tyre size) and a maximum side slope of 40 %.



Last but not least they are designed for climatic zones A1 to C1 according to STANAG 2895, and even with the sedes equipment they can withstand extreme outside temperatures from minus 32 to plus 49 degrees Celsius. The HX and SX prove their mobility in other respects too: Depending on the selected vehicle within the complete range they can be airlifted by C130, C160 and A400M aircraft and guarantee rail transportability within the common rail tunnel dimensions.



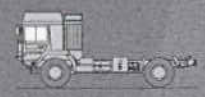
Military excellence.

HX – suiting every task.

The HX is the all-rounder among all-wheel-drive trucks, developed for logistic requirements in tough military service. The perfect supply vehicle with superior off-road capabilities. Based on MAN's civilian TGA, it incorporates all of MAN's expertise in commercial vehicles and all-wheel-drive trucks. The HX combines the reliability of tested mass-produced components with state-of-the-art, innovative engineering. This makes it the most economical military vehicle in its class. And one of the most durable too, since it is designed for a service life of 20 years. With the variants 4x4, 6x6 and 8x8 the HX models cover a wide range of applications – from cargo/troop carrier through to heavy-duty tractor with gross train weights of up to 120 tonnes.

SX – setting the benchmark.

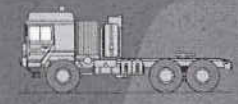
With its unique off-road capabilities and torsional rigidity the SX sets the benchmark in mobility – high performance off-road. It can even get through where only tracked vehicles normally have the capability. The SX is the leader in its class and either the 3- or 4-axle vehicle is predestined for the transport of high-class complex and sensitive bodies, ideal as a system and weapon carrier for tactical missions. Its solidity and reliability are unequalled. This is backed up by all of the experience which MAN has gathered with its high-mobility trucks deployed for decades by numerous armed forces around the world. The SX convinces with its outstanding service life of 30 years and more. All of its components are designed for top robustness and dependability. Its corrosion protection fulfils the requirement for optimum long-term protection. The SX – for top mobility.



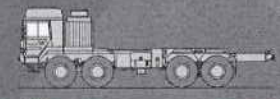
HX 60, Air transportable

HX 81, Air transportable

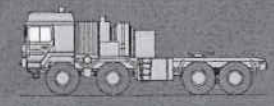
HX 58



HX 80



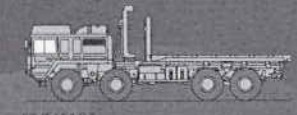
HX 77



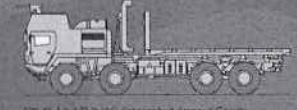
HX 81

SX 45, Air transportable

SX 45, Air transportable

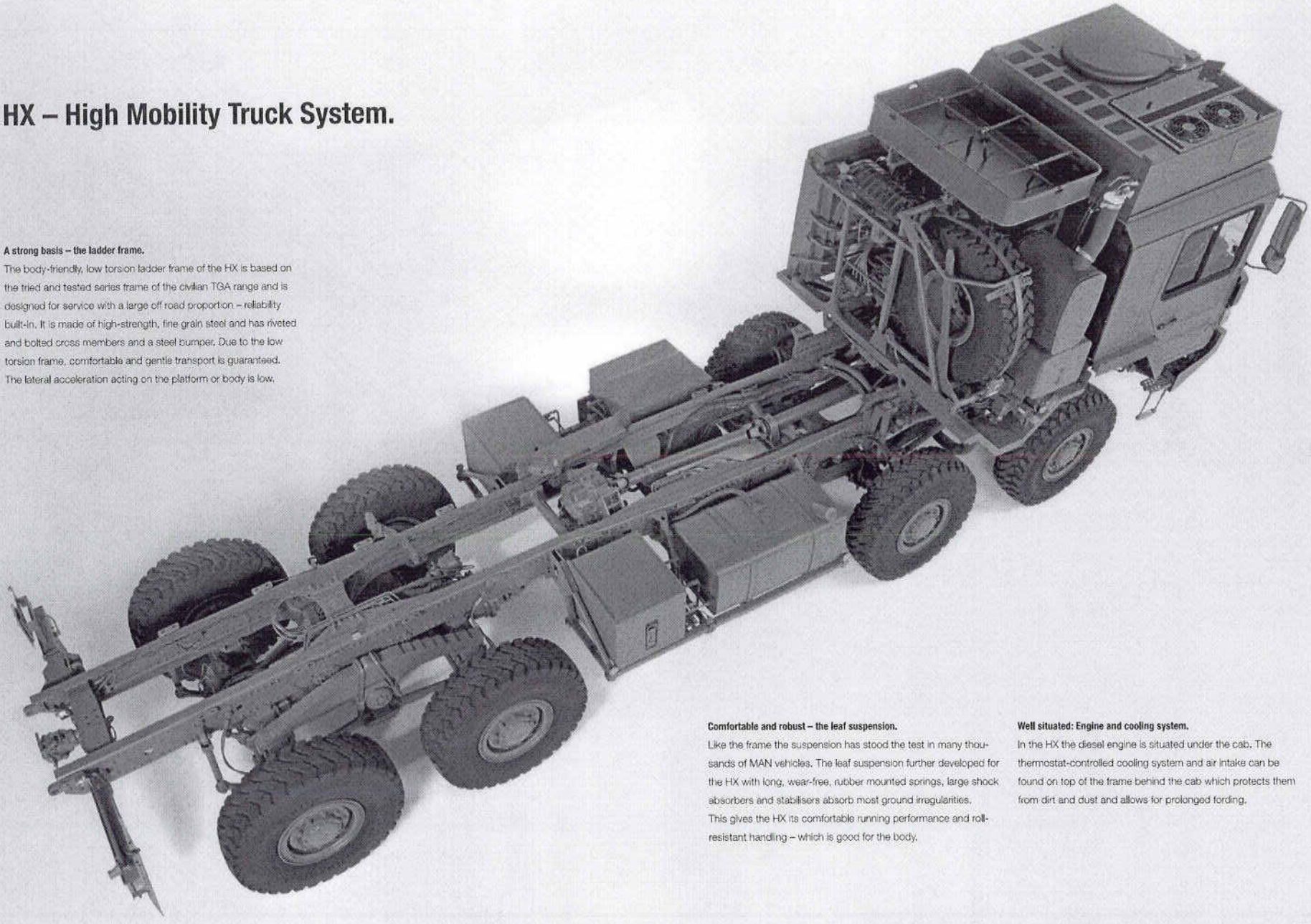


SX 45 MULTI 2



SX 45 MULTI 2 IAG Integrated Armour Cover

HX – High Mobility Truck System.



A strong basis – the ladder frame.

The body-friendly, low torsion ladder frame of the HX is based on the tried and tested series frame of the civilian TGA range and is designed for service with a large off road proportion – reliability built-in. It is made of high-strength, fine grain steel and has riveted and bolted cross members and a steel bumper. Due to the low torsion frame, comfortable and gentle transport is guaranteed. The lateral acceleration acting on the platform or body is low.

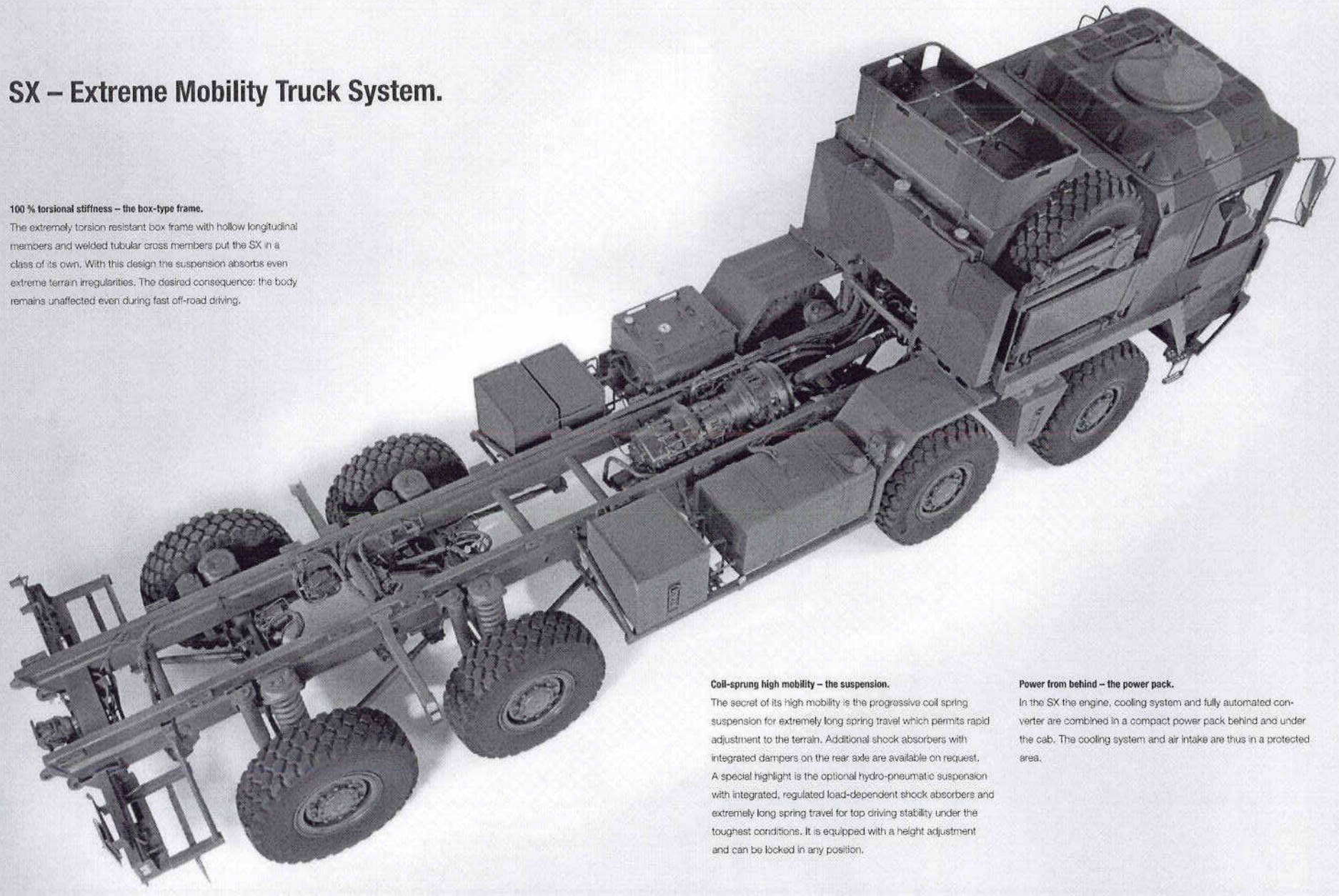
Comfortable and robust – the leaf suspension.

