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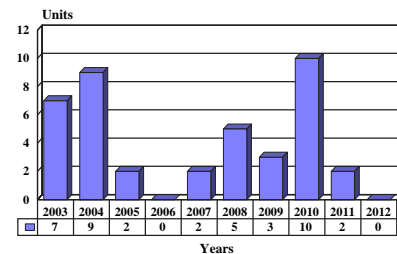
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## LOV Series - Archived 8/2004

### Outlook

- The LOV vehicle is in production for the domestic requirement
- Development is ongoing
- The LOV is being promoted on the international market
- There is only a minimal modernization and retrofit potential through the mid-term

10 Year Unit Production Forecast  
2003 - 2012



### Orientation

**Description.** A wheeled vehicle.

**Sponsor.** The development and procurement of the LOV Series is supported by the Ministry of Defense of Croatia.

**Contractors.** The LOV Series of armored vehicles was developed and is being manufactured by the Torpedo company, Rijeka, Croatia. This firm operates under the state-owned RH-ALAN organization, other portions of which act as subcontractors supplying components to the Torpedo firm. Other subcontractors include the Deutz and Zahnradfabrik Friedrichshafen firms.

**Licensees.** None

**Status.** The LOV Series of light armored vehicles is in serial production to meet the domestic requirement.

New variants of the vehicle and different armament suites are in development.

**Total Produced.** As of January 1, 2003, a total of 301 LOV Series light armored vehicles had been manufactured.

**Application.** A light armored vehicle designed to address a variety of military missions, ranging from an armored personnel carrier and scout/reconnaissance vehicle to an armored command post.

**Unit Price.** In equivalent 2003 United States dollars, the armored personnel carrier version of the LOV Series has a unit price of \$265,100. This version is armed with an M2HB 12.7 millimeter machine gun and a 7.62 millimeter machine gun. This vehicle has not yet been traded on the open market by principals or brokers.

### Technical Data

**Crew.** Two: commander and driver, plus eight or 10 infantrymen depending on the internal configuration.

**Configuration.** 4x4

**Dimensions.** The following data are for the last production standard of the basic armored personnel carrier version of the LOV Series vehicle armed with an M2HB machine gun.

Length:	<b>SI units</b> 5.89 meters
Width:	2.39 meters
Height:	2.10 meters

<b>US units</b> 19.32 feet
7.84 feet
6.89 feet

	<u><b>SI units</b></u>	<u><b>US units</b></u>
Combat weight:	7.2 tonnes	7.94 tons
Fuel capacity:	170 liters	45.21 gallons

**Performance.** The maximum speed and range figures assume use on a metaled road.

	<u><b>SI units</b></u>	<u><b>US units</b></u>
Maximum speed:	120 kilometers per hour	74.5 miles per hour
Maximum range:	800 kilometers	496.8 statute miles
Step:	50 centimeters	1.64 feet
Trench:	55 centimeters	1.80 feet
Slope:	35%	35%
Gradient:	65%	65%
Fording:	1.0 meter	3.28 feet

**Engine.** This vehicle is fitted with a Deutz BT6L 912S air-cooled, supercharged diesel engine rated at 100.67 kilowatts (135 horsepower) at 44.17 revolutions per second (2,650 revolutions per minute). The power-to-weight ratio is 13.98 kilowatts per tonne (17 horsepower per ton). A 24-volt electrical system with two 100- ampere-hour batteries is the standard electrical fit.

**Gearbox.** The LOV Series is fitted with a Z5-35S manually operated gearbox provided by Zahnradfabrik Friedrichshafen; this unit has one reverse and five forward gear ratios.

**Suspension and Running Gear.** The 4x4 LOV Series suspension uses leaf-type springs. A hydropneumatic shock damper at each wheel station is attached to the hull by a rubber shock damping component. The vehicle is fitted with a central tire pressure regulation system, and the 14.5R 20 tires are fitted with run-flat inserts.

**Armament.** The armored personnel carrier version of the LOV Series is fitted with a protective mount housing a 12.7 millimeter M2HB machine gun. A 7.62 millimeter machine gun can be fitted in addition to or in place of the M2HB. Other armament configurations are detailed below.

