



# Armoured Vehicle Solutions from the Paramount Group





# Paramount Group Armoured Vehicles

The South African Paramount Group has recently launched its own range of armoured vehicles onto the world market and has already won a number of major export contracts.

The range currently comprises the Matador and Marauder Mine Protected Vehicles (MPV) and the Maverick Internal Security Vehicle (ISV). The latest addition to the range is the Mbombe, which is a 6x6 Armoured Fighting Vehicle (AFV) employing advanced materials and an innovative design.

Matador, Marauder and Maverick all feature the same type of unique double-skin monocoque welded steel hull and the same diesel power pack, drive line and suspension, with the only major automotive difference being the wheelbase.

The Paramount Innovation Centre in Midrand, South Africa, has the capability to manufacture the whole range of armoured vehicles and is also the home for design and development, system integration and product development of these vehicles, to ensure that they remain effective in future years.

Customer requirements can often change at very short notice in response to ongoing military or security operations and the Paramount Group has a proven record of adapting to meet these changes.

The Paramount Group has access to the extensive blast

testing and automotive testing facilities that are well established in South Africa and it makes full use of them to carry out rigorous testing of its vehicles to the highest international standards.

Automotive testing capacity not only includes extensive mobility and reliability testing facilities but also climatic facilities to prove that the vehicle can operate under a wider range of ambient conditions anywhere in the world.

These factory tests are supplemented by extensive user tests of the vehicles in Africa, Asia and the Middle East, with information from these trials being fed back into current and future development.

Training, logistic support and whole-of-life costs are all significantly reduced for the customer by the sharing of common sub-systems within the range.

There is considerable flexibility in the design of the Paramount Group family of armoured vehicles, which allows them to be tailored to meet users' specific operational requirements.

This covers such key areas as: protection levels; weapon stations; communications; air conditioning system; situational awareness; and special-to-role equipment.

By having a worldwide network of suppliers, the Paramount Group can provide these weapon stations, communications and other systems on a highly competitive basis.

The Paramount Group can supply customers with a wide



range of vehicles and equipment, as well as the refurbishment and upgrade of their existing vehicles. This covers not only armoured vehicles, but also soft-skinned vehicles, tactical support vehicles, ambulances, fire and rescue vehicles and police vehicles, to name just a few.

The Paramount Group can tailor innovative financial packages to enable clients to purchase vehicles from the South African production line, or they can manufacture them themselves in their own facilities as part of a total technology transfer package.

Training packages can also be provided by the Paramount Group for vehicle operators and maintainers. This is initially carried out in South Africa, with an option for additional training in the user's own country on an ongoing basis.

As well as supplying vehicles, the Paramount Group can also provide a through-life integrated logistic system (ILS) to enable the maximum number of vehicles to be ready for operations at all times.

Not only can the Paramount Group supply a complete, fully integrated turnkey solution for its entire family of armoured vehicles, but it can also supply complete turnkey solutions for air and sea applications, law enforcement, internal security and peacekeeping operations.



**ABOVE** Marauder MPV  
**LEFT** Maverick ISV  
**FAR LEFT** Matador MPV



# Matador and Marauder MPV offer high levels of protection

The key members of the Paramount Group design team each have more than three decades of experience in the design, development and manufacture of armoured fighting vehicles (AFVs).

To meet worldwide requirements for an MPV capable of completing a wide range of battlefield missions, the South African Paramount Group developed the Matador and Marauder vehicles, both of which feature superior levels of protection and mobility.

The Matador and Marauder MPV feature a traditional V-shaped monocoque welded steel hull, but unlike their competitors, ballistic protection is provided by a double skin spaced armour.

The prototype vehicles were built in 2007 and since then they have been put through an intensive series of proving trials in South Africa and extreme weather trials in Asia, the Middle East and Africa.

These included not only mobility, durability, reliability and endurance trials, but also a series of mine blast tests to ensure the mine protection level really was as it was claimed. The high protection levels of the Matador and Marauder MPV have been independently certified by the CSIR, under supervision from Armscor.

The V-shaped hull of the Matador MPV is proof against three anti-tank mines (21kg of TNT) under any wheel station or two anti-tank mines (14kg of TNT) anywhere under the hull.

Recent blast testing using three 7kg anti-tank mines showed that no damage was sustained to the actual hull of the Matador MPV. The only damage sustained from the blast was to the rear axle, rear wheel and drive shaft.

This damage sustained was fully repairable within one hour by a trained field repair crew using standard tools and equipment.

