

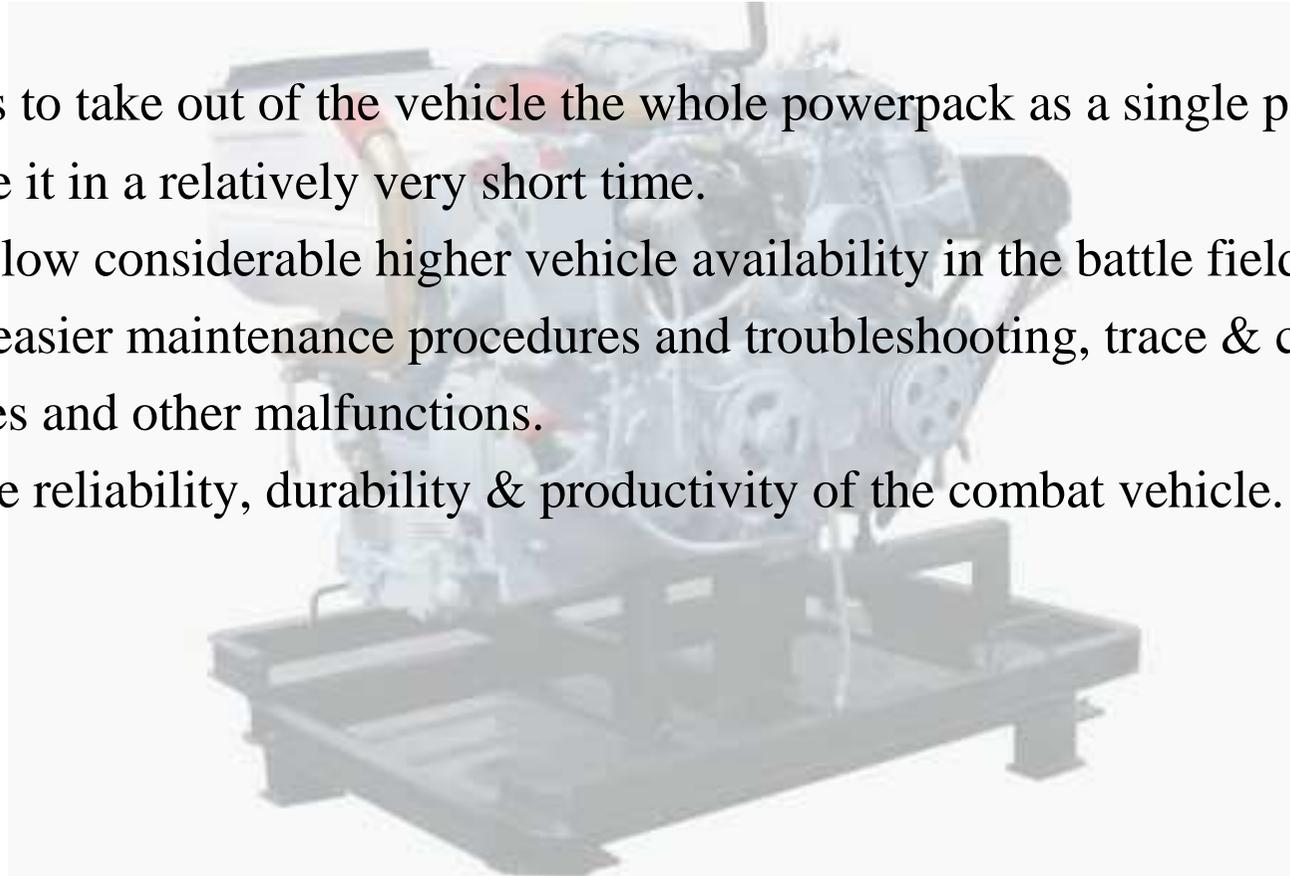
# BMP 2

## Automotive Upgrading Presentation

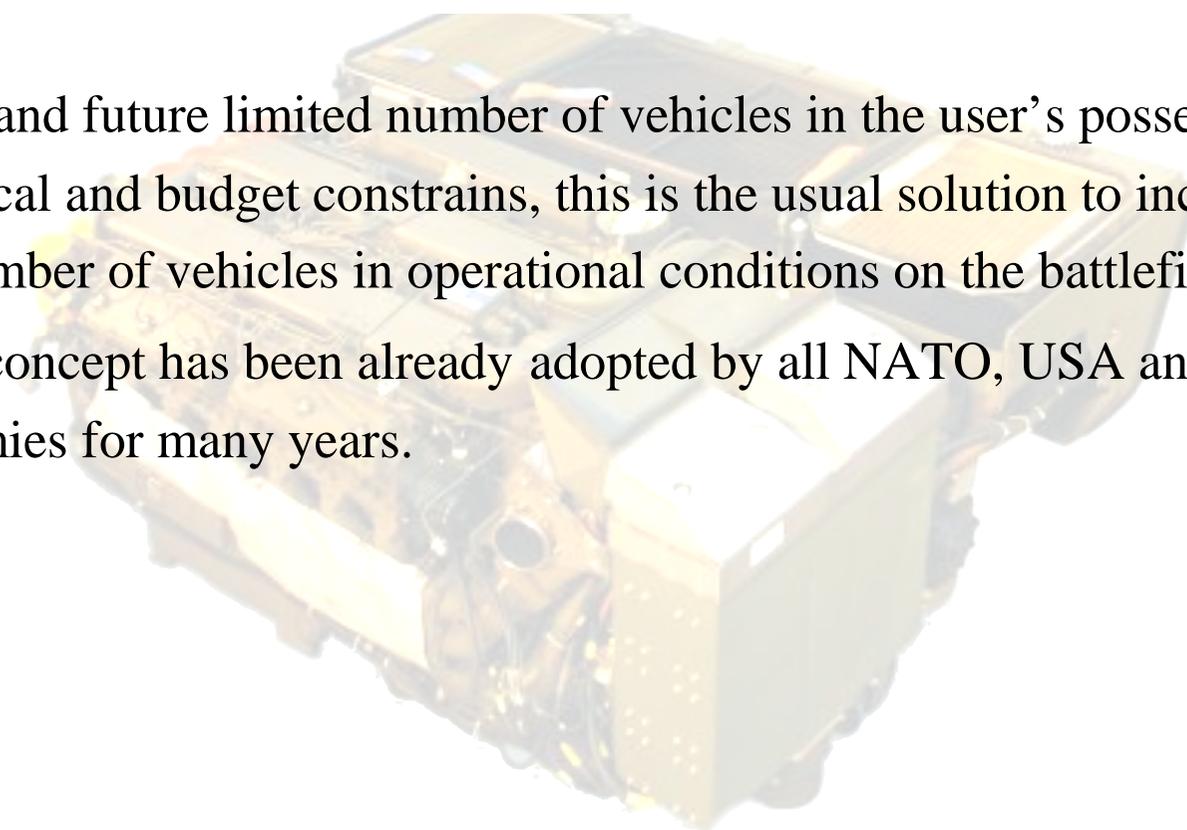


## Why Powerpack???

- Allows to take out of the vehicle the whole powerpack as a single package and to replace it in a relatively very short time.
- Thus allow considerable higher vehicle availability in the battle field.
- Allow easier maintenance procedures and troubleshooting, trace & correct leakages and other malfunctions.
- Increase reliability, durability & productivity of the combat vehicle.