Like the frame the suspension has stood the test in many thousands of MAN vehicles. The leaf suspension further developed for the HX with long, wear-free, rubber mounted springs, large shock absorbers and stabilisers absorb most ground irregularities. This gives the HX its comfortable running performance and roll-resistant handling – which is good for the body.

Well situated: Engine and cooling system.

In the HX the diesel engine is situated under the cab. The thermostat-controlled cooling system and air intake can be found on top of the frame behind the cab which protects them from dirt and dust and allows for prolonged fording.

SX – Extreme Mobility Truck System.



100 % torsional stiffness – the box-type frame.

The extremely torsion resistant box frame with hollow longitudinal members and welded tubular cross members put the SX in a class of its own. With this design the suspension absorbs even extreme terrain irregularities. The desired consequence: the body remains unaffected even during fast off-road driving.

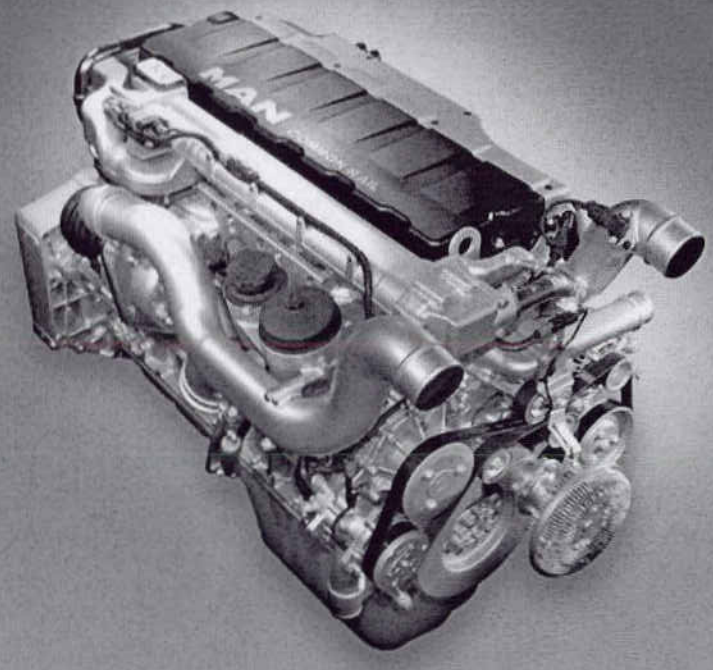
Coil-sprung high mobility – the suspension.

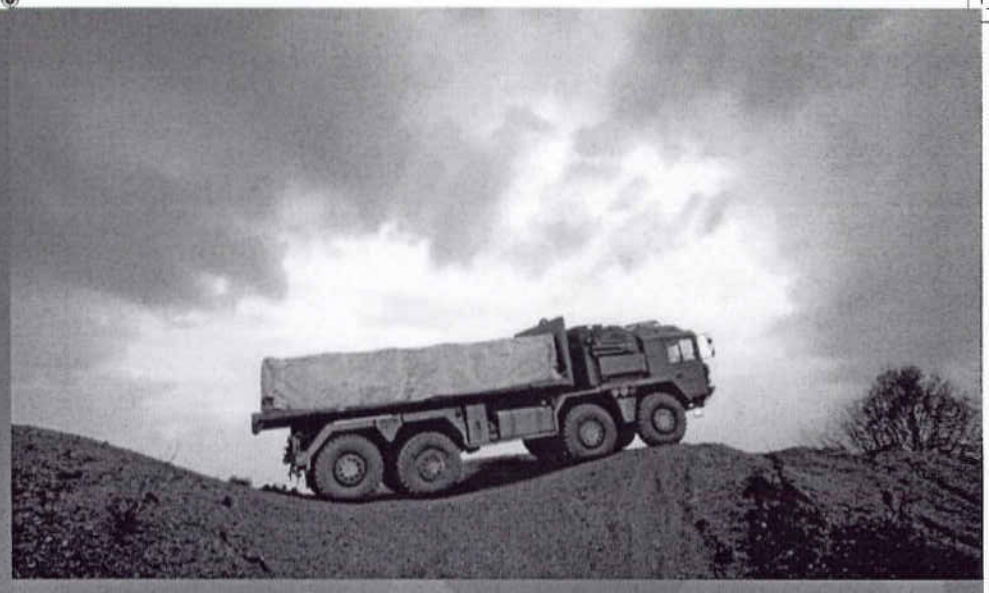
The secret of its high mobility is the progressive coil spring suspension for extremely long spring travel which permits rapid adjustment to the terrain. Additional shock absorbers with integrated dampers on the rear axle are available on request. A special highlight is the optional hydro-pneumatic suspension with integrated, regulated load-dependent shock absorbers and extremely long spring travel for top driving stability under the toughest conditions. It is equipped with a height adjustment and can be locked in any position.

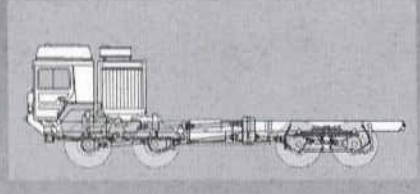
Power from behind – the power pack.

In the SX the engine, cooling system and fully automated converter are combined in a compact power pack behind and under the cab. The cooling system and air intake are thus in a protected area.

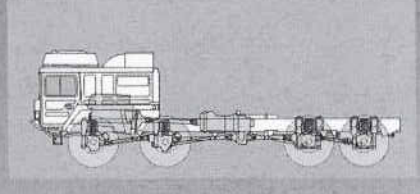
Special forces.







MAN HX: High Mobility Truck System with a low-torsion ladder frame, leaf suspension, single tyres and permanent all-wheel drive. Engine situated under the cab, cooling system behind the cab.



MAN SX: Extreme Mobility Truck System with a torsion-stiff box frame, progressive coil suspension, single tyres and permanent all-wheel drive. Engine and cooling system behind the cab.

Power politics – the common rail engines.

Enormous engine power, low fuel consumption and smooth running – these are the characteristic advantages of the MAN common rail diesel engine. Equipped with the maintenance- and clog-free particulate filter MAN PM-KAT® the six-cylinder and V8 engines fall within the pollutant limits in accordance with Euro 4. The SX and HX vehicles are fitted with the powerful engines from the D20 range. The D08 common rail engine is available for the HX 60 and HX 61. In the HX heavy-duty vehicles V8 engines supply unleashed power. The large, thermostat-controlled cooling system is designed for operation in the hottest climatic zone C1 (up to 49 Grad Celsius). Operation down to -32° Celsius is standard – with the optional arctic kit even down to -46° Celsius.

All geared up – gearbox and transfer case.

In the HX power is converted to dynamics by the automated 12-speed MAN TipMatic gearbox – providing shifting comfort second to none. The MAN TipMatic can be activated both fully automatically and manually by a touch lever. The 3- and 4-axle semitrailer tractors in the HX range are fitted with the TC tronic, a combination of the MAN TipMatic with WDK 440 converter clutch unit – ideal for comfortable and wear-free maneuvering of heavy loads and for operation off paved roads. The classic fully automatic transmission is used throughout the SX range. It shifts smoothly and without interruption of the tractive force.

The MAN trialer cases used with electro-pneumatic differential locks are adapted to the engine power and offer maximum traction in all driving conditions.

Getting through is everything – the planetary axles.

The planetary axles designed for the single tyres score points with their high ground clearance and great reliability. They are fitted with a differential lock.

Air for more – tyre inflating and pressure control systems.

A tyre inflating system can be supplied to adjust the air pressure in stationary vehicles, as can a pressure control system which permits controlled deflating and inflating of the tyres even during driving. The tyre pressure can thus be adjusted according to the surface conditions within no time at all.

Hail on command – the EBS brake system.

On command the dual-circuit air brake system with the electronic brake system EBS responds effectively, it also has ABS, with a special off-road logic for reliable use on loose ground. The brake pedal actuated EVB engine brake, relieves the wheel brake and provides additional safety.

Room on the top.

The modular cabs.

With their striking and individual appearance, functional design and equipment, and dependable service characteristics the modular cabs in the HX and SX range not only look impressive and solid: they are. Over the years they have been consistently developed to optimally meet the requirements of the armed forces and procurement authorities. The result are cabins which set the standard: from the comfortable entry and crossover through to their hardtop everything satisfies the demand for functionality. The modular cab designed in steel is also available for the HX in a version extended by 310 mm.