The slightly more compact Marauder



**ABOVE** Matador traverses a rocky gully during mobility trials in the Middle East

MPV hull uses a flatter angled V-shaped hull, which provides slightly lower mine blast protection against 14kg of TNT under any wheel and 8kg under the hull, but it also allows for a greater internal hull width than on Matador.

Additional ballistic protection and improvised explosive device (IED) protection kits have been developed and tested and can be rapidly fitted to the vehicles.

Matador and Marauder MPV are the world's only armoured vehicles in the 15-tonne class with STANAG 4569 Level 3 ballistic protection for the crew compartment as standard and with the aid of modular add-on kits this can be increased to STANAG 4569 Level 4.

The engine compartment is protected to STANAG 4569 Level 1 and upgrade kits can be fitted if increased protection is required.

Enhanced protection can also be provided against the widely deployed Russian RPG-7 rocket propelled grenade

by the installation of bar/slat armour covering the outer hull.

An alternative against RPG-7 attack is the installation of Active Protection Systems, which disable the incoming RPG-7 high explosive anti-tank (HEAT) warhead before it impacts on the target.

Other survivability options for Paramount Group MPVs include installation of explosive reactive armour (ERA) or even defensive aids suites.

Matador and Marauder MPVs have a similar layout with protected diesel power pack at the front that leaves the remainder of the vehicle space clear for the cabin and troop-carrying compartment.

External stowage boxes are provided on the lower part of the hull on either side and these are designed to be blown off in the event of the vehicle encountering a mine or IED.

Bulletproof windows are provided for enhanced situational awareness through a full 360°, with the side windows having firing ports if required by the customer. ►



◀ Ease of access is provided by doors in the rear that can be rapidly opened by the driver or one of the troops in the rear compartment. Two additional side-doors are fitted to the Marauder for ease of ingress and egress for the driver and commander.

Troops are seated down either side facing inwards. Seating is on individual anti-mine seats fitted with a full harness. The seats can be easily folded up if necessary to enable stores or extra combat supplies to be carried.

Both vehicles are available in left or right hand drive configurations to meet local requirements and power steering is standard. A spare wheel is usually carried externally mounted on the hull.

Weapon stations would normally be roof-mounted towards the front of the vehicle and include machine guns and cannon in a variety of turrets and mounts, including a remote controlled weapon stations (RCWS).

Another weapon station can be mounted at the rear of the troop compartment roof to provide a suppressive fire over the rear arc. Smoke grenade launchers can also be fitted if required.

Paramount's MPVs use proven commercial off the shelf (COTS) sub-systems such as diesel engine, transmission, axles and transfer box to reduce overall life cycle costs as these sub-systems are common across the range.

These can include a MAN, Mercedes-Benz or Cummins diesel engine coupled to a ZF automatic transmission, Allison automatic transmission or even in some cases a manual transmission.

Power pack selection would typically depend on the end user and which contractor had the most well established dealer network in the country.

When a MAN power pack is installed, each vehicle has a unique vehicle identification number (VIN) coupled to the MAN configuration management system found in every established MAN dealership.

This feature allows the vehicles to be serviced and repaired anywhere in the world without the customer having to establish an independent logistics system.



**ABOVE** Marauder MPV uses the same power pack and driveline as Matador but is slightly more compact  
**RIGHT** In addition to a crew of two, Marauder carries eight troops, seated on individual anti-mine seats

Nuclear, biological and chemical (NBC) warfare protection system, air conditioner and auxiliary power units (APU) can either be integrated into the sacrificial stowage bins located either side of the hull, or mounted on the roof.

The larger Matador MPV has a crew of two (commander and driver) plus up to 12 troops on individual seats. It has a gross vehicle weight (GVW) of 15-18 tonnes, of which up to 6 tonnes is payload. With its longer wheelbase, Matador provides greater seating capacity than the more compact Marauder.

A typical Matador MPV is powered by a Cummins diesel developing 221kW coupled to an Allison SP3000 six-speed automatic transmission and Axletech transfer box and axles.

The Marauder MPV has a crew of two and takes up to 10 troops in the rear. It is fitted with the same driveline options as Matador, which offers the user significant advantages in training and through-life support advantages.

Matador and Marauder MPV can be fitted with a wide range of optional equipment, including a central tyre inflation system, run flat inserts, anti-lock



braking system, NBC system, APU, long-range fuel tanks, 8 tonne winch, various weapon stations, various add-on armour kits and various communications suites.