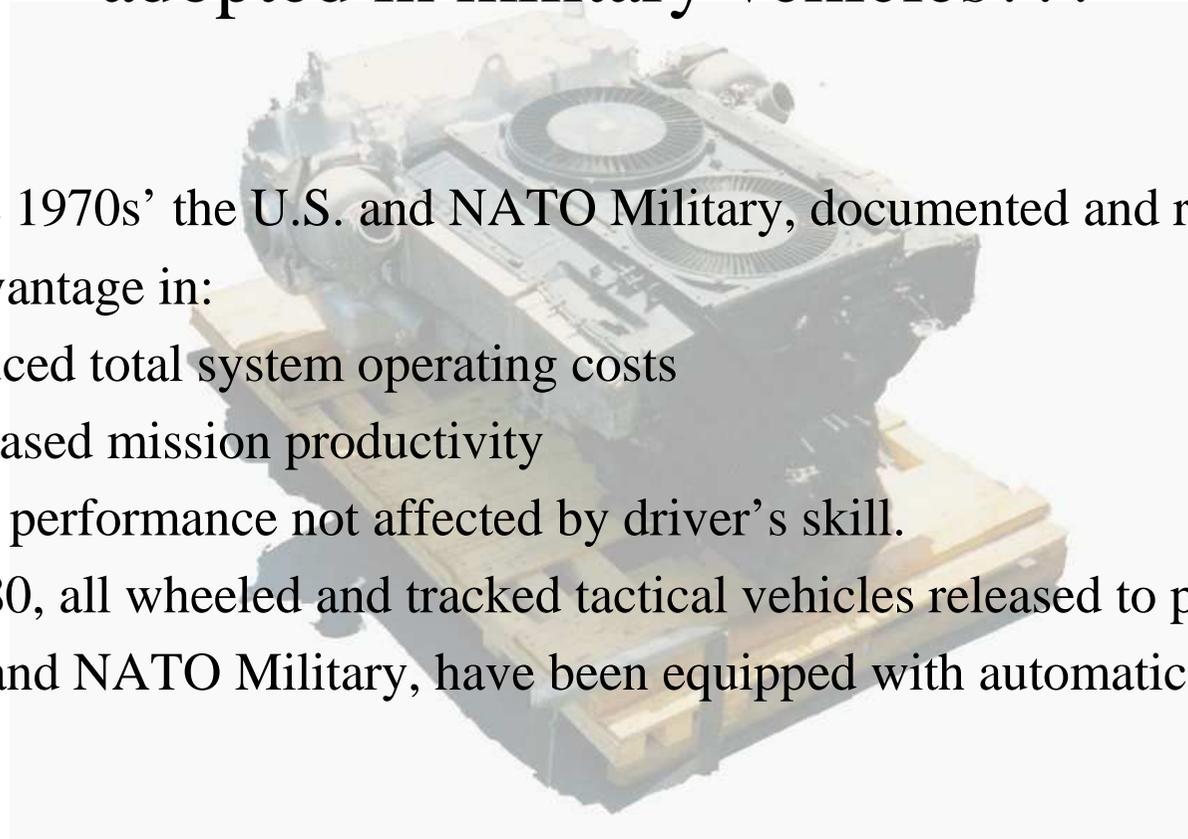


## Why Powerpack (cont'd)???

- With today and future limited number of vehicles in the user's possession, due to political and budget constraints, this is the usual solution to increase the potential number of vehicles in operational conditions on the battlefield.
  - Powerpack concept has been already adopted by all NATO, USA and other western Armies for many years.
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## Why automatic transmission is important and adopted in military vehicles???