Windows/mirrors

- Detonation-proof windscreen in two sections for reasonably-priced replacement
- Windscreens installed vertically to minimise light reflection
- Sun blinds (windows)
- Electrically adjustable and heatable rear-view mirrors

Air conditioning

- Powerful heater/ventilator with raised air inlet
- Rapid de-icing of windscreen and side windows
- Air conditioner integrated in the aluminium hardtop roof, auxiliary heater available as optional equipment

Cockpit

- Steering wheel adjustable in height and inclination
- Instrument panel with clear displays corresponding to the TGA civilian range
- Large central LCD display
- Instrument lighting can be dimmed and is off when camouflage lighting is in operation
- Interior lighting and reading lamp provide optimal illumination

Seats

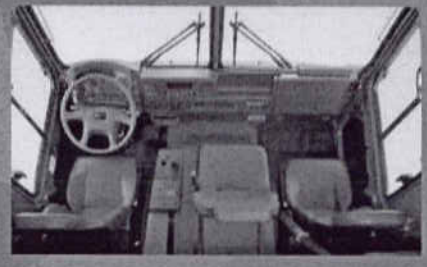
- 2 seats with integrated headrests and 3-point automatic belts, the centre seat with a 2-point lap belt
- Air-sprung comfort seats for the driver and co-driver
- Folding central seat back serves as a platform to climb up to the roof or as an observation/machine gun banquette
- Additional 4-seat bench in the extended HX cab

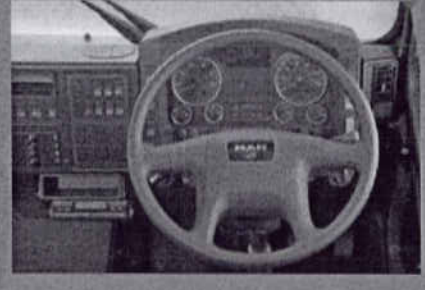
Stowage space/bunks

- Spacious shelves/stowage compartments for personal equipment and military accessories
- Practical rifle holders in the doors
- Machine gun holder and holder for light anti-tank weapon within easy reach
- Preparations for radio and intercom systems and GPS
- Two-tank system optional

Hardtop

- Walk-in and removable hardtop roof
- Flat hardtop roof made of synthetic, optionally with pivoting roof hatch and machine gun ring mount
- High hardtop roof made of aluminium, optionally with a pivoting roof hatch and machine gun mount, with an integrated air conditioner
- Opening diameter of the roof hatch 800 mm
- Ring mount attachments for infrared weapons
- Stowage box for camouflage nets behind the hardtop roof





A shield of armour.

Safety first.

Such expressions as asymmetric warfare, the fight against terrorism, improvised explosive devices and suicide bombings reflect a threatening scenario in which the protection of the crew is a great challenge. In light of this MAN has developed effective cab protection which meets every conceivable requirement. The options range from modular protection through to integrated protection against assault rifle fire, shrapnel and mines.

Modular Armoured Cabin (MAC).

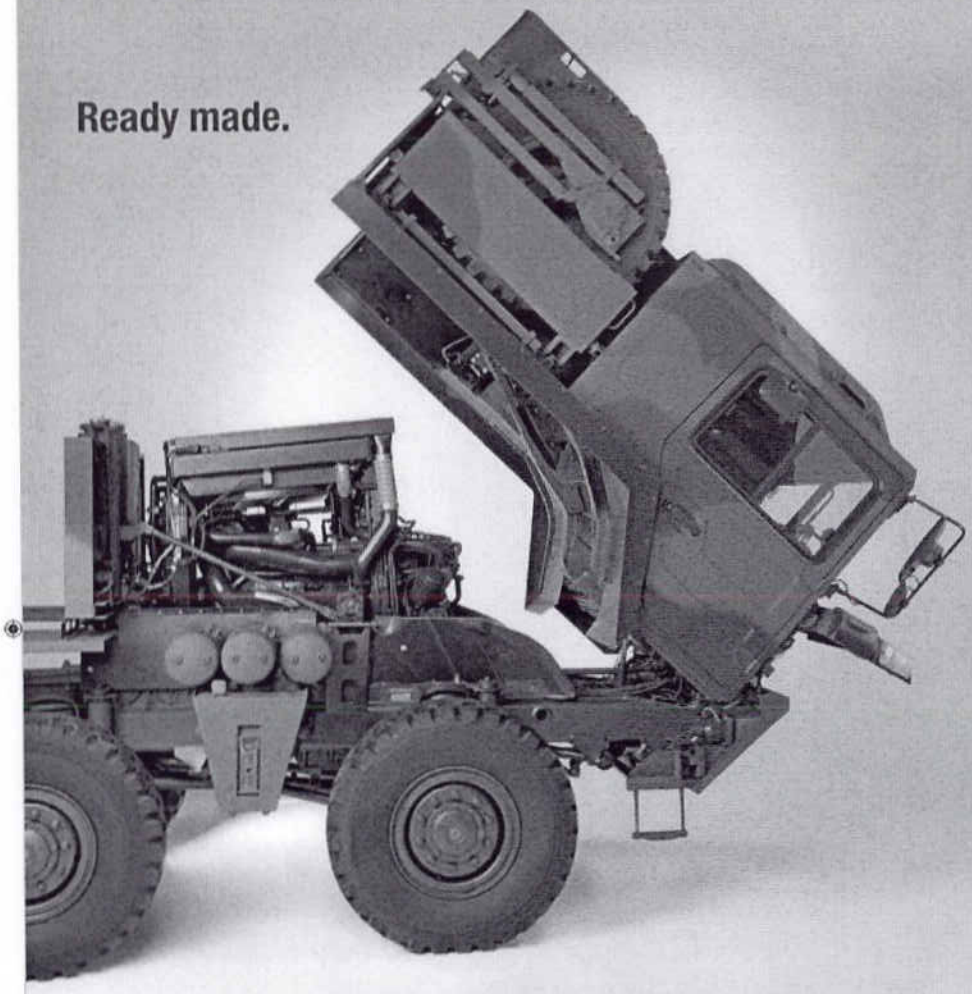
The protective equipment consists of armoured modules which are attached to the outside of the cab. Owing to the cubic shape and the flat outside surfaces of the cab the protection against assault rifle fire (Level 2) and mines (Level 1) can be easily and quickly mounted and removed by just two men. The space and ergonomics inside the cab remain unaffected by the attachment of the armour.

Integrated Armour Cabin (IAC).

The all-steel design of the cab is a convincing response to today's threatening conflict scenarios. In accordance with STANAG 4569 it offers reliable protection against assault rifle fire and shrapnel (level 2) and against AT blast mines (level 3b).

To permit the crew to react appropriately to attacks the armoured cab can optionally be equipped with a weapons station for a heavy machine gun or automatic grenade launcher. The weapons station can be operated from inside the cab, keeping the crew out of harm's way. This option is offered by MAN in cooperation with leading manufacturers.

Ready made.



First class order: Maintenance and care.

The cab can be hydraulically tilted to a position ideal for work on the engine and gearbox, air drier, solenoid and ventilation valves. For day-to-day checks the front panel gives access to the engineoil filler neck, containers for the washer fluid, brake and other electric connections. The oil reservoir for the supply of the steering and auxiliary hydraulics is situated behind the cab. Thanks to the sight glasses the fluid level can be checked at a glance. The cab floor can easily be sprayed out with a water hose for cleaning.

Reporting for a wheel change: The spare wheel.

The spare wheel is intelligently stowed behind the cab and can be easily handled with a hoist. The wheel can be changed without difficulty by 2 men in no time at all.

Without interference: The electronics.

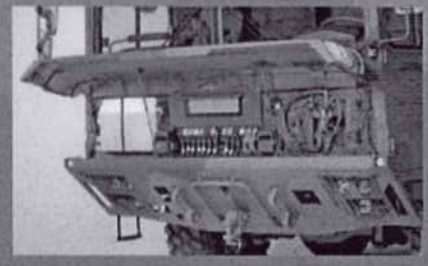
The entire electronics system is adapted to the tough service conditions. It is shielded and electromagnetically compatible in accordance with EMC and NEMP. The central electrics are mounted in a protected position on the co-driver's side in the cab. The headlights and lighting correspond with civilian standards, the marked lights with military standards.

Space for more: Stowage boxes.

The aluframe carriers attached to the frame make it possible to fit modular stowage boxes as required by the customer. The easily accessible stowage boxes are water-tight and connected to the central ventilation system. Within these system carriers, fuel canisters, tow bars and entrenching tools can be mounted as required. The system carriers also accommodate the batteries, compressed-air tanks and the fuel tank.

Mission possible: Recovery and self-recovery equipment.

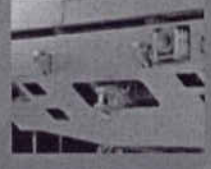
The HX and SX ranges are fitted with recovery eyes in accordance with valid military standards. Trailer couplings are available in accordance with civilian and military standards. A cable or gypsy winch can also be supplied as an option for recovery or self-recovery.



HX: Recovery equipment front

SX: Recovery equipment front

Carrier for fuel in stowage box, storage rack



HX: Recovery equipment rear

SX: Recovery equipment rear

Constant reporting: Telematics.

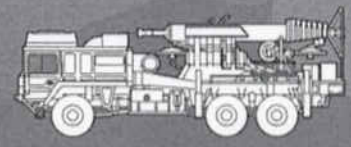
The internet based telematics system opens new ways of fleet guidance, fleet management and logistics. Keywords such as tracking & tracing, assignment notification and destination guidance, route planning, help calls and technical vehicle deployment analysis illustrate the wide range of functions available. The HX and SX vehicles are prepared for the use of MAN Service telematics.

Always on duty: Integrated Logistics Support (ILS).

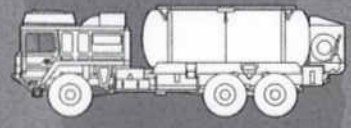
Among other services ILS offers user training in the MAN training centre or at the location of the vehicles, preparation of technical handbooks in any language desired and the delivery of spare parts and special tool packages.

The line-up.