### *Family of vehicles offered*

A key feature of these MPV vehicles is that they can be rapidly adapted for a variety of missions without the requirement for a major redesign.

Variants of the Matador and Marauder MPV that have been produced include: ambulance, command post, engineer vehicle, logistic support vehicle, missile vehicle, mortar vehicle and recovery vehicles. There is also the potential for a 6x6 Marauder, which could be used as an ambulance or weapons carrier with greater internal volume.



# Mbombe Armoured Fighting Vehicle

**Mbombe offers STANAG Level 4 KE protection, STANAG Level IV mine blast protection and protection against RPG and IED as STANDARD**

The Mbombe Armoured Fighting Vehicle fitted with the 30mm Overhead Weapon Station was launched at AAD 2010 and represents the Paramount Group's newest vehicle model.

The Mbombe is a mine-protected, high-mobility, armoured fighting vehicle, which can be easily adapted to fill a wide range of operational roles.

It uses an innovative design and technology to reduce the overall height while maintaining the very high levels of blast protection for which all Paramount vehicles are famous.

Mbombe is a 6x6 vehicle able to carry considerable loads over all types of terrain without loss of mobility. The three axles give it excellent cross-country performance and make it an exceptionally versatile platform that can be modified to meet the exacting requirements of military operations anywhere in the world. Depending on the role, Mbombe can be configured as a simple Armoured Personnel Carrier or a highly effective Armoured Combat Vehicle mounting a heavy



**ABOVE** The Mbombe Armoured Fighting Vehicle is the latest addition to the expanding range of armoured vehicles being marketed by the Paramount Group

**BELOW** Mbombe can be fitted with a variety of weapon stations, including a 30mm overhead weapon station

machine gun or autocannon.

In these roles it is suitable for use in conventional war, non-conventional war and counter-insurgency operations. It can also be fitted and equipped with a day/night vision capability and sensors to extend the ranges of observation and engagement if these are requested by the customer.

The design features optimal axle/wheelstation spacing with driver and commander seated just behind the leading axle. The body of the vehicle provides ample space for the gunner and eight fully equipped infantrymen, but it can also be fitted out as a command vehicle, ambulance or any other variant. This provides maximum commonality and reduces the overall cost of buying, owning and using Mbombe in any army.

The Mbombe provides outstanding blast protection paired with

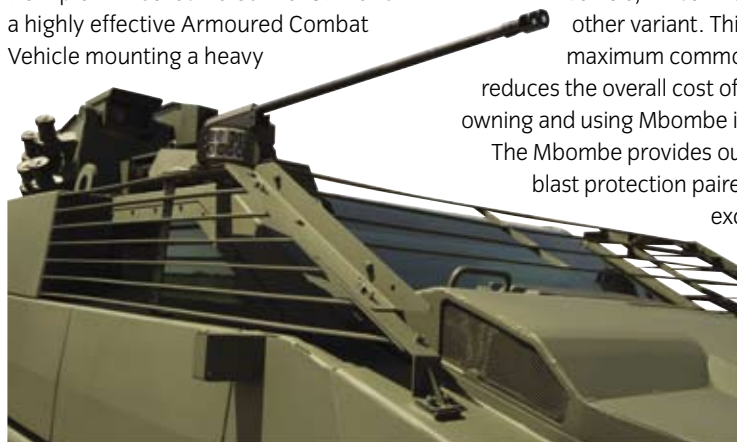
excellent levels of protection against kinetic attack. The low silhouette

offers a reduced target to enemy gunners and the armoured hull provides excellent stopping power against ballistic attack in excess of STANAG 4569 Level 4.

Mbombe is designed to STANAG 4569 Level 4 and can withstand the explosion of anti-tank mines under its hull or under any wheel station. The anti-blast seats are designed to prevent damage to the crew from the extreme acceleration following an explosion beside or under the vehicle.

As standard, the Mbombe offers all-round crew protection against RPG threats and the special protection modules provide protection against IEDs.

Mbombe has been designed with sufficient power in hand such that it retains its outstanding mobility characteristics even when it is configured as an AFV carrying a modern automatic cannon.





# Maverick Internal Security Vehicle keeps the peace

To complement the Matador and Marauder MPV, Paramount Group has completed development of the Maverick Internal Security Vehicle (ISV).

Following extensive company trials, the Maverick ISV is ready for production and a number of export customers have already shown interest in the vehicle.