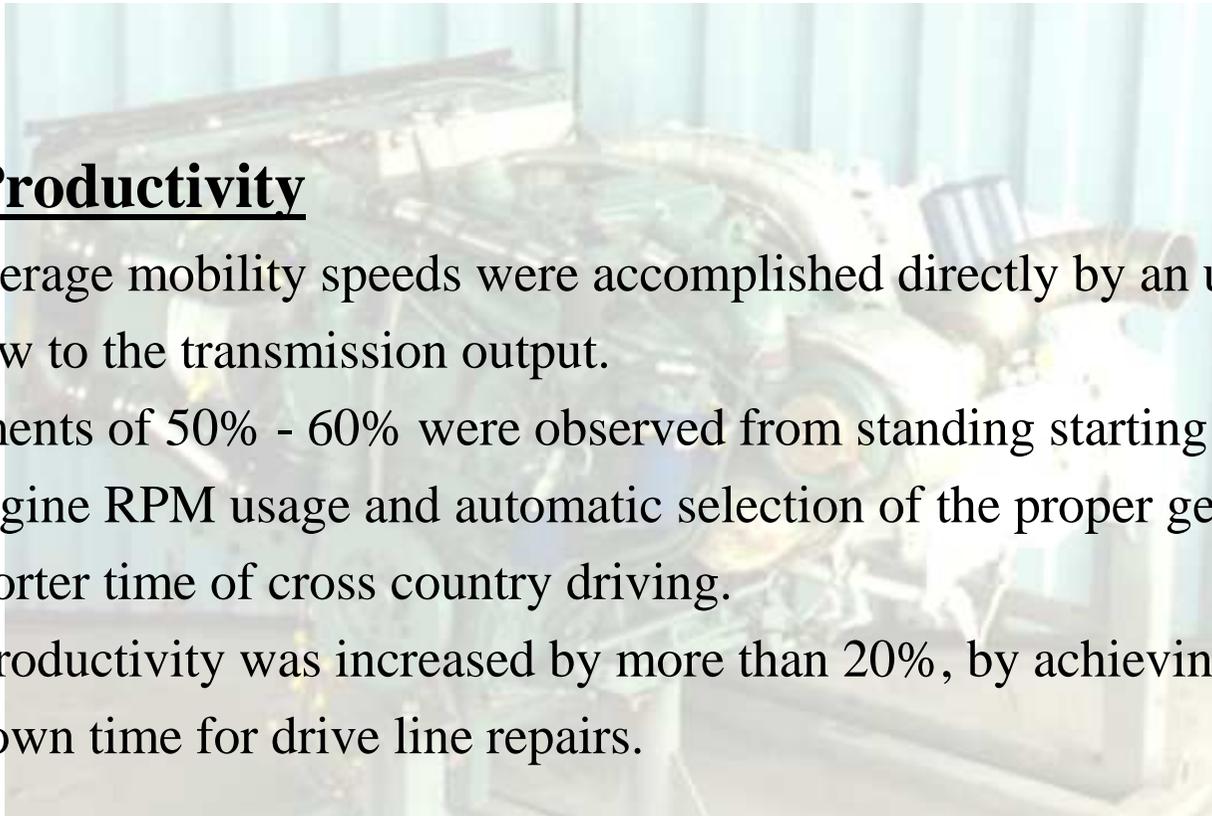
- Since the 1970s' the U.S. and NATO Military, documented and recognized the great advantage in:
  - Reduced total system operating costs
  - Increased mission productivity
  - High performance not affected by driver's skill.
- Since 1980, all wheeled and tracked tactical vehicles released to production for the U.S. and NATO Military, have been equipped with automatic transmissions.



## Why automatic transmission is important and adopted in military vehicles (cont'd)???

### Mission Productivity

- Higher average mobility speeds were accomplished directly by an uninterrupted power flow to the transmission output.
- Improvements of 50% - 60% were observed from standing starting accelerations.
- Higher engine RPM usage and automatic selection of the proper gear range, allows shorter time of cross country driving.
- Indirect productivity was increased by more than 20%, by achieving reduced vehicle down time for drive line repairs.