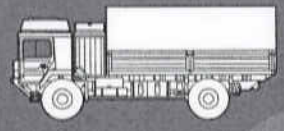
Selection of service applications



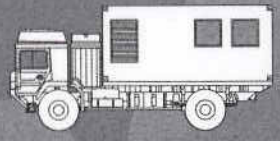
SX 44 Airport Mast Carrier



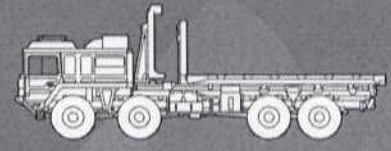
SX 44 Tanker



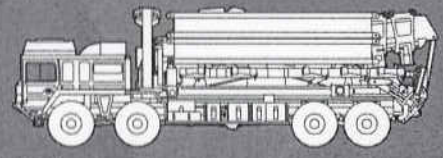
HX 80 Cargo/Troop Body



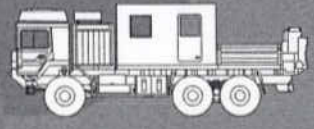
HX 80 Cabin



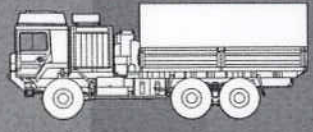
SX 45 Load Handling System



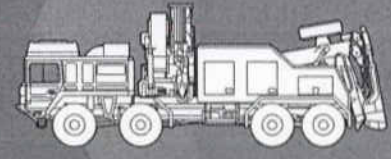
SX 45 Groundjet



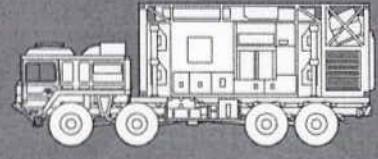
HX 58 Cabin



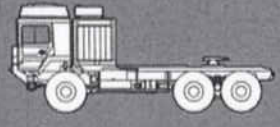
HX 58 Cargo/Troop Body



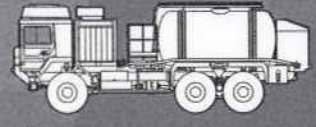
SX 45 Recovery vehicle



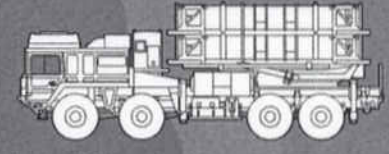
SX 45 Steam Cleaner



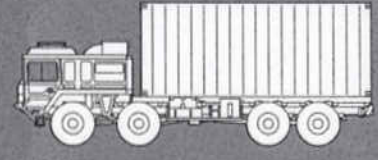
HX 90 Tractor



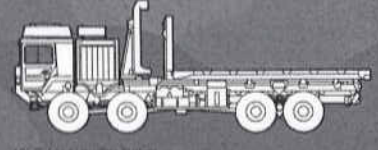
HX 48 Tanker



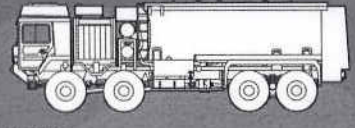
SX 45 System Carrier



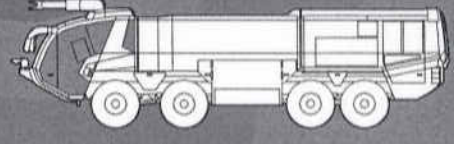
SX 45 Container



HX 77 Load Handling System



HX 77 Tanker



SX 45 NAXI Fire Fighting Vehicle

MAN Nutzfahrzeuge Group
Business Center Military
P.O. Box 50 06 20
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www.man-mn.com/militarytrucks

A member of the MAN Group

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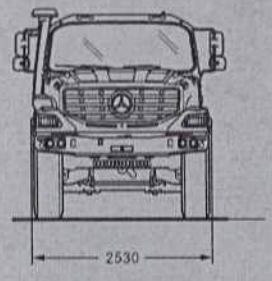
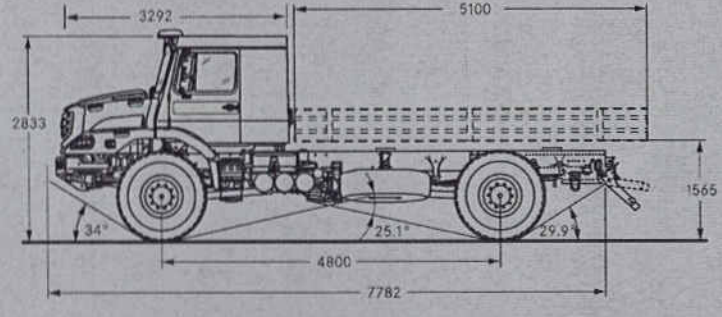
Text and illustrations not binding.
We reserve the right to make changes in the course of technical progress.

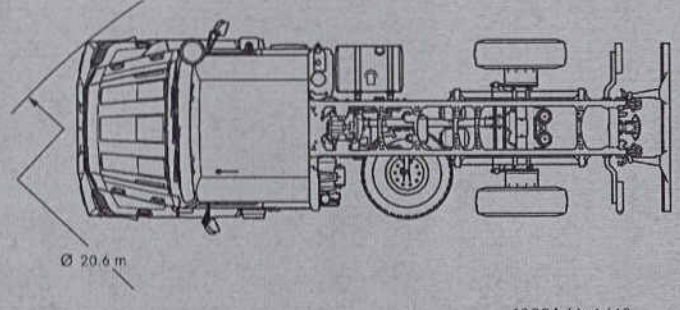
Mercedes-Benz Zetros

Technical Data

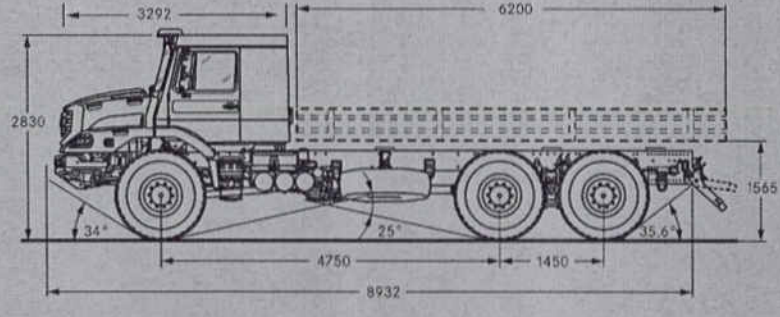


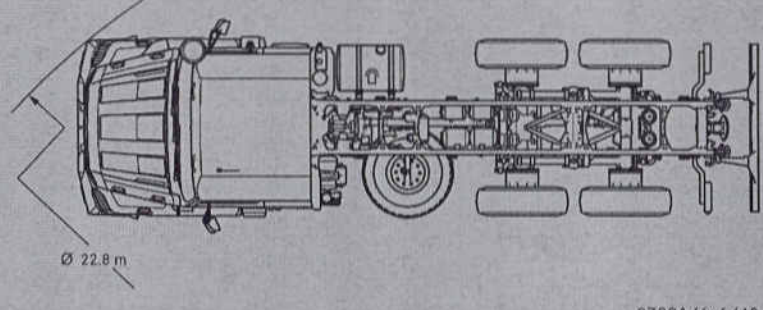
Two or three axles. Zetros 1833 A 4x4 with 4,800 mm wheelbase/ Zetros 2733 A 6x6 with 4,750 mm + 1,450 mm wheelbase. The chassis weight is 8.1 t or 10.5 t and the max. weight is 16/18 t or 25/27 t. The standard flatbed version is 5.1 m or 6.2 m long. Other dimensions can be supplied on request. The dimensions in the sketches apply with a nominal load and the tire configuration 14.00 R 20.



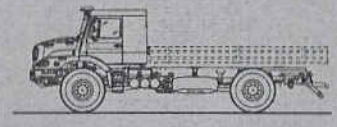


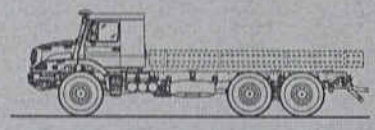
1833A/4x4/48





2733A/6x6/48





Zetros		1833A/4x4/48	2733A/6x6/48
Engine		OM 926 LA - 6 cyl. inline	OM 926 LA - 6 cyl. inline
Power (Euro 5) kw (hp) [1]		240 (326)	240 (326)
Torque Nm/revs		1,300/1,200 - 1,600	1,300/1,200 - 1,600
Clutch		GF 395 Kerasinter	GF 395 Kerasinter
Gear box (number of gears) [2]		9 gears (8 + Crawler)	9 gears (8 + Crawler)
Transfer box (modes)		MB VG 1700 - 3 W/1.6	MB VG 1700 - 3 W/1.6
Axles		Planetary hub reduction axle	Planetary hub reduction axle
1st front axle		AL 7/52 DS-9	AL 7/52 DS-9
1st rear axle		HL 7/52 DS-13	HL 7/52 DS-13
2nd rear axle			HL 7/52 DS-13
Electrics	(V)	24	24
Fuel tank capacity	(l)	300	300
Steering		MB LS 8	MB LS 8
Suspension		Leaf springs	Leaf springs
Brakes		Drum	Drum
Wheel size (tire/rim) [4]		14.00 R20 (10.00 V 20) [4]	14.00 R20 (10.00 V 20) [4]
Drive configuration		4x4	6x6
Wheelbase	(mm)	4,800	4,750 + 1,450
Unladen weight (without body)	(kg)	8,110	10,500
Gross vehicle weight	(kg)	18,000 [3]	27,000 [3]
Max. wt on front axle	(kg)	7,500 (9,000) [5]	7,500 (9,000) [5]
Max. wt on rear axle	(kg)	9,000 [6]	2x9,000 [6]
Approach angle	(°)	34	34
Turning circle	(Ø m)	20.6	22.8
Standard Platform (length/width/side height)	(mm)	5,100/2,450/500 [7]	6,200/2,450/500 [7]
Fording depth	(m)	0.8 (1.1) [8]	0.8 (1.1) [8]
Speed at 75% max. rpm	(km/h)	89	89

Further options:
Retarder, CTIS (Central Tire Inflation System), Automatic Transmission, Winches, Torsion-free platforms

1) Euro 3 available
2) Automatic gearbox optional
3) GVW (Gross vehicle weight max)
4) Alternatives available
5) Optional
6) Depending on rim/tire
7) Other dimensions on request
8) Tire configuration 14.00 R20

Smooth going for the tough Army

The smooth movement of artillery is crucial to victory on the battlefield. That's why you need the high mobility of the 6x6 Tata LPTA 1623 HMV. It offers a stable drive on all terrains and in extremes of climate. That's why it stands tall and tough – just like the country's defence.

