



# HORUNGY

**DEEP MODERNIZATION  
THE REDEFINING OF AFV BTR-60**



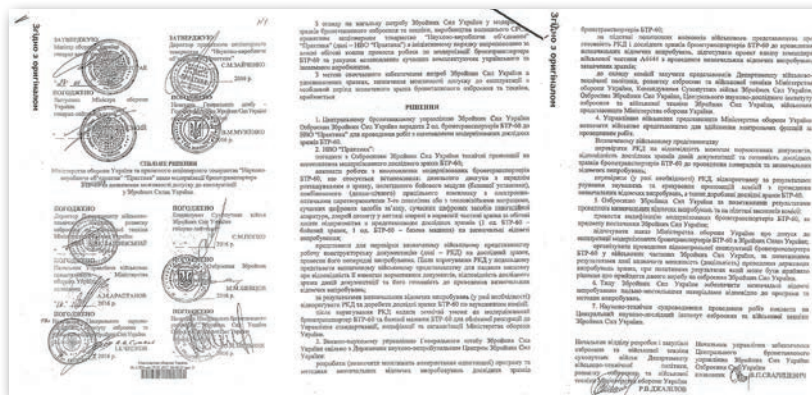
BTR-60



HORUNGY



Technical obsolescence and low level of armor protection BTR-60 do not allow to use them effectively in modern conditions of hostilities. In order for these armored personnel carriers can be used as full-fledged combat units, simple engine replacement and chassis repair, which are included in the usual modernization work package, are not enough, a radical overhaul of the structure is needed, which will give to the vehicle new tactical qualities.



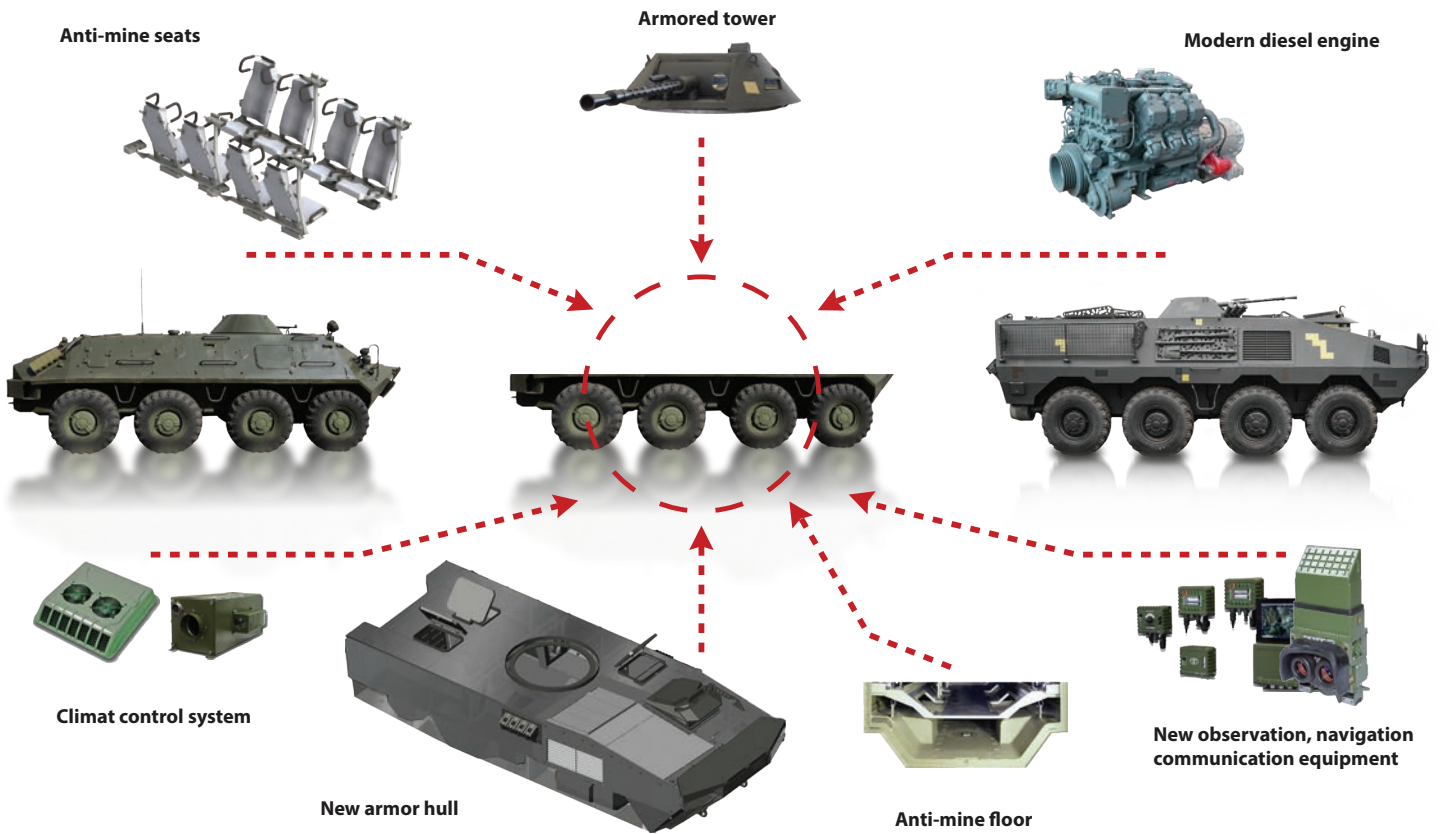
Research and Production Association PRACTIKA, based on the Joint Decision with the Ministry of Defense of Ukraine №1185 dated 23.01.2017 "On the modernization of the armored personnel carrier BTR-60 and determining the possibility of commissioning in the Armed Forces of Ukraine" and the draft terms of reference from the Central Armored Department of the Armed Forces, designed and implemented a machine that is a radical rethinking of the original concept.

