

HMMWV UPARMOURING

The blast protection of the HMMWV can be significantly upgraded to anti-tank mine level anywhere under the vehicle. The vehicle can then be used for many of the duties currently performed by heavier, less maneuverable and far more expensive MRAP type vehicles.

With some future upgrading of the HMMWV chassis, it provides a very cost effective protected platform which could significantly extend the service life of the vehicle in current operations.

The PTS solution provides for in-service HMMWV chasses (reconditioned chasses will be ideal as the damaged sheet metal parts are no longer required and can be disposed of, offering significant savings) to be converted to blast and ballistically protected, universal platforms, including a number of variants.

The patented solutions offered by PTS Pty Ltd have the following in common:

1. Standard HMMWV chasses are used for all the variants.
2. All vehicle systems are retained largely standard with only minor alterations to reduce the logistic support impact.
3. By using vehicles in largely standard execution, relatively minimal technical requalification or OEM approval is required as major technical changes are kept to a minimum.
4. Vehicle durability and reliability are largely left undisturbed because standard steering, suspension, driveline and power-pack installation geometries and cooling set-ups are retained for most of the variants.
5. By using commercial based automotives, costs are kept competitive
6. Vehicle development times and costs are significantly reduced
7. Final vehicle assembly is simplified and assembly times reduced, allowing more contractors to participate in manufacturing programmes, increasing competition and improved production and delivery options.
8. Servicing and repair is simplified.
9. Plentiful replacement part availability at competitive prices

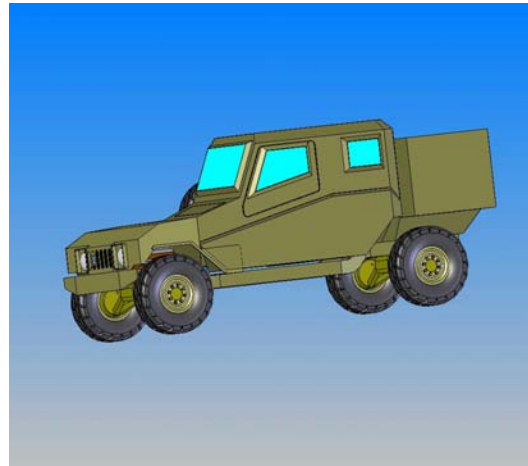
UPARMOURED HMMWV

Using the HMMWV platform in service as the basis for conversion, the following options are offered by PTS.

The **Sidewinder** 3-man and 5-man variants employ torsion free mounted, blast resistant capsules with crew members sitting behind the driver which results in 3-man and 5-man layouts. This layout also assists in moving the center of gravity towards the rear which is useful with vehicles such as the HMMWV which has payload limitations on the front axle.



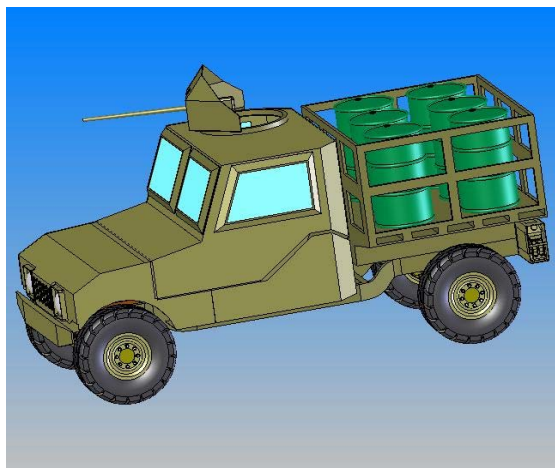
SIDEWINDER 5



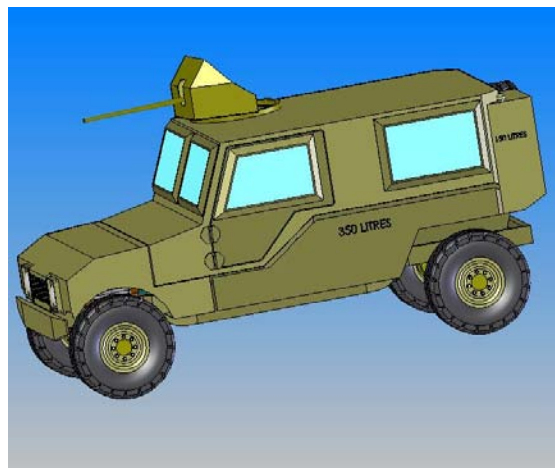
SIDEWINDER 3

Entry into the cabin is from the rear of the vehicle and the gun ring hatch provides another point of egress in an emergency. If required side doors can also be provided as well as a hatch immediately above the driver. In the case of the **Sidewinder 3**, the rear storage bins (which can also be uparmoured) provide additional protection for crew entering or exiting the vehicle under fire

The **Scorpion** concept (below) employs a modified version of the torsion free mounted, blast resistant capsule with driver and co-driver located next to each other. Crew members sit face to face behind them which results in 2-man, 4-man and 4/5 man layouts with useful internal stores space for the 4-man unit and a good load bay for the 2-man unit.



SCORPION 2



SCORPION 4

For both the **Sidewinder** and **Scorpion** conversions, the standard HMMWV chassis is used together with all the standard instrumentation and systems and most of the standard maintenance and repair procedures are retained resulting in a very low impact on the logistic support of the converted HMMWV.

**SUMMARY OF MASSES AND PAYLOADS OF THE HMMWV WITH THE PATENTED PTS PTY LTD
SIDEWINDER AND SCORPION CONVERSIONS**

| DESCRIPTION | 2-man conversion | 3-man conversion | 4-man conversion | 5-man conversion | 6-man conversion |
|---|------------------|------------------|------------------|------------------|------------------|
| Mass of HMMWV with cab conversion (calculated) (kg) | 3597 | 3816 | 4052 | 4178 | 4191 |
| Permissible GVM (kg) | 5490 | 5490 | 5490 | 5490 | 5490 |
| Available total payload (kg) | 1893 | 1674 | 1438 | 1312 | 1299 |
| Crew (kg) | 200 | 300 | 400 | 500 | 600 |
| Fuel (kg) | 150 | 150 | 150 | 150 | 150 |
| Calculated Nett. payload | 1543 | 1224 | 888 | 662 | 549 |

J F (Koos) de Wet – March 10, 2010