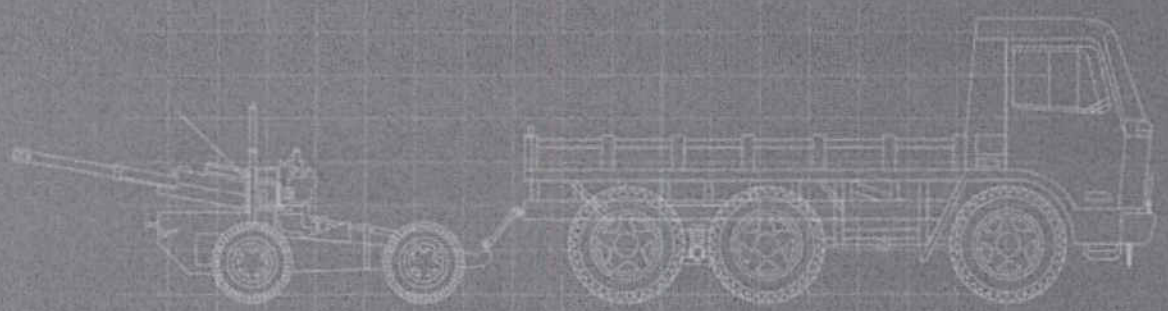
Exclusive features

Payload: 7.5 T

Mobility: 6x6 wheel drive, high ground clearance of 390 mm, fordability 860 mm, 12 HP/ton, inter-axle differential lock

Utility: Platform for high mobility vehicle, gun-towing vehicle, mobile hospital, command post, field artillery tractor

Survivability: Mobility to match tracked vehicle mobility, self-recovery winch with 10 T capacity, cold starting device, operates across extreme temperatures, heating and de-misting facility in crew-cab, with a capacity of 3 seats and 2 sleeper berths



10 T Field Artillery Tractor Variant

TECHNICAL SPECIFICATIONS: LPTA 1623, 6X6

ENGINE	
Model	Cummins B5.9 235
Type	Water-cooled Compression Ignition Turbo-charged, Inter-cooled Diesel engine
Max. Engine Output	173 kw at 2500 rpm
Max. Torque	800 Nm at 1500 rpm
CLUTCH	
Type	Single Plate Dry Friction Type 352 mm, Pull Type
GEAR BOX	
Model	Tata
Type	Synchromesh on all forward gears and constant mesh on reverse gear with PTO and APP (Sunfab)
No. of gears	9 Forward, 1 Reverse
REAR AXLE	Tata - Tandem Bogie (Banjo Type)
FRONT AXLE	Tata Live Front Axle (Banjo Type)
STEERING	Integral Power Steering
Ratio	20.2:1
BRAKES	
Service Brake	Dual circuit full air S-cam brake
Brake Drum diameter	420 mm
FRAME	Ladder type heavy duty frame with riveted/bolted cross members. Side members are of channel section
SUSPENSION	
Type	Semi elliptical leaf spring at front and rear
Shock Absorber	Hydraulic double acting telescopic type at front
WHEELS AND TYRES	
Tyres	14.00R x 20-18 PR
Wheel Rims	10.00 x 20
No. of Wheels	Front-2, Rear-4, Spare-1
FUEL TANK	
Capacity	400 litres Single
CAB	Suspended Tilt Sleeper CAB with Heating Unit
ELECTRICAL SYSTEMS	
System Voltage	12 Volts
Alternator	65 Amps
Battery	12V, 180 Ah Capacity
ADDITIONAL FITMENTS	
Self recovery winch	
Make	Sepson
Type	Hydraulic with air spooling for rope removal
Capacity	8 T
Jib Crane	
Make	HIAB
Capacity	500 kg at 4.2m extended length
PERFORMANCE	
Max. geared speed in top gear	85 kmph
Maximum gradeability under full load	25° (limited by slip)
Minimum turning circle dia	19 mm

MAIN CHASSIS DIMENSIONS AS PER IS 9435, in mm

Wheel base	4235
Track front	1965
Track rear	2106
Overall length	8670
Max. width	2440

WEIGHTS (KG)

Bare chassis kerb weight with cab & load body	8800	
	CROSS COUNTRY	**HIGHWAY**
Max. Permissible GVW	13800	16300

Tata Motors Limited, 26th Floor, World Trade Centre-1, Cuffe Parade, Mumbai 400 005.
For further information, call +91-22 6656 1800 Extn. 1824/1874; Fax: +91-22 6636 0408;
E-mail: defencesolutions@tatamotors.com or visit www.tatamotors.com

Tata Motors reserves the right to change and vary the design, technical details and specifications at any time, without prior notice, as per the Company's policy of continuous product improvement.

TATA MOTORS
DEFENCE SOLUTIONS

TATA

Battlefield mobility for the modern military

TATA MOTORS
DEFENCE SOLUTIONS

Infusing the fighting spirit

Down the ages, the art of warfare has kept changing with the advent of new weapons, based on sophisticated technologies. This change is even more evident in the first decade of the 21st Century. Today, all trends point towards conflicts that will be short, intense engagements in which mobility through mechanized operations would assume critical importance.

Tata Motors ensures full mobility on the battlefield with its 6x6 tactical vehicle, LPTA 2038. This unique vehicle provides the support so necessary to infuse the fighting spirit in frontline troops. It follows the Tata 2.5T GS and 3.5/5T FAT vehicles which have built high confidence levels over the years.

Tata Motors is a member of the Tata Group, India's best known industrial house. For nearly five decades, the Tata Group has been providing the wheels and a wide range of defence solutions that offer protection and help make the nation's borders impregnable.

Read on to discover how LPTA 2038 6x6 makes a critical difference when it comes to mobility of the modern military on the battlefield.

Supplying the essentials

Tata LPTA 2038 is a versatile 6x6 tactical vehicle that provides logistical support to the modern military on the battlefield. Frontline troops are kept in constant supply of essentials like ration, water, fuel, lubricants and ammunition, so that they remain in a constant state of fighting fitness.

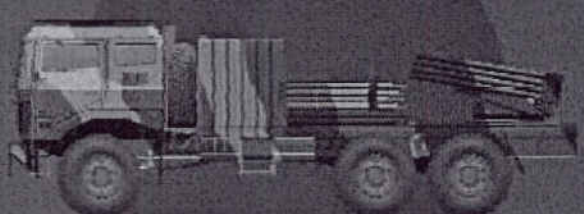
Tata Motors offers you a choice of the following 10 variants of the LPTA 2038 6x6:

Ambulance

Container

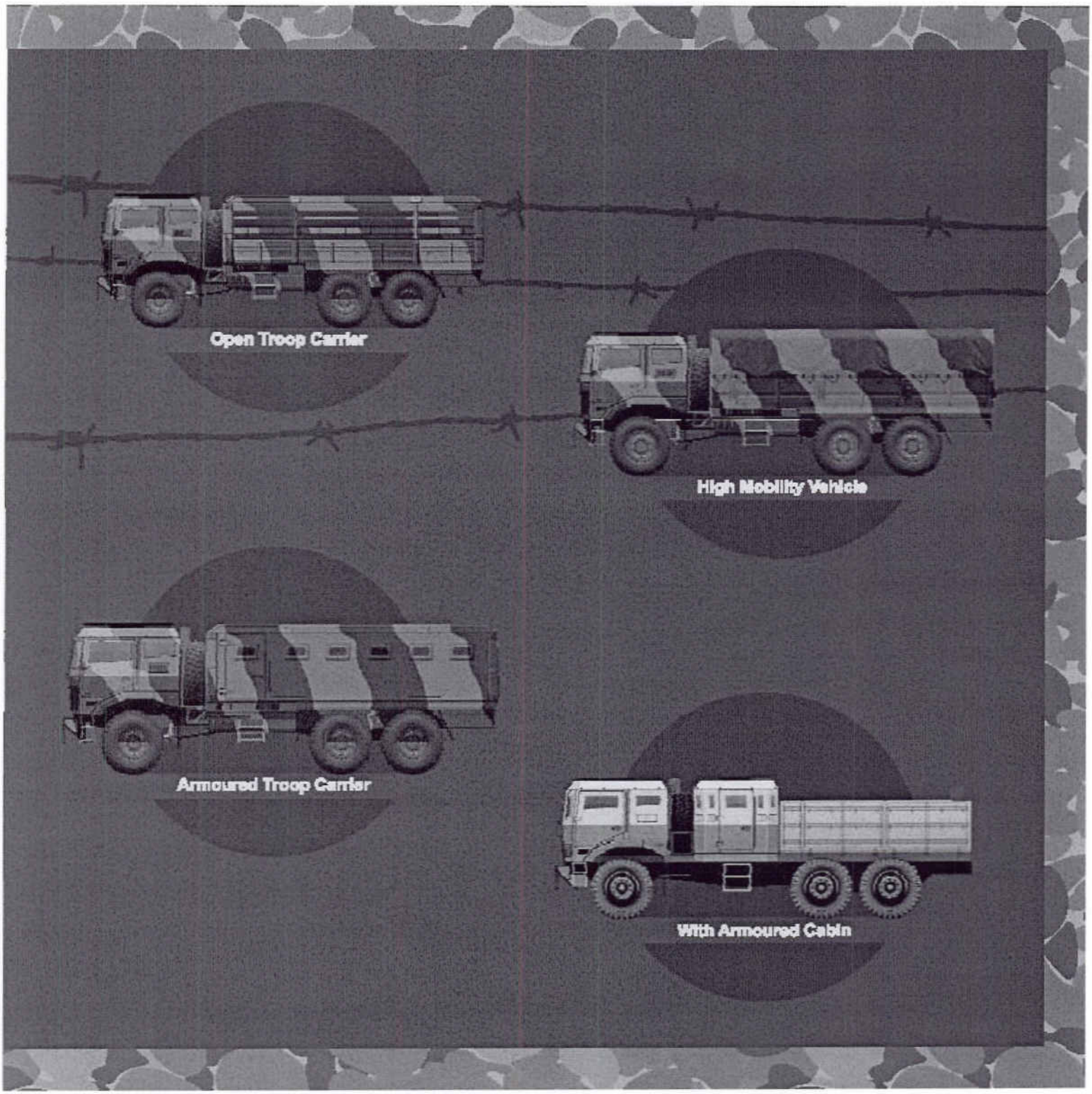
Field Artillery
Tractor - Green

Crash Fire Tender



Multi Barrel Launcher

Water Tanker


Open Troop Carrier
High Mobility Vehicle
Armoured Troop Carrier
With Armoured Cabin

Performing to world standards

Tata LPTA 2038 6x6 meets the stringent standards laid down by modern military authorities with regard to Operational Characteristics, Physical Characteristics, Operation & Maintenance and Other Features.