In the version of Research and Production Association PRACTIKA, only the lower part of the hull from the original BTR-60 remains, however, the rest, including the upper part of the armored hull, is replaced by a new design. Due to this, the machine gets combat qualities that can be compared with modern armored personnel carriers, but at a much lower cost.





# SCHEMATIC DESCRIPTION OF MODERNIZATION WORKS







The HORUNGY's armored hull is made of high-quality modern armored steel manufactured by Miilux Oy (Finland) and has a new, better from the point of view interior space organization, shape.



## ADVANTAGES:

### Fundamentally different level of armor protection

Use of modern steel allowed at the same thickness (to not to overload a suspension bracket) to increase level of bullet resistance of the top and lateral parts of the case to level **STANAG 4569** (protection against shots with SVD and AKM bullets 7.62 mm with a steel core of 10 meters), which is incomparably higher than the bullet resistance of the original BTR-60.

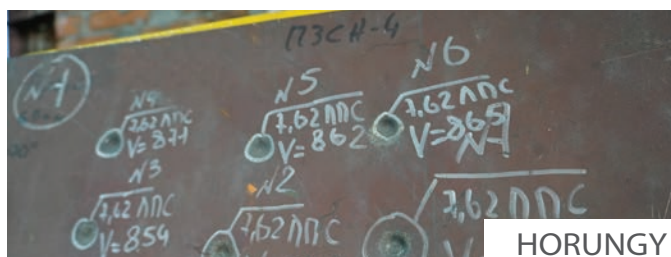
### Multilayer floor

In combination with anti-mine seats provides mine protection of the crew and landing from the action of explosive devices up to 6 kg. TNT equivalent.

### Ballistic tests:



BTR-60



HORUNGY





## RATIONAL LOCATION OF COMPARTMENTS

The HORUNGY has a modern layout with location of the engine compartment in the front right side, the driver's compartment in the front left side, and the troop compartment in the rear.

