



# Vehicle Research and Development Establishment (VRDE)



## About Lab

Vehicle Research and Development Establishment is a premier Research and Development Establishment of Defence Research and Development Organisation and is spread in sprawling 600 acres of land in the historic city of Ahmednagar.

VRDE has been entrusted with two objectives – one is in the field of research and development of military vehicles and strengthening of defence forces by providing state-of-the-art mobility solutions and second is the testing and evaluation of defence and commercial vehicles in the world class National Centre of Automotive Testing facility.

VRDE is engaged in the design and development of Combat and Combat Support vehicles in both Wheeled and Tracked vehicles and has successfully developed the same.

VRDE is one of the important partners in the Strategic Program and is involved in the development of Ground Support Vehicles for all the Strategic and Tactical programs.

VRDE is also involved in the development of air worthy, light weight, rotary engines for UAV programs.

Also VRDE has ventured in the field of Unmanned Ground Vehicles by designing and developing Autonomous Vehicle Platform.

## Major Milestone Achievements in last one year

### WHEELED ARMoured PLATFORM (WHAP 8X8)

WhAP 8x8, is an indigenously designed & developed wheeled combat vehicle. The design philosophy of this platform is in consonance with world trend which aims at achieving modularity, scalability and re-configurability to adopt the platform for variety of roles.

WhAP has excellent Mobility, Protection and Firepower parameters. The WhAP 8x8 was showcased in RD Parade – 2023.



## PARAMILITARY VARIANT OF WhAP 8X8 (DG-10)



Paramilitary Forces placed an order on VRDE (DRDO) for Qty. 06 Nos, to meet their requirements for 'Paramilitary variant of WhAP, 8x8' under 'Deposit Works' category.

All the 06 Vehicles have been realized and being handed over to Users. An indigenous RCWS is also realised under this project.

## INFANTRY PROTECTED MOBILITY VEHICLE (IPMV)

Based on the User trials on WhAP 8x8, Indian Army under emergency procurement, had placed direct order on PA (M/s TASL) for 09 vehicles.

VRDE provided necessary technical support to Users and all 09 Nos of vehicles handed over to Indian Army.



## CBRN RECCE VEHICLE (TR) MK-II



The CBRN Recce Vehicle Mk-II is developed for carrying out post event Recce of Nuclear, Biological and Chemical Contaminated areas.

Basic vehicle is BMP-II K. It is capable of collecting solid and liquid samples of NBC contaminated areas, mark the nuclear and chemical contamination zone and also transfer the recce data speedily to the supported formations. The vehicle is being fielded for PSQR validation trials of Indian Army.

## DEVELOPMENT OF WHAP- CBRN

The Wheeled CBRN vehicle is capable of detecting, identifying, monitoring and marking of areas contaminated with CBRN agents and transmit this information speedily to the supported formations.

The vehicle platform and NBC instrumentation is completed and presently, the system is undergoing DRDO Internal Trials.



## 70t Tank Transporter for MBT Arjun, Mk-IA



VRDE had developed a 70 ton transporter for transportation of MBT Arjun. It is first of its kind indigenously developed tank transporter. In this, VRDE has developed two trailers – one Full Trailer and other Semi-Trailer with matching tractor.

The salient features of these trailers are – state-of-the-art hydraulic system, hydraulic operated ramps at the rear, hydraulic suspension for better ride quality, counter steering system and APU to cater for hydraulic power requirement. This transporter was showcased in RD Parade – 2023.

## DIESEL ENGINE FROM CONVERSION OF AUTOMOTIVE ENGINE FOR RUSTOM - II UAV



The indigenous high power airworthy diesel engine is developed by VRDE for RUSTOM-II Unmanned Aerial Vehicle(UAV).

Indigenously developed high power engine is producing take-off power of 180hp constant up to 11000ft. First prototype of engine has been successfully developed and engine testing on dynamometer and thrust cradle also carried out for 500 hours mission cycle.

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Indigenous prototype of Full Authority Digital Engine Control (FADEC) system developed and full performance test carried out with indigenous engine. Engine is also tested at an altitude of 17667 ft at Leh & Changla.

## AUTONOMOUS UNMANNED GROUND VEHICLE (AUGV)

AUGV has the capability of waypoint navigation with rich features of intelligence such as cruise control, obstacle avoidance and dynamic path-planning. The automotive platform is an IC engine based SUV with a payload capacity of 450 kg.

Most promising initial military applications of the technology include CI /CT Role, Observation Post, Road Clearance, Surveillance & Reconnaissance, Automated Guard, etc. Early commercial applications include hazardous material handling, industrial applications, etc. An immediate application in defence can be in Counter Terrorists Ops (CT Role), where, AUGV mounted with lethal/non-lethal weapon platform, can be deployed in direct engagement (such as in hide-out busting), without exposing armed personnel to direct fires



## CBRN Mini-UGV

CBRN Mini-Unmanned Ground Vehicle (UGV), being tele-operated, offers benefit in terms of personnel safety in hazardous environment.

It facilitates detection & remote monitoring of contamination, sample collection, Day/night vision and digital marking of contaminated zones. UGV Payload System is modular and can be customized for any other role as per User requirements



## MULTI PURPOSE DECONTAMINATION SYSTEM (MPDS)



Multi Purpose Decontamination System (MPDS) can be used to decontaminate Personnel, Vehicles, Equipment and Terrain against CBRN agents for restoration of operation during combat and in CBRN disaster situation by carrying out the decontamination operation. Equipment can be lifted by 4 to 6 persons. In emergencies, MPDS can be carried in vehicles and helicopter. MPDS is light weight & ruggedized equipment.

## MOUNTED GUN SYSTEM (155mm/52 Cal)

Mounted Gun System is a 155mm/52 cal ATAGS gun mounted over a high mobility cross country truck. The advantage of this system is that it can be rapidly deployed matching the mobility of the mechanized forces, destroy the enemy targets and move out before retaliatory fire occurs. Currently, the system has been realized and is undergoing various internal trials.



## Ground Support Vehicles for Strategic Programmes



Autonomous Launcher of Brahmos Missile System based on 12x12 High Mobility Vehicle

VRDE has designed and developed a number of ground support vehicles for the ongoing missile programmes. Included in this, are a large numbers of specialist vehicles including launch platforms, transportation, command & control, communication and logistic support vehicles for Agni, Prithvi and Brahmos Missile Systems.



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