## Why automatic transmission is important and adopted in military vehicles (cont'd)???

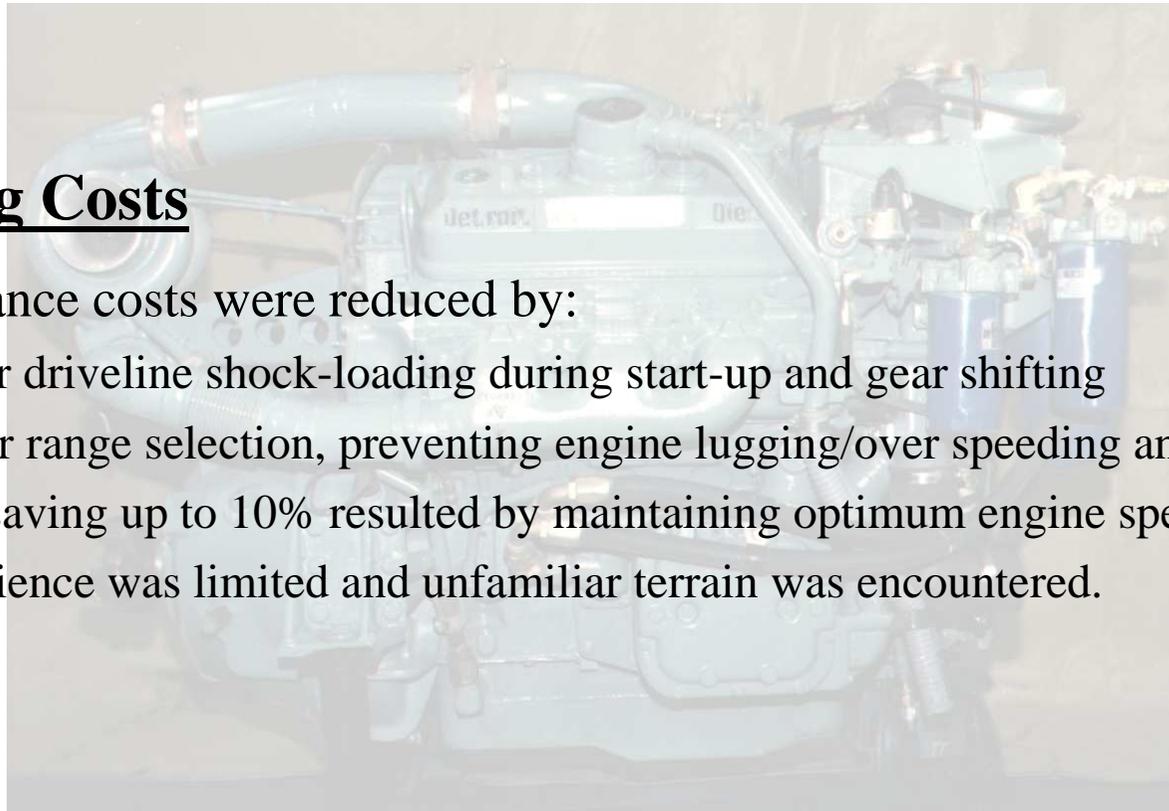
### Driver Performance Variations

- Driver fatigue was reduced over a period of several hours, while maintaining high level of performance.
- Eliminating the demand for driver's continuous concentration and execution of gear shifting, is most significant during cross country driving, when both hands are required for steering.
- Variations in driver's performance, usually depending on skill level and previous training, were reduced when traversing cross country terrain.
- Lesser experienced driver's performance was comparable to professional driver's performance, when evaluated during testing of vehicle acceleration, duty cycle operation and fuel economy.

