

# HOW TO BUY HUMVEES FOR UKRAINE



## How to Buy Humvees for Ukraine

### Intro

This document exists to share information on buying used US military humvees, shipping them to Ukraine and adding armor to them there.



To buy non-humvee vehicles, refer to our [How to Buy Vehicles for Ukraine](#) guide.

# HOW TO BUY HUMVEES FOR UKRAINE



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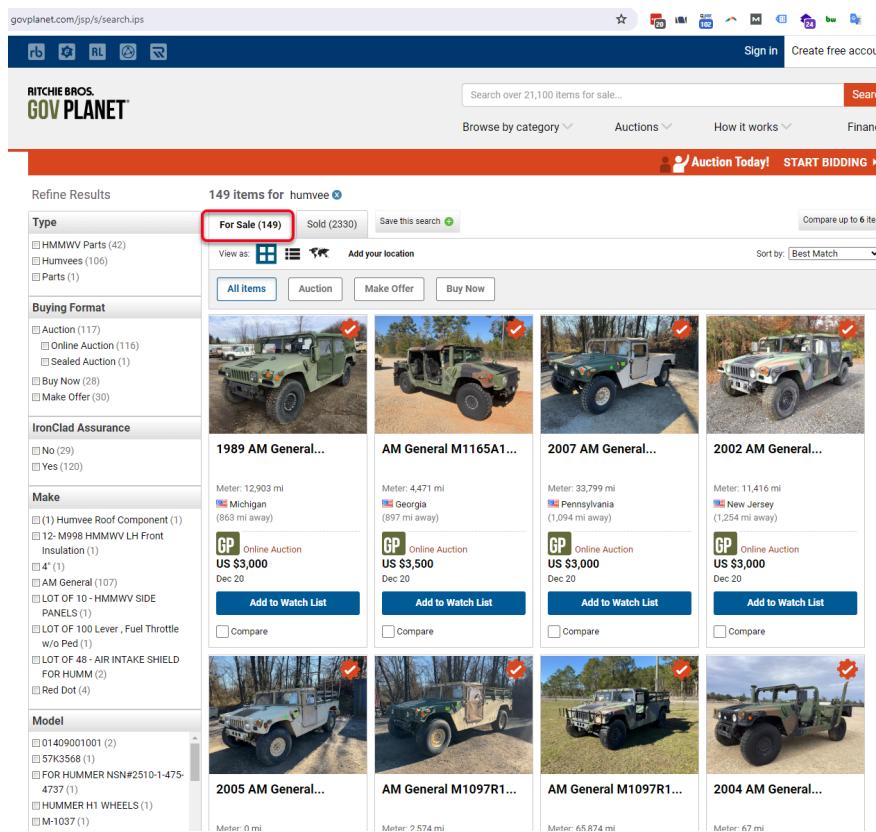
## Why Humvees and Not Civilian Trucks

Humvees are extremely capable, simple vehicles ideally suited to military missions in harsh environments. While not as comfortable as most civilian 4x4s, Humvees have roughly 2-3x the extra carrying capacity, making them ideal for adding armor.

## How to Buy Humvees for Ukraine

### Buying Humvees

Humvees can be bought used from \$3500-\$7000 from websites such as GovPlanet and IronPlanet



The screenshot shows the GovPlanet website interface. The search bar at the top contains the query "humvee". Below the search bar, a red box highlights the "For Sale (149)" button. The main content area displays 149 items for "humvee", with four items shown in a grid format. Each item listing includes a thumbnail image, the model name (e.g., 1989 AM General...), the meter reading (e.g., 12,903 mi), the location (e.g., Michigan), the auction status (e.g., GP Online Auction US \$3,000 Dec 20), and buttons for "Add to Watch List" and "Compare".

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## Inspecting and Repairing Used Humvees

Many Humvees sold need repair or parts replaced:



Humvees must be inspected before being shipped



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## Shipping Humvees

Humvees are best sent to Europe via container. Two can fit into a 40 foot standard container:



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## Armoring Humvees

While un-armored humvees are a welcome addition to any military unit, the real opportunity to greatly assist the Ukrainian military is to “up-armor” Humvees and provide them as “cheap tanks” to greatly improve Ukraine’s ability to evacuate injured soldiers and resupply front line soldiers.