It has been demonstrated to a number of potential export customers and, like the well-established Matador and Marauder MPV, the Maverick ISV has been designed for local assembly or manufacture under a Paramount Group technology transfer agreement.

Like the Matador and Marauder MPV, the Maverick ISV features a unique integrated double-skin monocoque welded steel hull that provides the occupants with standard protection from small arms fire up to STANAG 4569 Level 3.

This includes defence against the 7.62 x 54mm RB 32 API Dragunov for cabin and passengers, while the engine is protected to STANAG 4569 Level 1 standard, which is 7.62mm ball.

The floor of the Maverick ISV is protected against a variety of fragment munitions such as the M26 hand grenade and against petrol bombs.

A fire extinguisher system can be fitted to the Maverick ISV to deal with vehicle fires caused by petrol bombs.

When compared with other ISV offered on the world market today, the Maverick is in a class of its own. It offers very high levels of protection from small arms fire and other threats likely to be faced in urban operations.

It is also possible to provide higher levels of ballistic protection if required by the customer to meet a specific threat.

The commander and driver are seated

at the front and have individual side doors. Ease of access in the rear is through large pneumatically operated 'plug' doors in either side, with a smaller door in the rear.

The driver is provided with a rear view camera for surveillance over the rear arc and for assistance when reversing in confined spaces.

The 10 crew members are provided with individual seats and seat belts.

There is ample space for the stowage of equipment such as riot shields and rifles, which can be racked so that they do not cause injury to the occupants in the event of an attack.

A high level of situational awareness for the crew and occupants of the Maverick ISV is provided by large bulletproof windows all round the vehicle and these are normally fitted with wire mesh screens. All the windows are also proofed to STANAG Level 3.

Various weapon stations can be carried on the roof of the Maverick ISV, including a turret-mounted 5.56mm or 7.62mm machine gun or less-than-lethal weapons.

Banks of electrically operated grenade launchers can be installed on the roof to fire all types of munition. These are operated by the commander.

Maverick is

powered by the same COTS drivelines as Paramount's Matador and Marauder MPVs. This offers long-term cost savings as well as ease of maintenance for the customer.

The power pack is mounted low down at the front of the vehicle, which gives the vehicle its large internal volume and payload capacity of up to 5 tonnes.

As with other Paramount Group vehicles, the Maverick ISV can be offered with various engine, transmission and suspension options, which will be, tailored to the user's specific requirements.

As the axles are near the vehicle extremities, the



**RIGHT** Maverick ISV has a crew of two, carries 10 police and features a very high level of ballistic protection



Maverick is very manoeuvrable in the confined spaces often encountered in urban operations. Steering is power-assisted to reduce driver fatigue and ease of control in urban use.

Standard equipment includes a powerful air conditioner and a silent running 20kW auxiliary power unit (APU), which allows all the main sub-systems to be run with the main engine switched off.

This is considered essential when the Maverick is stationary but ready to move for extended periods, which is often the case in internal security operations.

As usual there are many options,

including a central tyre inflation system, run-flat type inserts, crew compartment and wheel arch fire detection and suppression system, dozer blade and bullbar, roof-mounted flashing lights and public address system.

Communications and weapon fits will depend on customer requirements and could also be supplied by the Paramount Group if required.

With its large internal volume, flat surfaces and payload of up to 5 tonnes, the Maverick can be easily adapted for a wide range of specialised IS missions and roles.

These include an ambulance, command vehicle with additional communications equipment, surveillance vehicle with mast-mounted sensor pod, explosive ordnance disposal (EOD) vehicle, VIP transport and a water cannon.

The EOD vehicle, for example, would carry a wide range of special-to-role equipment, including a remote control EOD vehicle deployed by a ramp.

For use in Special Weapons and Tactics (SWAT) operations, the Maverick ISV can be fitted with the Mobile Access Ramp System (MARS) to allow police rapid access to high buildings and aircraft.

