



# GUARDIAN M-RAV

MULTI-ROLE ARMoured VEHICLE

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# GUARDIAN MULTI-ROLE ARMoured VEHICLE

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## Heritage

The Guardian Multi-Role Armoured Vehicle (M-RAV) has been supplied to and is in service with the London Metropolitan and Essex Police Services in the UK.

The Guardian M-RAV was developed in response to a requirement for a single vehicle supplied with modular equipment fits to undertake the following operational roles:

- Public Order Intervention Vehicle (**riot system fitted**)
- High readiness fire-arms support vehicle
- Counter terrorist / dynamic entry assault vehicle (**ladder system fitted**)
- Hostage negotiation / delivery vehicle
- Overt observation post
- Overt sniper position
- Emergency evacuation vehicle
- Cat 'A' prisoner conveyance vehicle

The Guardian M-RAV fleet has been in service since 2005 and has seen extensive service, being present at many high profile incidents in the UK.

The Guardian M-RAV is the front line in high-threat policing in the UK.







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## Introduction

The specification of the Guardian vehicle has been derived from decades of operational experience and was developed in close collaboration with various user groups.

A completed vehicle was subjected to extensive physical attack testing which simulated prolonged assault of the vehicle by defined public order threats. This testing included axes, sledgehammers, pick axes, dropped scaffolding poles and rebars, as well as petrol bomb attacks.

## Vehicle Specifications

- Based on Ford F-Series Super Duty with Ford approved RHD conversion
- Diesel engine, automatic transmission and 4WD
- Armour protection level designed to suit customer threat analysis
- 2 Door Front cab, crew body to rear with 1 kerbside door and rear doors
- Sniper / observation ports to each side and rear of vehicle
- Extended runflat capability using Hutchinson VFI on 2 piece wheels
- Driver, commander and 6 man crew all in comfortable seating for extended operations
- Defensive and offensive systems fitted as required
- Riot protection and dynamic entry systems as modular fits







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# GUARDIAN MULTI-ROLE ARMoured VEHICLE

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## Automotive Specification

A commercially available heavy-duty Ford F-450 or F-550 Super Duty Chassis Cab truck is utilised to provide a highly competent and capable base platform upon which to build the M-RAV. Available in left or right hand drive, key base vehicle features are as follows:

- 6.7 L V8 Powerstroke Diesel (400 bhp @ 2,800 rpm / 800 lb-ft @ 1,600 rpm)
- Gross Vehicle Weights: *F-450 6018 kg / F-550 8823 kg*
- Torqshift automatic gearbox
- *Fuel capacity 151 Litres*
- Air-conditioning
- Extra Heavy Service Suspension Package
- ABS
- Passenger and driver airbags



## Automotive Upgrades

The Guardian M-RAV has been fitted with an enhanced suspension package to cater for the permanent axle loadings and for the vehicle dynamics during operations.

The completed vehicle has been successfully submitted for independent testing at Milbrook Proving Ground in the UK with subsequent inspection and approval by UK homologation authorities to enable the vehicles to be registered for road use.









# GUARDIAN VEHICLE PROTECTION

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## Vehicle Protection

### Ballistic Protection

The Guardian vehicle can be built to provide a number of levels of protection, which are as follows:

- CEN NATO Level B6 (7.62 x 51 mm NATO Ball)
- STANAG 4569 Annex A, Level 1 (7.62 x 51 mm NATO Ball & 5.56 x 45 mm M193)
- STANAG 4569 Annex A, Level 2 (7.62 x 39 mm API)

The front cab, rear crew compartment, fuel tanks and vulnerable components within the engine bay are all afforded ballistic protection. To cater for additional door weights, door armour is connected directly onto the A-pillar armour with a heavy-duty hinge to eradicate door closure issues.

### Blast & IED Protection

The armour system has been designed to withstand and provide protection from a variety of underbody and side blast threats.

### Physical Protection

The front of the vehicle is fitted with a ramming bar to enable the vehicle to push through obstacles on the way to the target.

### Wheels

A 2-piece Hutchinson wheel with VFI runflat is fitted to enable extended operation with deflated tyres.









# GUARDIAN LAYOUT AND STORAGE

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## Front Cab

The front cab is a fully armoured, enclosed cell accommodating both driver and vehicle commander offering full control for all ancillary equipment during the mission duration.

Typical equipment includes:

- Emergency escape features
- Opening windows
- Tactical lighting
- Siren and public address system options
- Internal / external intercom
- Installation of client communications system and comms racking
- Cab lighting
- GPS / Sat Nav system options
- Controls for strobe lighting system

## Rear Box Body

The vehicle is fitted with 6 multi-adjustable and rotating crew seats which maximum user flexibility. The seats are mounted on a track which enables quick removal or position adjustment within the vehicle, providing each occupant with plenty of space for movement.

Typical rear compartment equipment can include:

- Secondary air-con
- Pre-recorded announcement system
- Smoke extraction system
- Window black-out system
- Internal tactical lighting
- Data incident recording cameras and screens
- Gun safe
- Commanders table / wipe and magnetic boards









# GUARDIAN RIOT-CONTROL

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## Modular Riot Protection System

The Guardian M-RAV has the ability to mount a comprehensive system to protect the vehicle and crew from the wide array of threats seen in public order scenarios.

The system consists of the following items:

- Bonnet Protector to protect engine bay which also increases petrol bomb protection
- Armoured grille and side flares insert fitted to bulbar to protect radiator
- Screen protection system
- Complete vehicle body skirts to prevent petrol bomb and 'disabling' objects passing under the vehicle

The design of the vehicle incorporates some features which also assist in the public order role:

- Triple fire extinguisher system operated from the cab for engine bay and wheel arches
- All door seals prevent petrol vapours from entering the cabin
- Deadbolts fitted to all doors.
- Armoured fuel tank cover, with access from inside only.
- Modified exhaust pipe to prevent objects being inserted.

This complete protection suite has equipped the Guardian M-RAV with considerable Public Order capability.









# GUARDIAN ASSAULT PLATFORM

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## Counter-Terrorist / Dynamic Entry System

The Guardian M-RAV also has the capability to be fitted with a lightweight military specification ladder system which has been taken from the Jankel Stirling Counter Terrorist Assault Platform (C-TAP). This ladder system can be quickly fitted to the vehicle and configured as per the target to be assaulted.

The system enables multiple vehicles within a fleet to be configured differently to enable multiple vehicle assaults of a target building at various levels

The system can consist of the following items:

- Roof, screen and bonnet protectors
- Roof access ladder
- Roof ladder mounting rails
- Height adjustable front ramp assembly
- Side / forward facing ramp assembly
- Double stile tactical assault ladder
- Ladder support props
- Assault entry deck









## Customer Acceptance and Validation

The M-RAV project from the outset benefitted from considerable user consultation and involvement through-out the project to enable Jankel to turn the user requirement into reality.

In addition to the vehicle build we were also contracted to undertake a comprehensive physical protection testing programme against the required public order threats which were defined as follows:

- Scaffolding poles used as weapon and dropped from height
- Re-bar used as weapon and dropped from height
- Bricks and masonry thrown at the vehicle
- Axes used to attack the vehicle
- Sledgehammers used to attack vehicle and compromise door locks
- Crow-bars used to prise open doors
- Vehicle ramming and other objects to be pushed away
- Skimmed objects
- Paint onto windscreens
- Acid onto windscreens
- Burning liquids over the complete vehicle
- Hand-grenade / IED testing
- Deflated tyres

Comprehensive reports were submitted and approved against each tasking.





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**Guardian M-RAP**

**Feb 2012 v1.2**

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