Example of officially armored Humvee in Ukraine:



Example of unofficially armored (“redneck” or “Mad max” armor) Humvee in Iraq



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## Fixed Weapon Mounts

Adding a fixed mount for a machinegun, grenade launcher or other weapon is a huge upgrade to a vehicle.

There's two typical fixed mount methods, a fixed pintle mount or a rotating cupola mount.

### Fixed pintle mount AKA “Technical mount”



### Rotating cupola mount

These are more expensive and complex but much better protect the gunner from enemy fire and the elements, plus make better use of space.



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## Basic Humvee info

### Humvee specifications

#### XM-1097

##### SPECIFICATIONS:

- \* .41m (16") ground clearance
- \* Full-time 4 wheel drive
- \* Four wheel independent suspension
- \* Power hydraulic front & rear disc brakes
- \* V8, 6.2L, 150hp diesel engine
- \* 94.6L (25 gal) fuel capacity
- \* 3-speed automatic transmission
- \* 2-speed transfer case
- \* Power steering
- \* 24 volt electrical system
- \* 37 x 12.50R-16.5 load range "D" radial tires
- \* 1542 kg (3,400 lb) capacity 16.5 x 8.25 2-piece take apart wheels
- \* CARC Paint: Camouflage or Sand Tan
- \* Central tire inflation system - option

##### PERFORMANCE:

- \* 40% side slope capability
- \* 60% grade capability
- \* Forging depth: .76m (30") standard

1.52m (60") with kit

- \* Acceleration
  - 0 to 30 mph (48 kph) - 9.4 seconds
  - 0 to 50 mph (80 kph) - 26.1 seconds
- \* Operating range - 483 km (300 miles)
- \* Maximum speed - 65 mph (105 kmh)

##### ARMAMENT PROVISIONS:

- \* TOW Missile systems
- \* Mk 19 40mm MG
- \* 7.62mm M60 MG
- \* 30mm ASP-30 Cannon
- \* .50 cal M2HB MG

##### TRANSPORTABILITY:

- (Fully equipped with payload)
- \* Vehicle Dimensions:
 

Height	1.88m (74")
Width	2.16m (85")
Length w/o winch	4.77m (188")
Length w/ winch	4.93m (194")
- \* Weight data:
 

Curb	3461 kg (7,630 lbs)
(Includes base vehicle with 7.62mm ballistic panels)	
GW	4536 kg (10,000 lbs)
(Must use 10,000 lb HHV chassis)	
Payload	1075 kg (2,370 lbs)



UP-ARMORED HUMMER shown here with McDonnell Douglas Helicopter Company's 30mm ASP-30" Cannon.

(Includes crew, ammunition, weapon, weapon mount, personal gear, special kits, & Basic Issue Items (BII))

Curb weight does not include the following optional protection panels

-Crew floor	90 kg (196 lbs)
-Roof	45 kg (100 lbs)
-Wpn Station	36 kg (80 lbs)
Total	171 kg (376 lbs)