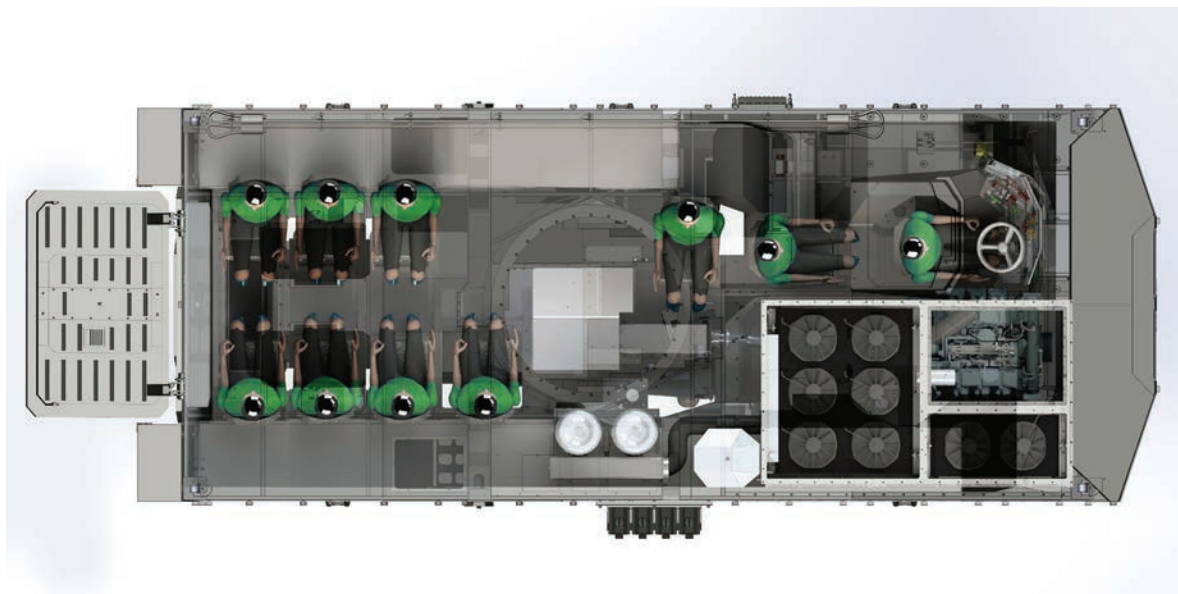


### Protection by hull during an airborne landing

Due to the fact that on the battlefield soldiers are being dropped through the rear hinged door (door-opener), they are protected from the frontal impact of enemy fire by the vehicle hull.

### Ease of landing and disembarking

This positioning of the landing compartment allowed the rear ramp to be designed, which, firstly, has opening dimensions that allow quick landing and, secondly, has an automatic locking/unlocking mechanism (with a backup mechanism for emergency mechanical unlocking).

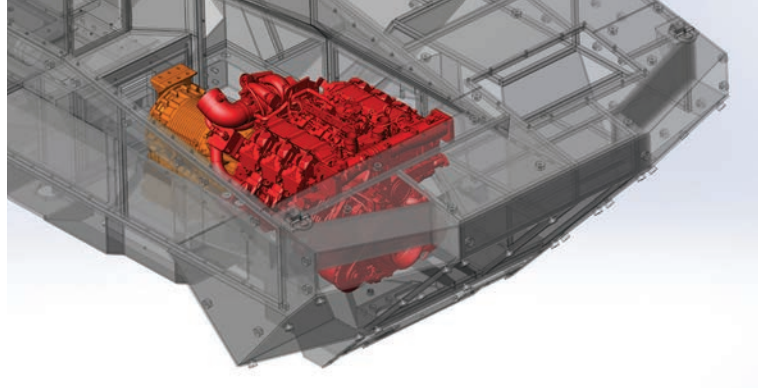
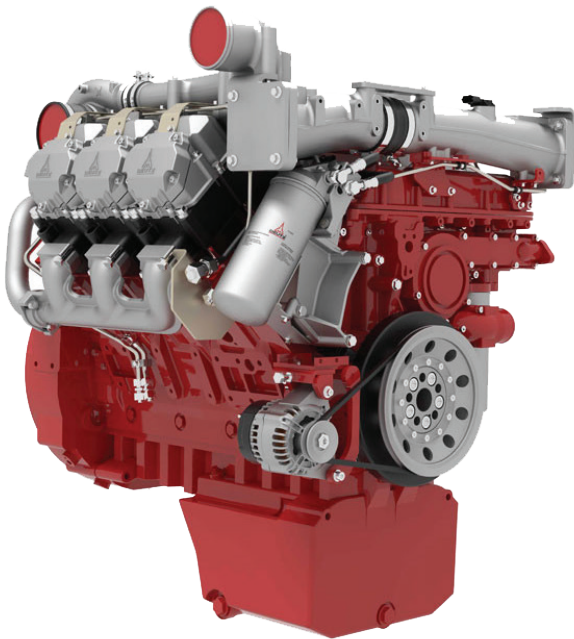




## MODERN POWER BLOCK

# HORUNGY

Instead of two gasoline engines with mechanical transformation, the HORUNGY is equipped with a modern diesel engine Deutz and automatic transmission Allison. The same engine-transmission pair install on the BTR-3 and BTR-4.



### **Quick engine replace capability**

Thanks to the front location of the engine compartment, the engine can be replaced quickly, including in the field conditions.

### **Diesel instead of gasoline**

Improves the fire safety of the car.

### **Significantly improved traction characteristics.**

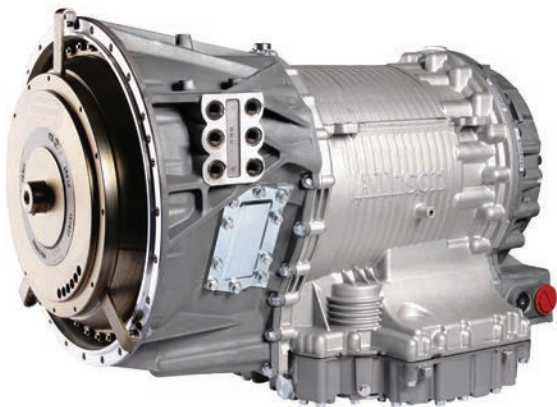
210 hp and 810 N\*m instead of two 90-horsepower engines with 441 N\*m of total torque.

### **A wide «shelf» of torque**

The engine has a wide range of revolutions, which reaches a maximum torque, which significantly improves off-road performance.

### **Economy**

Low fuel consumption and, as a result, high operating range.