Operational Characteristics of LPTA 2038 6X6

Step climbing ability: Min. 500 mm

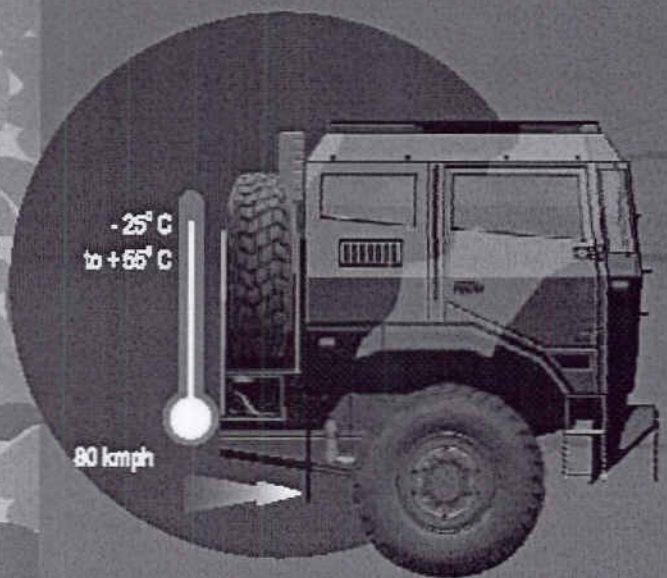
Angle of departure: Min. 35°

Angle of approach: Min. 35°

Gradeability with full payload: 25°

Fordability: Min. 800 mm

- Min. payload capacity: Not less than 10,000 kg
- Crew: Driver's cabin - 2 (driver & co-driver)
  - Cabin crew - 6 crew
- Vehicle speed: Max. speed on road - 80 kmph with full payload
  - Acceleration - 0-40 km/hr in 20-25 seconds
- Side slope stability: Upto min. 30% of side slope with full combat load
- Operational range on highway: 600 km
- Turning circle diameter: < 23 m
- Trafficability in mud: Min. 0.33 m mud depth
- Ground clearance: Min. 400 mm
- Overall length: Not less than 9200 mm
- Overall width: Not more than 2500 mm
- Silhouette: Low, with 3 m cabin height



Engine

- Fuel: Diesel
- Average engine life: Not less than 1,20,000 km before overhaul
- KLP: Not less than 2 km per litre of fuel with full payload on highways
- Type of engine: State-of-the-art technology diesel engine to provide adequate power to move on road as well as cross country with designated payload in plains, semi desert and desert
- Emission norms: As applicable at the time of delivery of the vehicle
- Operating temperature range: From -25° C to + 55° C without aid
- Can be upgraded to higher engine rating to meet future requirements
- Min. power-to-weight ratio: 12 kw/ton

Brakes

- Equipped with three mutually independent systems of brakes:
  - Operation brake – pneumatic, two-circuit type
  - Emergency & parking brake
  - Auxiliary relief brake

All equipment of the pneumatic brake system are watertight.

Power Train

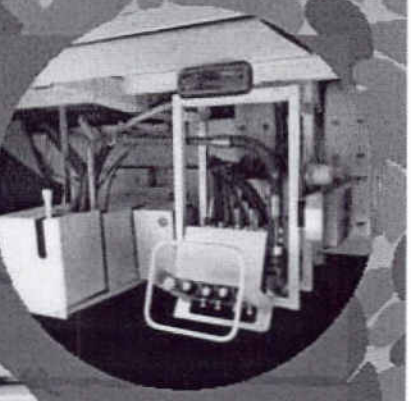
- Heavy duty fully automatic transmission, with torque converter
- Provision for locking inter axle and inter wheel differentials
- Compact, with excellent running characteristic for quick acceleration and maximum torque conversion
- Strong and sturdy, for optimum all-terrain mobility
- Robust enough to withstand prolonged cross-country running

Suspension

- Good riding comfort and full control in all terrains, at specified vehicle speeds
- Adequate spring deflection and high axle articulation, for good ground adhesion

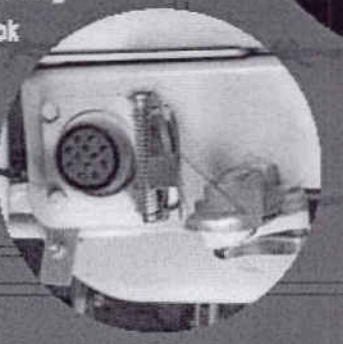
Additional features

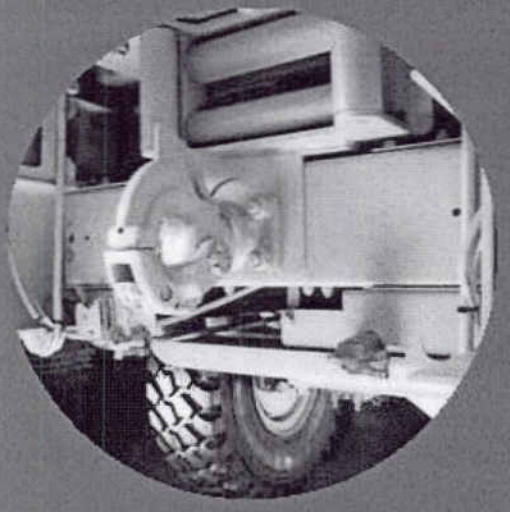
- State-of-the-art power assisted steering, with right hand drive
- Power-driven winch that enables self-recovery through soft patches of sand or slush, with a capacity of 10,000 kg; length of winch rope - 60 m
- Towing arrangement includes one swivelling tow hook each in rear, with self-locking devices. Two 'D' shackles and one tow pin in front, in addition to the towing hook



Electrical System

- 24-volt system with maintenance-free batteries
- Battery isolating switch provided, for carrying out repair/maintenance
- 12-pole NATO socket



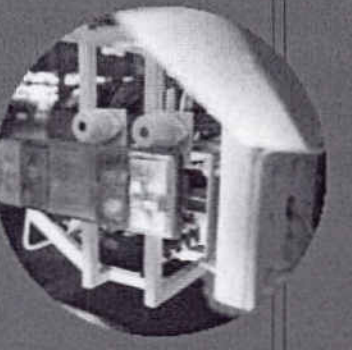


- **Transportable** by rail on broad gauge & by air
- **Steel hooks** provided on outer body for tying/securing ropes/nets

Lighting

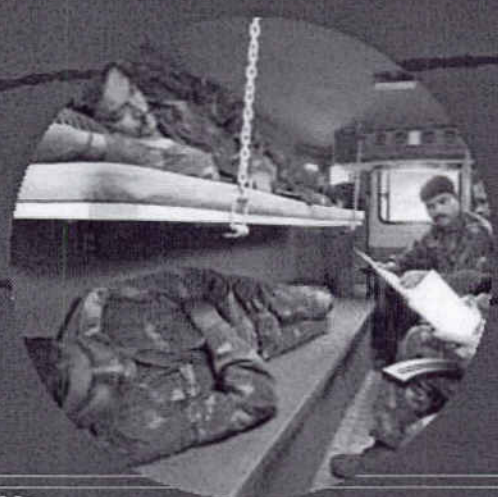
Besides head lamps, parking lights, tail and instrument lamps, it comes with:

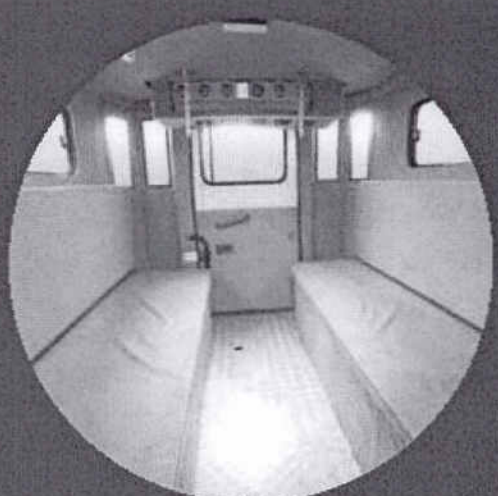
- Light in cabin and crew cabin
- Light in engine compartment
- Blinkers on front, rear and sides
- A blackout head lamp, blackout tail and stop lamp, convoy lamp with change-over switch from normal to blackout driving
- Reverse light
- Light extension socket on dashboard
- Rear light socket for trailer lights
- Swivelling lamp fitted behind the cab
- A map reading lamp
- Light socket provided for trailer reverse light
- DPDT switch for interior lighting
- Headlights with halogen bulbs
- Hazard warning lamps in front and rear



Physical Characteristics of LPTA 2038 6x6

- Chassis is reinforced steel; tyres and suspension provide adequate floatation in cross-country at specified speeds