### Humvee variants

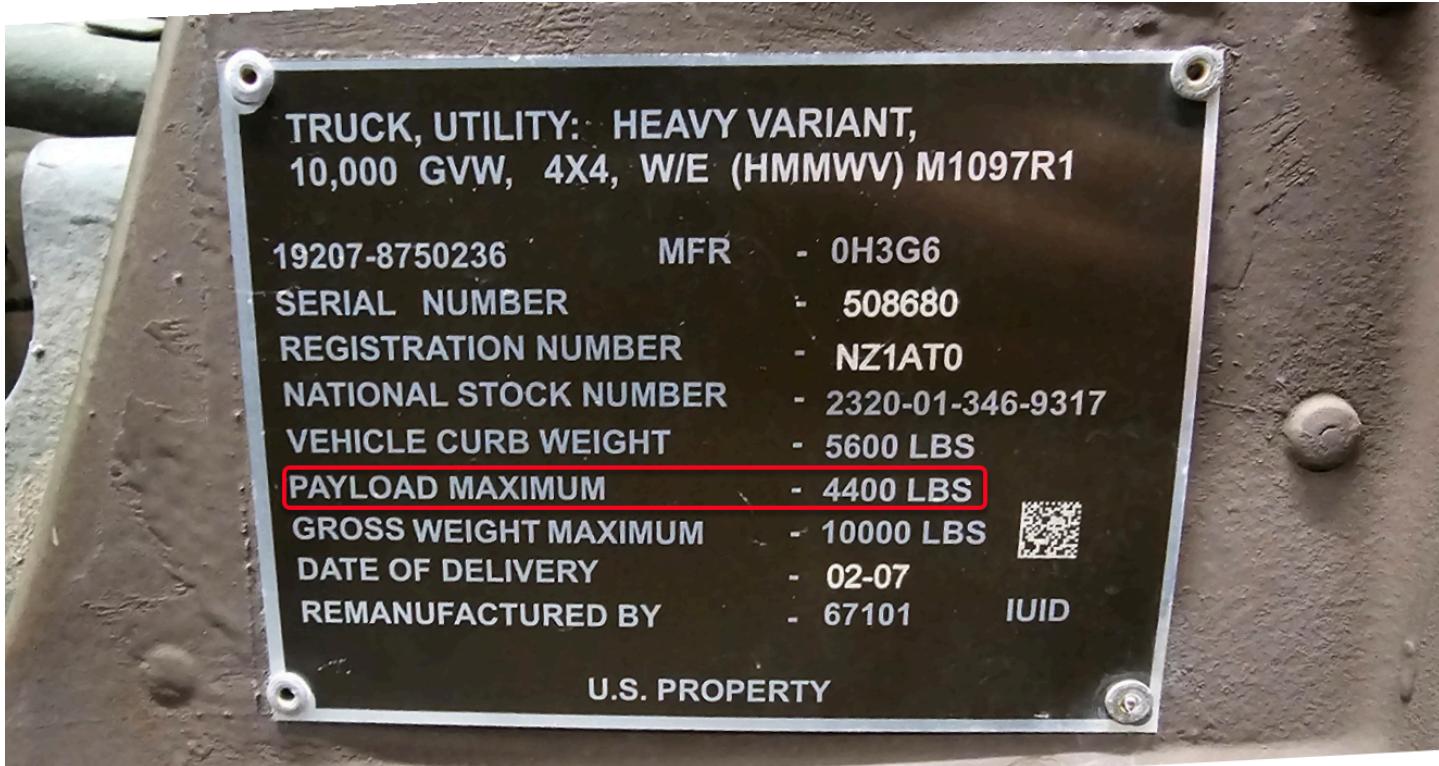
	Variants					
	A0 Series	A1 Series	A2 Series	ECV Series	ECV 2 Series	RECAP
Cargo/Troop Carrier	<a href="#">M998/M1038</a>	<a href="#">M998A1/M1038A1</a>	<a href="#">M1123</a>	<a href="#">M1165</a>		XM1211
Heavy Cargo Carrier	<a href="#">M1097</a>	<a href="#">M1097A1</a>	<a href="#">M1097A2</a>	<a href="#">M1113/M1152</a>		XM1213
Artillery Prime Mover	<a href="#">M1069</a>	<a href="#">M1097A1</a>	<a href="#">M1097A2</a>			M1097R1
Shelter Carrier	<a href="#">M1037/M1042</a>	<a href="#">M1097A1</a>	<a href="#">M1097A2</a>	<a href="#">M1113/M1152</a>		XM1213
Armament Carrier w/ Basic Armor	<a href="#">M1025/M1026</a>	<a href="#">M1025A1/M1026A1</a>	<a href="#">M1025A2</a>	<a href="#">M1151</a>		XM1212
Armament Carrier w/ Supplemental Armor	<a href="#">M1043/M1044</a>	<a href="#">M1043A1/M1044A1</a>	<a href="#">M1043A2</a>			M1025R1
Armament Carrier Up-Armored		<a href="#">M1109</a>		<a href="#">M1114/M1116/M1151A1/XM1166</a>		
TOW Missile Carrier w/ Basic Armor	<a href="#">M966/M1036</a>	<a href="#">M966A1/M1036A1/M1121</a>		<a href="#">M1167</a>		XM1214
TOW Missile Carrier w/ Supplemental Armor	<a href="#">M1045/M1046</a>	<a href="#">M1045A1/M1046A1</a>	<a href="#">M1045A2</a>			
TOW Missile Carrier Up-Armored				<a href="#">M1115/M1167A1</a>		
Hard-Top Ambulance	<a href="#">M996/M997</a>	<a href="#">M996A1/M997A1</a>	<a href="#">M996A2/M997A2</a>			XM1225
Soft-Top Ambulance	<a href="#">M1035</a>	<a href="#">M1035A1</a>	<a href="#">M1035A2</a>	<a href="#">M1152A1</a>		
Fire Support Team Vehicle			<a href="#">M707</a>	<a href="#">M707</a>		
TACP Vehicle				<a href="#">M1145</a>		
Command Vehicle				<a href="#">M1165</a>		XM1211
Special Operations Vehicle	<a href="#">DMV</a>		<a href="#">GMV</a>	<a href="#">GMV</a>		
Anti-Aircraft Vehicle	<a href="#">Avenger</a>	<a href="#">Avenger</a>	<a href="#">Avenger</a>	<a href="#">Avenger</a>		
EOD/UXO Disposal				<a href="#">Zeus HLONS</a>		
Hybrid Vehicle				<a href="#">XM1124</a>		