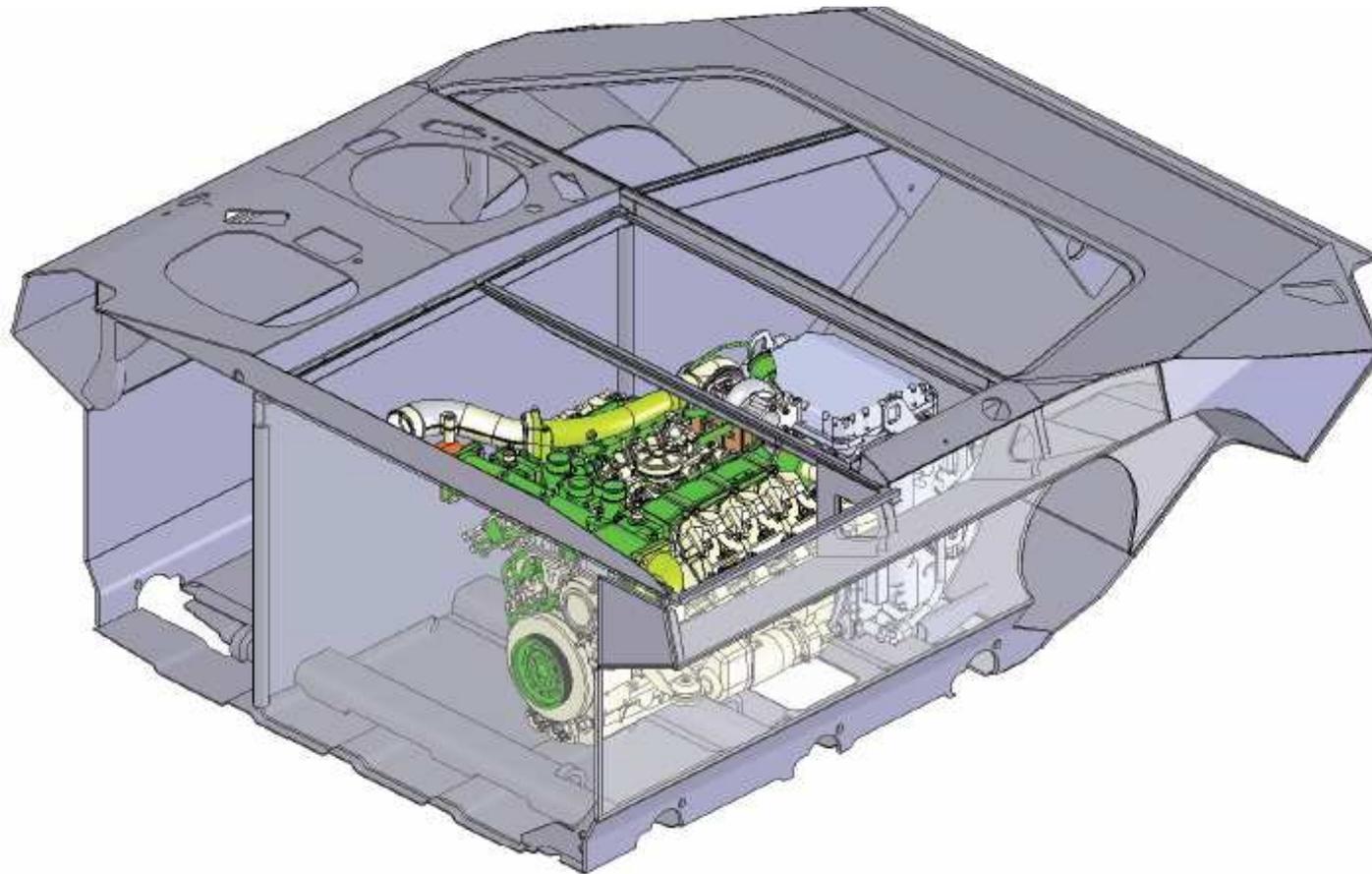
## Why automatic transmission is important and adopted in military vehicles (cont'd)???