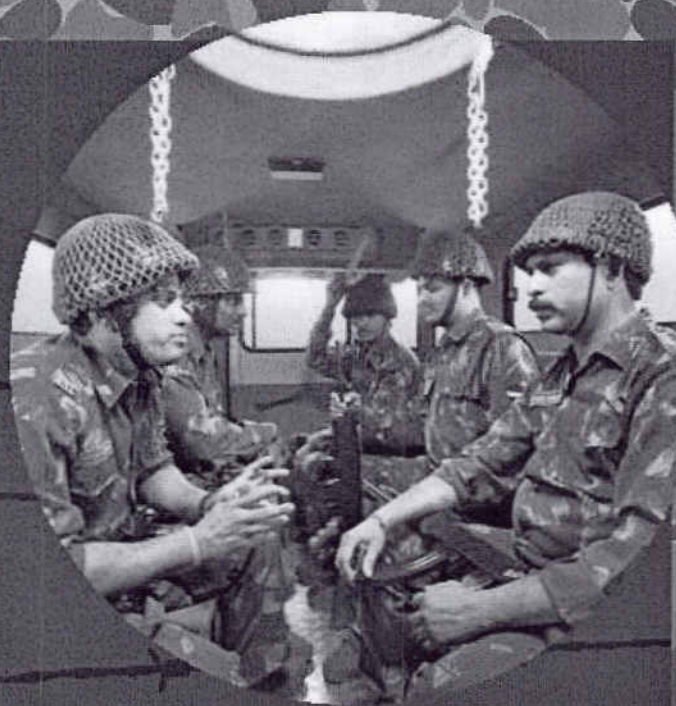


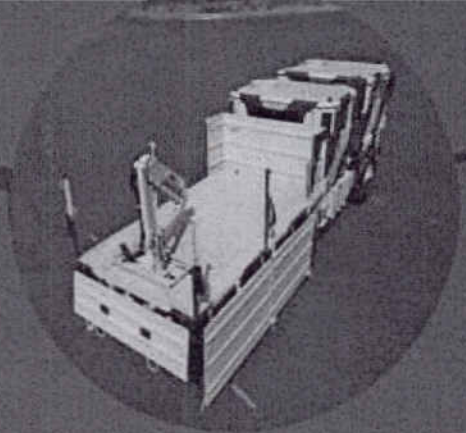
Cabin

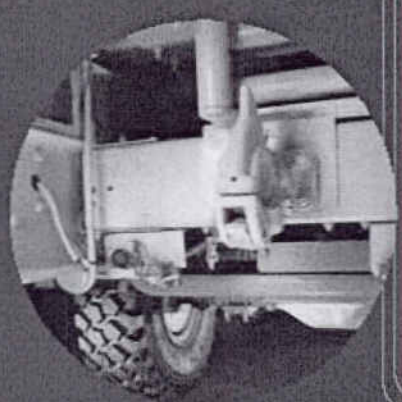
- Robust, crash-tested design with tiltable features
- Easy for mounting and dismounting of co-driver
- Observation hatch for co-driver seat
- Bucket-type driver's seat, adjustable in height and length
- Co-driver's seat provided with a glove box and place for map-reading
- Both seats provided with seat straps
- Collapsible sleeping berth for driver
- Arrangement for fresh air circulation
- Brackets for placing weapons

Crew Cabin

- Accommodates 6 persons in cabin
- Brackets for placing personal weapons
- Mount atop cabin for LMG/rifle or machine gun/rifle of INSAS family
- Arrangement for personal kit
- Arrangement for fresh air circulation
- Two collapsible sleeping berths with backrest
- Communication arrangement between cabin crew and driver's cabin







Vehicle Body

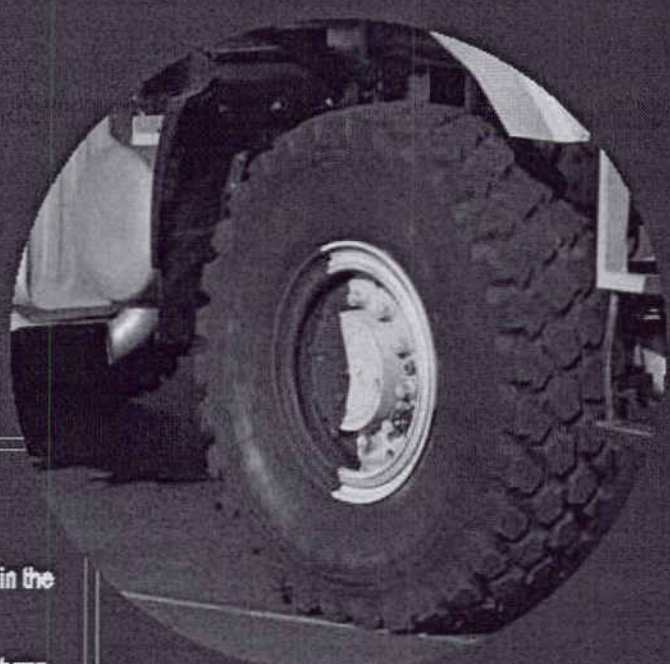
- Robust design
- Facilitates loading/unloading of ammunition from side or rear, with collapsible side boards and tail boards
- Seat for limber crew close to tail board
- Arrangement for erection of camouflage equipment over vehicle
- Tarpaulin provided with buttoning up facility, for protection of ammunition and stores
- Lashing arrangement with railway flats, aircraft and landing ship
- Side walls with hinge that can be opened

Stowage

- Stowage space for one spare wheel
- Detachable stainless steel water tank of 100-litre capacity, with tap facility
- Brackets for four spare jerricans of fuel
- Box for carriage of vehicle's tools, tow and no-skid cabin
- Stowage space for:
  - NBC protective clothing for driver and crew
  - bracket for NBC/First Aid Kit Type A
  - bracket for portable NBC de-contamination apparatus

Winch

- Control from the driver's cabin
- Positive locking device



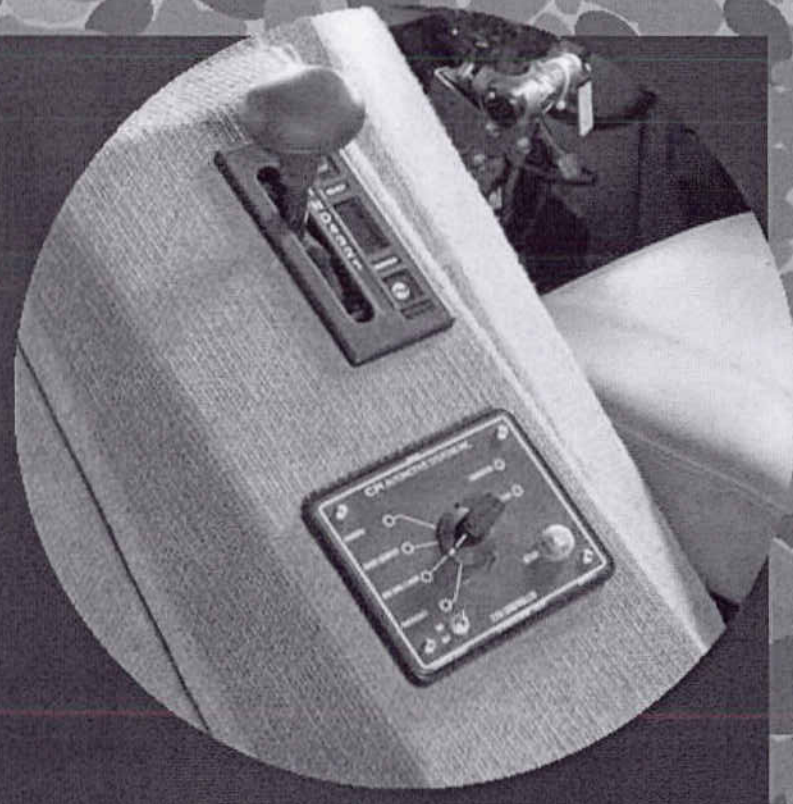
Wheels & Tyres

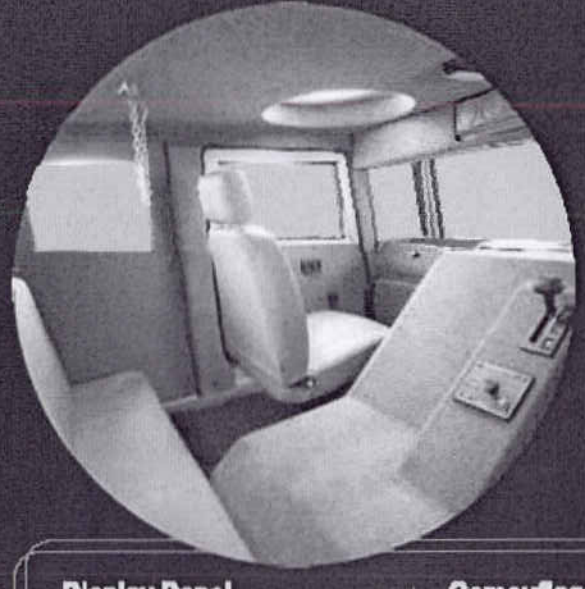
- Sand-cum-highway indigenous tyres
- Tyre locks provided to prevent the tyre from sliding from the rim in the event of tyre puncture
- Central Tyre Inflation System (CTIS); provision to inflate/deflate tyres from cabin
- Punctured wheel assembly is easily repairable under field conditions

Spare Wheel • Easily accessible

Warning Devices

- Audio/visual (lamp) devices to warn the driver of:
  - drop in engine oil pressure below safe limits
  - alternator not charging
  - engine temperature exceeding safe limits
  - tyre puncture
- Fire alarm system
- Differential locked/axle locks engaged
- Engine heating on





Display Panel

- State-of-the-art display panel for driver to observe easily

Camouflage Equipment

- Collapsible, lightweight camouflage equipment to camouflage vehicle in approx 2-3 minutes