# HOW TO BUY HUMVEES FOR UKRAINE



## Why armor humvees and not regular civilian vehicles?

Humvees are not right for many units. Only those with enough logistics support and experience repairing Humvees should get them. In addition, it's a waste to supply these just as replacements for regular 4x4 civilian trucks. The real opportunity is to "up-armor" them and turn them into "cheap tanks". This is much easier done with humvees than with civilian vehicles. The main reason is that these Humvees can handle an additional 2 tons of weight, much more than your average truck.



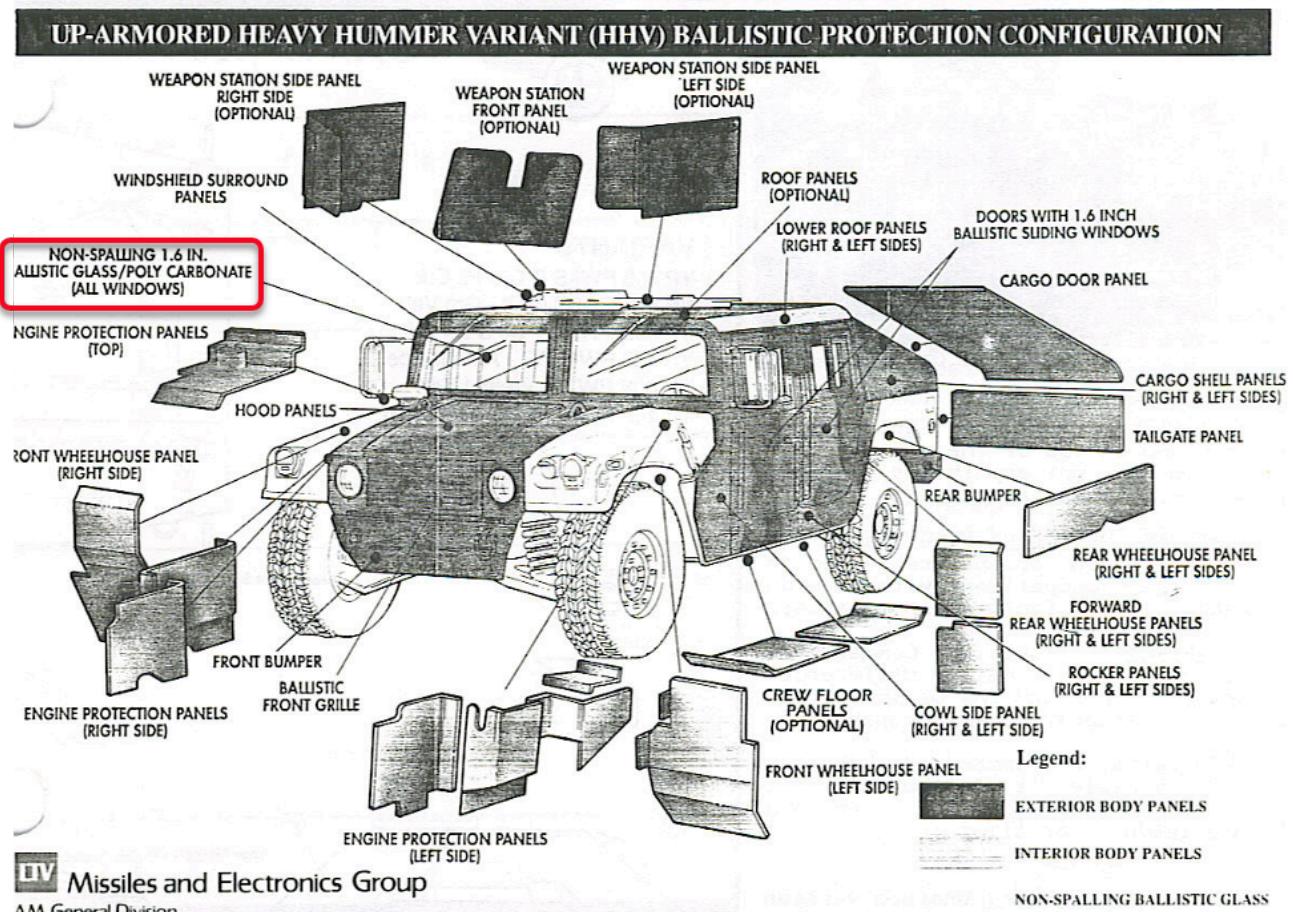
The typical civilian full size truck can handle 1500-2500 lbs.