### Operating Costs

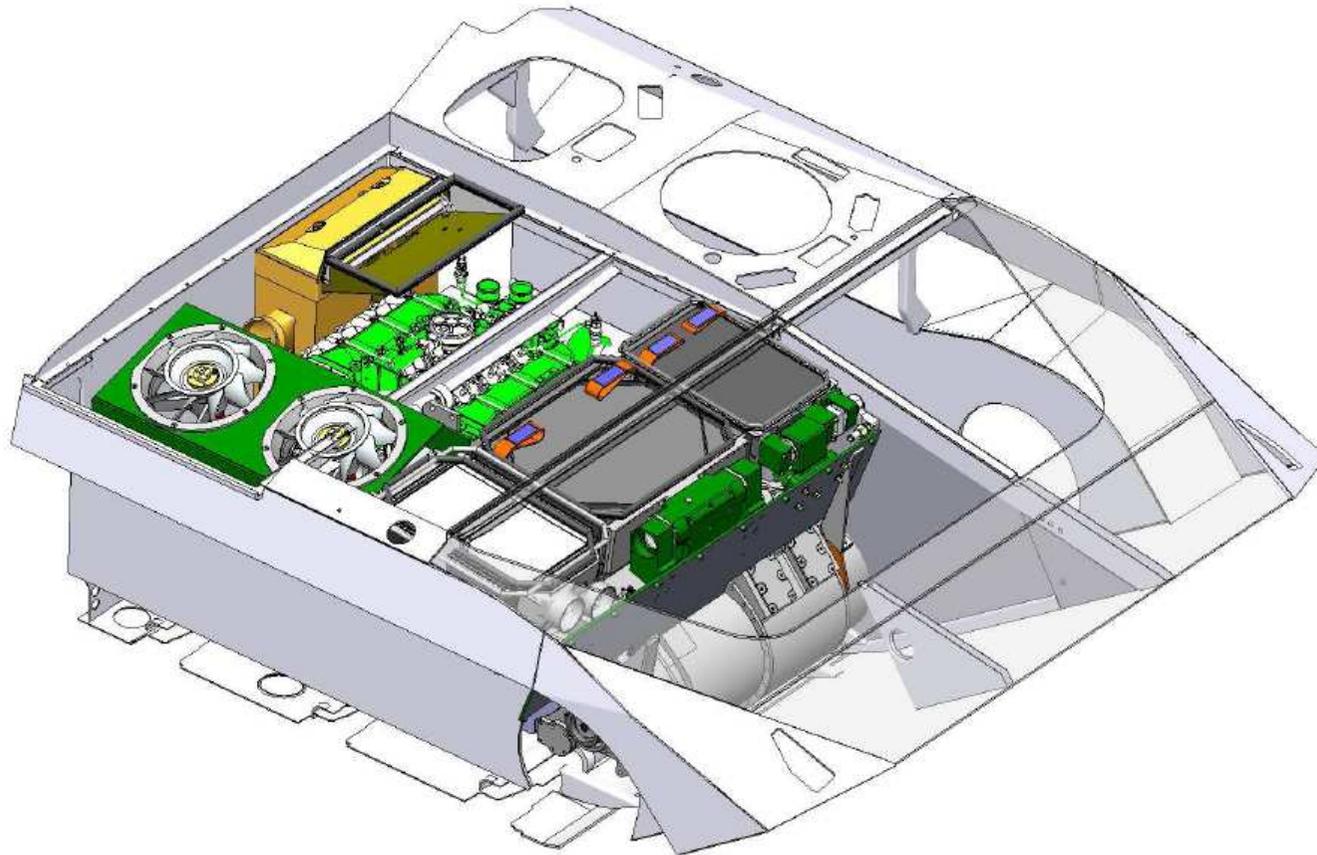
- Maintenance costs were reduced by:
  - Lower driveline shock-loading during start-up and gear shifting
  - Proper range selection, preventing engine lugging/over speeding and its over heating.
  - Fuel saving up to 10% resulted by maintaining optimum engine speeds, when driver experience was limited and unfamiliar terrain was encountered.



## BMP-2 with up to 400 HP Powerpack



## BMP-2 with up to 450 HP Powerpack



Some of the wheeled armored vehicle equipped with powerpack with automatic transmission



Germany - Boxer



Austria - Pandur



USA - Stryker



Switzerland - Piranha

Some of the tracked armored vehicle equipped with powerpack with automatic transmission



Germany - Puma



UK – MCV



Israel - Namer



USA - Bradley