## PARAMOUNT GROUP VEHICLE SPECIFICATIONS

Model	Matador MPV	Marauder MPV	Maverick ISV	Mbombe AFV
Crew	2+12	2+8	2+10	2+1+8
Configuration	4x4	4x4	4x4	6x6
Maximum combat weight	18,000kg	18,000kg	16,500kg	27,000kg
Unladen weight	9,000-12,000kg	9,000-12,000kg	11,500kg	16,000kg typical
Payload	up to 6,000kg	up to 6,000kg	Up to 5,000kg	11,000kg
Length	6.57m	6.14m	5.82m	7.72m
Width	2.48m	2.48m	2.68m	2.55m
Height	2.77m	2.66m	2.83m	2.34m
Ground clearance	420mm	420mm	340mm	433mm
Wheelbase	3.9-4.2m	3.1-3.6m	3.10m	2.55m (front), 2.28m (rear)
Angle of approach	33°	38°	30°	40°
Angle of departure	46°	46°	30°	49°
Maximum speed (tyre dependent)	120km/h	120km/h	120km/h	100km/h
Range	700km	700km	700km	700km
Fording	0.9m	0.9m	0.4m	0.9m
Gradient	60%+	60%+	70%	70%
Side slope	35%	35%	35%	35%
Vertical obstacle	0.5m	0.5m	0.35m	0.5m
Trench crossing	0.85m	0.85m	0.6m	3.3m
Engine	Cummins ISBe4 diesel: 221kW and 1,100Nm			300kW
Transmission	Allison SP3000 6-speed automatic			6-speed automatic
Transfer case	Axletech BT600			
Axles	Axletech			
Steering	Power assisted	Power assisted	Power assisted	Power assisted
Turning circle	<18.0m	<18m	<16.5m	<20m
Tyres	14.00 R20	14.00 R20	365/80 R20 XZL	365/80 R20 XZL
Suspension	Leaf springs, anti-roll bar and shock absorbers			Independent
Brakes	Air operated disc (ABS ready)			
Electrical system	24V	24V	24V	24V

The above specifications for the Matador, Marauder and Maverick are for the versions fitted with the Cummins engine coupled to an Allison transmission. Other options are available.



# Transfer of Technology

One of the key drivers in the design of all of the Paramount Group armoured vehicles is ease of manufacture and the ability to incorporate local manufacture wherever possible.

The Paramount Group has established a production facility in South Africa and this has the capability to produce about 20 vehicles a month on a single shift basis but with a built-in surge capability.

Some countries, however, require a complete technology transfer package that offers the end user a number of significant economic and commercial advantages.

These include creation of local employment, transfer of skills followed by capability transfer, establishment of new and secondary spin-off industries and, finally, potential increase in regional trading through third-party sales, resulting in improved foreign exchange earnings.

The level of technology transfer does very much depend on the end user's own capabilities and the number of vehicles being procured, so complete technology transfer only makes sense for production runs in excess of a 100 vehicles.

The technology transfer programme would typically start with Complete Build Up Units (CBU) followed by Semi Knock Down Units (SKD) and finally Completely Knocked Down Units (CKD).

In the latter case the Paramount Group would supply a kit consisting of all the mild steel and armour plates. A local contractor cuts and bends the armour plates, welds the hull structure, fabricates the bins, bonnets and other systems and integrates the power pack and driveline. The vehicle would then be fitted out with special-to-role equipment and delivered to the customer.

At every stage, the Paramount Group would provide full technical and training support until the local contractor is ready to assume full responsibility.

A good example is the production of the Matador and Marauder MPV already underway in Azerbaijan following a



**ABOVE** Marauder MPV hulls work their way down the MODIAR production line in Azerbaijan

contract award to the Paramount Group in early 2009 by the Ministry of Defence Industries of Azerbaijan (MODIAR).

Under the terms of this contract, an initial batch of 50 MPVs – 25 Matador and 25 Marauder – are being manufactured under a technology transfer contract in Azerbaijan and the first vehicles were completed late in 2009.

All of these MPV are in the basic armoured personnel carrier (APC) configuration, but more specialised versions are due to follow in future.

MODIAR is responsible for final assembly, while Paramount Group sources

and supplies key sub-systems such as hull, power pack, suspension and drivelines. It is expected that when additional orders are placed hull fabrication will also be transferred to Azerbaijan.

Other sub-systems, such as communications equipment and weapons, are being provided under separate contracts.

The collaboration agreement between the Paramount Group and MODIAR not only includes the transfer of technology and know-how to MODIAR, but also joint marketing of Matador and Marauder to other potential clients in the region.

## Contact Details

**Paramount Group**  
1 Sandton Drive  
Sandton  
South Africa  
**Tel:** +27 (0) 11 535 9160  
**Fax:** +27 (0) 11 535 9161  
**Email:** [info@paramountgroup.biz](mailto:info@paramountgroup.biz)  
**Website:** [www.paramountgroup.biz](http://www.paramountgroup.biz)