Even minus the weight of 4-6 kitted soldiers, 4400lbs still leaves a lot of weight for 3/8 steel plates.

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## Add-on Armor Info



 **Missiles and Electronics Group**  
AM General Division

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Runflat military tires



Runflat civilian tires



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## Misc Notes on Armor Requirements

- 3/8 steel is needed to stop AKs and shrapnel.
- 1ftx1ft 3/8 is 15lbs. a 4x8' sheet is ~500lbs <https://www.chapelsteel.com/weight-steel-plate.html>
- Vehicle dimensions
  - Length 15 ft
  - Width 7 ft
  - Height 6 ft
- The two humvees UDS is sending (ETA Rivne ~1Jan2024) One will go to a border patrol unit in Sumy, the other to the 72nd BGD 7th Bttn in. Both are "running perfectly" except the one has some noise from the PS pump that the unit says they can fix.

## Useful Links

### Buying Humvees

- Humvee overview <https://warwheels.net/HummerM1165ECVindex.html>
- What to Know Before Buying a Government Surplus Humvee  
<https://www.dirtlegal.com/blog/what-to-know-before-buying-a-govt-surplus-humvee>
- What Does A Surplus HMMWV Cost? How To Buy A Humvee  
<https://gear-report.com/what-does-a-surplus-hmmwv-cost-how-to-buy-a-humvee>
- Buying a Govplanet Humvee- Process & Top Tips  
<https://www.youtube.com/watch?app=desktop&v=F0AkAibFp2g>
- Everything you need to know about Humvee vehicles  
<https://blog.ritchiebros.com/everything-you-need-to-know-about-humvee-vehicles>
- Tips for buying off GovPlanet/IronPlanet?  
<https://www.steelsoldiers.com/threads/tips-for-buying-off-govplanet-ironplanet.153283/>
- What to AVOID When Buying Humvees off GovPlanet <https://www.youtube.com/watch?v=gtS8I93r5cw>
- First Things Every HMMWV or Hummer Owner Needs to Know  
<https://gear-report.com/humvee-info-first-things-every-hmmwv-or-hummer-owner-needs-to-know/>