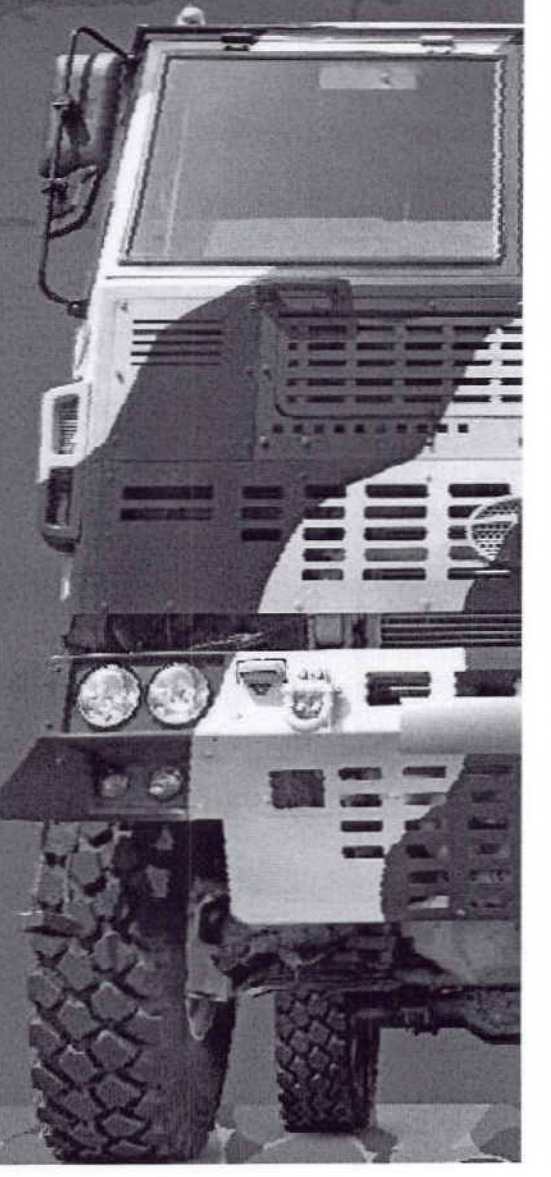
Fire Safety

- Hand-held fire extinguishers provided in driver's cabin, crew cabin and body next to crew seat

Operation & Maintenance of LPTA 2038 6x6

Operation

- All tools and connected equipment, and general engineering items like head lights, tail lights, bulbs, batteries, hydraulic jacks and other electrical items provided as per MIL standards

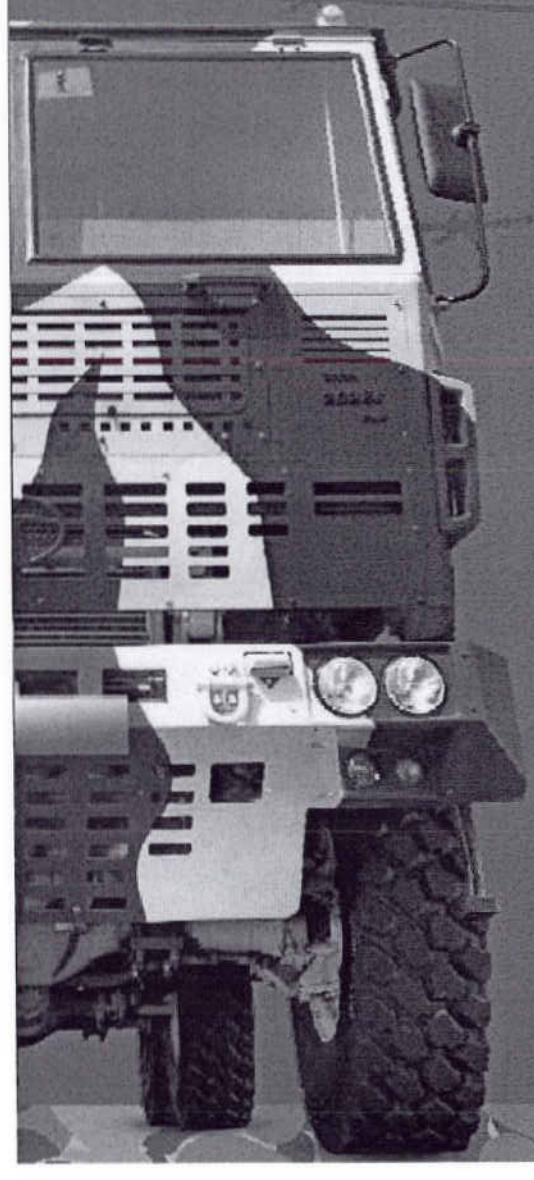


Maintenance

- Can be driven by drivers of all Arms and Services, with scope to carry out minor repairs through replacement of failed parts/assemblies
- Tilt cab helps in easy accessibility to aggregates
- Easy removal and fitment of aggregates & spares
- All aggregates are accessible from underneath the chassis

User Maintenance

- Routine maintenance is minimum and easy; oil and lubricants are standardized; a lubrication chart, etched in aluminium, put up in driver's cabin shows recommended lubricants, periodicity of change, etc. Also provided is a maintenance periodicity chart



Vehicle Kit List

- Indicates the essential tools, lifting jack spares and documents, etc. necessary for vehicle maintenance by a driver on his own

Audio/Visual Indicators

- Instrument panel indicates essential symptoms like low fuel, oil pressure, excessive heating of engine, etc.

Repair by EME Workshops

- To facilitate workshop level repairs and maintenance, a CD provides technical literature covering illustrated parts list, maintenance manual, User's Handbook (bilingual, in Hindi and English), workshop repair manual and technical manual (bilingual, in Hindi and English)

SMTs & STEs

- List of all SMTs and STEs needed for repair in workshop, duly priced

MRLs

- List of spares/assemblies needed for repairs in workshop, duly priced; list of proprietary spares & assemblies with particulars of OEMs

Training

- Scope for training of drivers and mechanics in batches

Other Features of LPTA 2038 6x6

Standardization

- Conforms to environmental specifications as per GSPS 138, as applicable to relevant sub-system, for operations in the plains, deserts and mountains/high altitude areas
- Assemblies, sub-assemblies, components, parts and materials conform to Joint Services Specifications (JSS) and System International (SI)

Carrying forward a legacy

Since 1958, Tata Motors - a leading company of the Tata Group - has proudly provided over 100,000 vehicles to military and paramilitary forces of various countries around the world. The LPTA 2038 6x6 is one of the star offerings of the company for the modern military.

Renowned corporate house

Tata Motors, established in 1945, is one of the leading companies of the prestigious Tata Group. With revenues of US$ 7.2 billion in 2006-07, it is India's largest automobile company and the world's second largest heavy bus manufacturing company. It is also the world's fifth largest medium and heavy commercial vehicle manufacturing company. Today, Tata Motors has a significant presence in Asia, Europe, Africa and Latin America, with over 4 million vehicles running on Indian and foreign roads - making it a truly international automobile manufacturing company.

The 6x6 All-Wheel Drive Tata LPTA 1623 High Mobility Vehicle

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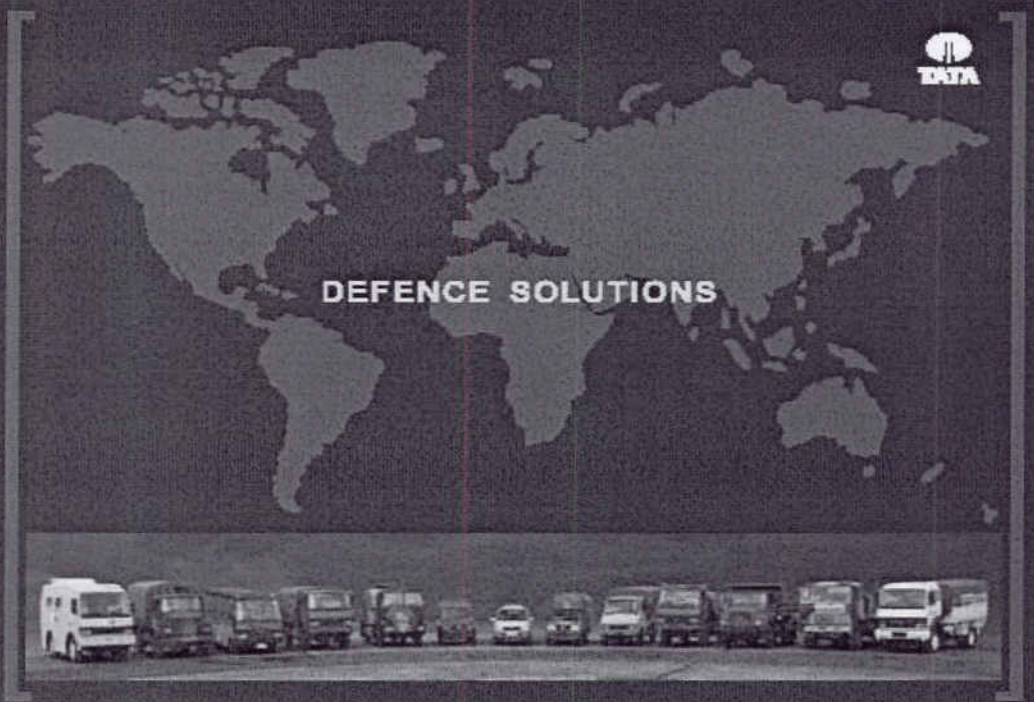
A wide range of products and services from other Tata Group companies adds a significant dimension to Tata Motors defence vehicles, as indicated below:

- **Armour Solutions**
  - Tata Motors Limited, Tata Advanced Materials Limited
- **Perimeter Security**
  - NELCO
- **Solar Energy Solutions**
  - Tata BP Solar
- **Strategic Electronics**
  - Tata Power SED
- **Decision Assist**
  - Tata Power SED, Tata Consultancy Services, Tata Infotech, CMC
- **Network Centric Warfare**
  - Tata Consultancy Services, Tata Power SED, Tata Infotech, VSNL
- **Logistics & Support**
  - Tata Consultancy Services, Tata Infotech



TATA MOTORS
DEFENCE SOLUTIONS

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