## ACCEPTED LEVEL OF ERGONOMICS

When designing the HORUNGY, a lot of attention is paid to the issue of crew comfort, as in modern conditions personnel can spend a long time inside the armored personnel carrier and the level of its combat capability directly depends on the ergonomics of the car.



### Functional driver's seat

New design provides increased free space around the mechanic-driver, simplified access to control elements and the ability to adjust the seat depending on anthropometric data, significantly improved driver's survey and visibility of the space around the car, also the ability to maneuver reverse through the rear view camera.



### Individual seats

Installation of ergonomically shaped individual soft seats with side support arches and five-point seat belts instead of benches allows the crew to be comfortable and safe to feel during a long march and when driving on ordinary terrain. Moreover, their design improves mine resistance characteristics.

## EXPANSION OF FUNCTIONALITY

# HORUNGY

The HORUNGY is equipped with a large number of special equipment, which was lacking in the BTR-60, thanks to which the HORUNGY has a much higher functionality, which, in turn, increases the efficiency of combat missions.



### Efficient air conditioning and ventilation system

The HORUNGY is equipped with an autonomous heater, 2-zone air conditioning system (separately for the control compartment and for the landing compartment) and a modern CBRN unit.



### 360° video surveillance system

To increase informness about the combat situation, the HORUNGY is equipped with video cameras with day and night modes installed in protected hulls.



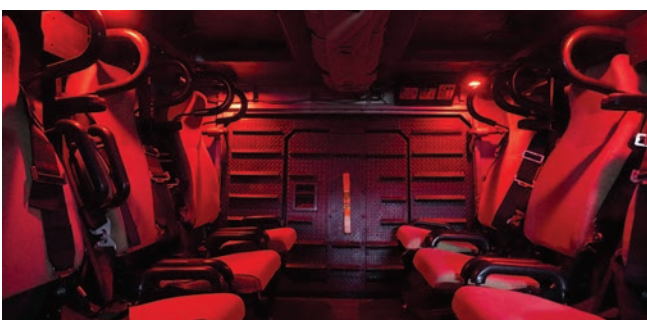
### Automatic fire extinguishing system

Control and landing compartments are equipped with a fire extinguishing system with UV-IR sensors with fast operation. Separate automatic system is installed for the engine compartment.



### Autonomous generator

An autonomous generator is installed on HORUNGY, which provides power to the armored personnel carrier systems when the engine is switched off.



### LED luminaires

Inside the machine there are light fixtures with LED luminaires that have several light modes and the ability to quickly switch to light masking mode.



# VARIABILITY

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The HORUNGY is designed as an armored wheeled platform, on the basis of which you can create a family of modifications. Thus, with the help of HORUNGY, the Ukrainian army can cover the need for a large number of unified specialising armored vehicles that perform specific tasks for relatively little money.



**PERSONNEL TRANSPORTER**



**LINEAR ARMORED PERSONNEL CARRIER**



**MEDIVAC**



**LOGISTICS VEHICLE**



**MORTAR CARRIER**



**COMMAND-AND-CONTROL VEHICLE**



# MULTIFUNCTIONALITY (EXAMPLES OF IMPLEMENTATION)

# HORUNGY



**MEDIVAC AND EVACUATION VEHICLE**



**COMMAND-AND-CONTROL VEHICLE**



**MORTAR CARRIER VEHICLE**



**LOGISTICS VEHICLE**





# SPECIFICATIONS

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	<b>BTR-60</b>	<b>HORUNGY</b>
GVW, KG	10 300	11 000
OVERALL DIMENSIONS, MM	7560 X 2825 X 2055	7420 X 2840 X 2250
BODY VOLUME, M <sup>3</sup>	16,1	20,4
ENGINE	PETROL GAZ-40P (2 PCS.)	DIESEL, DEUTZ TCD 2013
POWER, HP	2 X 90	210
TORQUE, N*M	441	810
TRANSMISSION	MECHANICAL	AUTOMATIC ALLISON SP3000
ROAD SPEED, KM/H	80	100
AMPHIBIOUSNESS	YES	YES
BALLISTIC PROTECTION (FRONTAL PROJECTION)	FROM BULLETS OF 7,62 MM	FROM BULLETS OF 7,62 MM
BALLISTIC PROTECTION (OTHER PROJECTIONS)	FROM BULLETS WITH AKM - ONLY FROM LARGE DISTANCE (200-300 M)	FROM AK-74, AKM AND SVD BULLETS WITH A STEEL CORE
ANTI-SPLINTER PROTECTION	-	YES
BLAST PROTECTION	-	UP TO 6 KG.
BASIC ARMAMENT	MACHINE GUN KPVT 14.5 MM AND PKT 7.62 MM	COMBAT MODULES WITH WEAPONS UP TO 14.5 MM