### How to armor Humvees

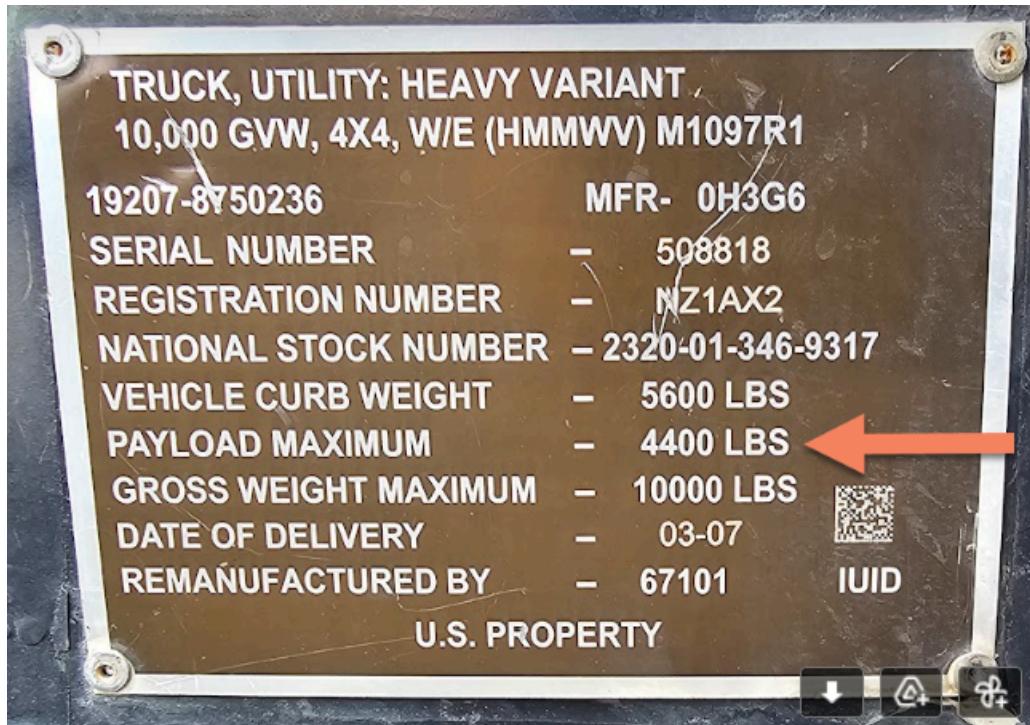
- <https://www.keymilitary.com/article/armoured-humvee> most useful
- <https://www.steelsoldiers.com/threads/civilian-armoring-the-hmmwv.203578/page-2> most useful
- [https://en.wikipedia.org/wiki/Armor\\_Survivability\\_Kit](https://en.wikipedia.org/wiki/Armor_Survivability_Kit) somewhat useful
- <https://www.quora.com/How-thick-is-the-armor-of-a-Humvee> not very useful
- [https://www.armyrecognition.com/humvee\\_hmmwv\\_variants\\_light\\_tactical\\_vehicle/m1114\\_up-armor\\_ed\\_hmmwv\\_humvee\\_armament\\_carrier\\_armour\\_kit\\_technical\\_data\\_sheet\\_specifications.html](https://www.armyrecognition.com/humvee_hmmwv_variants_light_tactical_vehicle/m1114_up-armor_ed_hmmwv_humvee_armament_carrier_armour_kit_technical_data_sheet_specifications.html) nice pic but otherwise not that useful
- Celebrity owned Humvee [https://www.youtube.com/watch?v=H\\_aHM1V21ls](https://www.youtube.com/watch?v=H_aHM1V21ls) useful. Shows armor

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- <https://www.stripes.com/branches/army/2004-02-03/Troops-add-improvised-armor-to-Humvees-1910435.html> useful pictures
- <https://www.globalsecurity.org/military/systems/ground/ask.htm> useful
- <https://www.ogaratraining.com> Official armoring company for US military

## Additional photos



2024 Ford F-150 / Payload

1,543 to 2,155 lbs

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## Misc Notes on Armoring Humvees

From Iron Nuts in Lviv:

- Can armor all parts of the car including the floor. Anti-mine floor can be difficult though because the metal weighs 2 tons, which puts it pretty much at the limit of payload maximum.
- Armor they use can stop 7.62x54. Specifically, it is Hardox 500 steel "sandwich" with some aluminum in-between. Possible to upgrade to Armax steel.
- They have pretty good access to Ukrainian armored glass manufacturers. In their last case, they used 42 mm class 3 glass that was rated to stop 7.62x39. Possible to get stronger one too.
- His estimate was at about \$20k to armor an existing humvee ( \$10k USD for the materials and \$10k USD for labor). Timewise it takes 2 months (~5 weeks for prototyping and ~3 weeks for the mechanical work).
- For larger volumes it could probably be up to ~30% cheaper according to him.
- They haven't worked on large volumes before but are doing 11 Humvees for GUR and 1 evac vehicle. They are looking to expand though.
- They haven't done cupolas before but can do them. Will need extra time for prototyping and installing the support system (most HVs have only tent roofs not solid roofs and almost none have ceiling hatches).
- They haven't installed runflats yet but can definitely figure it out. Either import some from the US or find some produced locally. Looks like Brave1 developed it in Ukraine:  
<https://odessa-journal.com/the-ukrainian-technology-runflat-is-a-system-of-armored-wheels-designed-for-military-pickup-trucks-by-brave1>
- Yes, it is forbidden in Ukraine to have armored Humvees without AC. They installed it in earlier works and can do it now. Many options are available.
- They do have anti-spall linings but costs can vary a lot - from \$100/square meter to \$300/sq. m. All the way from a shoe manufacturer to Dutch and French options.
- Two other interesting pieces of information:
  - He knows of two military bases that repair all military vehicles for ZSU for free (e.g. accu, belts - stuff needed to make it drivable).
  - Ukrainian logistics can get any military vehicles to any location in Ukraine for free.
- Video with their armored humvee prototype: <https://www.youtube.com/watch?v=YUJI5HVwSnA&>
- Iron Nuts Photos: <https://photos.app.goo.gl/rozKEjkCsDH96Pv77>

# HOW TO BUY HUMVEES FOR UKRAINE



## From Global Security on Hardening Vehicles

### **Add-on armor kits**

For a humvee, the typical add-on armor kit is just over a thousand pounds. It would have secondary impacts in terms of your suspension and your powertrain. The Army had to test those things out to make sure that they were giving a soldier something that can endure in combat; it won't just break the minute he starts to operate it. So the level-two kit is a sophisticated requirement and one that has been very successful in adapting, not just for humvees but, for a variety of systems. Templates have been designed in part by the drivers who operate the equipment, with Defense Logistics Agency-approved steel being used. The level-two humvee kit has materials that have been designed by the department, tested by the department and then moved to installation sites. It takes somewhere around 30 or 40 hours of labor it takes to put one of these kits on a humvee.

Typical level-three efforts that are done in the combat zone are hardened doors, hardened side posts, additional protection here underneath, on the side of the vehicles. But it's not the same total encompassing solution as in a level-one kit.

### **Sandbags**

Sandbags are effective in reducing the effects of blasts, preventing fire from reaching the driver, and providing protection from small arms fire and fragmentation. Sandbags are usually readily available and do not permanently impair the flexibility of vehicles. Sandbags can easily be added or removed from the vehicle as the situation dictates. One drawback to using sandbags is that their weight limits the vehicle's capability to haul cargo.

Hardening vehicles with armor plating places abnormal stresses on the vehicle that can result in early component failure. It is common for engine mounts, cab mount bushings, and bolts to loosen. For this reason, they should be checked, tightened, and replaced regularly. In the past the vehicle deadline rate for hardened vehicles was up to 20 percent greater than for nonhardened vehicles.

Sandbags become torn or punctured in day-to-day use. They also collect and hold water, causing metal surfaces to rust. Added maintenance is required to keep the sandbags in good condition and to prevent rust. Sandbags should be checked periodically and removed or replaced. When the sandbags are removed, the vehicle metal should be cleaned, painted (if necessary), and allowed to dry before the sandbags are replaced. Empty sandbags and ties should always be kept in the vehicle.

It is critical that the most protective material available be used to harden a vehicle. Ballistic tests show that sand is about twice as effective as clay in hardening vehicles. At a maximum velocity of 3,250 feet per second at a range of zero feet, it takes about .6 feet of sand and 1.2 feet of clay to stop a 5.56-mm round. At a maximum velocity of 2,750 feet per second, it takes about .9 feet of sand or 1.7 feet of clay to stop a 7.62-mm round. Finally, at the maximum velocity, it takes about 1.4 feet of sand or 2.6 feet of clay to stop a 50-caliber round."

### **From Misc Forums**

The up armor kit was designed to give 360 degree protection to the cab of the HUMVEE and was composed of 900kg of plates, panel, doors, and an armored roof.

Someone here was selling 4 x 8 foot sheets of Kevlar level 3 this past week. If I remember correctly each sheet weighed less than 350 pounds. Cut correctly you should be able to get three sheets to cover the critical parts.