## Variants/Upgrades

**Variants.** The basic LOV Series vehicle described above is designated Opce Potpore or LOV-OP. The LOV Series has also been developed into the following variants:

**LOV-IZV.** This is a dedicated scout/reconnaissance vehicle armed with the 12.7 millimeter M2HB machine gun and a 40 millimeter grenade launcher, smoke grenade launchers, and an eight-barrel/60 millimeter rocket launcher. It is fitted with additional communications equipment.

**LOV-Z.** This is an armored command post vehicle fitted with additional sound reduction insulation, extensive communications equipment (including a field telephone switchboard), and an air conditioning system. The vehicle is fitted with a 2.5 kilowatt generator.

**LOV-ED.** This is an electronic warfare vehicle fitted with electronic jamming equipment and a roof-mounted antenna.

**LOV-ABK.** This is a dedicated nuclear, biological, and chemical reconnaissance vehicle armed like the IZV. The ABK is fitted with detection equipment as well as a collective protection system and a special ventilation system.

**LOV-UP1.** This LOV variant is a dedicated artillery fire control vehicle. The UP1 is fitted with an extensive

sensor suite including a low-light electro-optical viewing system, a thermal imaging system, and a laser rangefinder. The sensor pod is mounted on a hydraulically operated arm that can be raised 9 meters (29.5 feet) above the ground. Extensive communications equipment, computerized target data equipment, a Global Positioning System receiver, and related equipment are located inside the vehicle. A battlefield radar system can also be fitted if desired.

**LOV-UP2.** This variant is also a dedicated artillery fire control vehicle. Designed to be used at the battery level, the UP2 is fitted with extensive communications equipment, computerized fire control and target data equipment, and related gear.

**LOV-RAK 24/128.** This rocket launching variant of the LOV has been modified by cutting down the rear of the hull in order to mount a 24-round launcher for M91 128 millimeter rockets. The launcher can be traversed 360 degrees while elevation is +46 degrees and depression is -1 degree. A door is positioned on each side of the vehicle between the wheels. A total of 24 reload rockets are carried in the vehicle; the M2HB armament is retained. Other equipment includes a PC-1 panoramic telescope and an Fw-2 computer.

**Strijela 10 CROA1.** This surface-to-air missile system is broadly based on the LOV vehicle.

Modernization and Retrofit Overview. No modernization or retrofit programs have yet been developed for the LOV Series vehicle.

## Program Review

**Background.** The Croatia region was one of the most heavily industrialized parts of the former Yugoslavia. Croatia provided much of the infrastructure for the development and manufacture of the old Yugoslavia's armored vehicles and military trucks. Therefore, when Yugoslavia broke up in 1991, Croatia already had much of what it needed to be self-sufficient in military vehicles of all types.

In 1992, the Torpedo truck company, located in Rijeka, was awarded a contract to develop and fabricate a 4x4 light wheeled combat vehicle by the Croatian government. The company decided to base the design of the new combat vehicle on proven components; therefore, the chassis of the Torpedo HV TK-130 T-7 heavy-duty truck was used as the base for the new vehicle. The Torpedo firm has subsequently become a component of the state-owned umbrella arms organization RH-ALAN.

**Description.** The new 4x4 light armored vehicle, called the LOV (an acronym for Lako Oklopno Vozilo - light armored vehicle), is actually a family of vehicles that is still being developed. The chassis of the Torpedo HV TK-130 T-7 heavy-duty truck is suitably modified and strengthened, then integrated with a new-design hull and other components. The hull of the LOV is of all-welded steel alloy armor construction, affording protection from

Armor Piercing projectiles up to 7.62 millimeters in caliber as well as ballistic fragments and land mines; additional armor can be fitted if desired. The driver is seated to the left front of the vehicle and is provided with a bulletproof windscreen, a single-piece hatch with an integral traversing periscope, and night vision devices. The commander is seated to the right of the driver in front of his hatch cover, which is fitted with a traversing periscope. The engine and gearbox are mounted between and below the driver and the commander. A forward-opening door is located on each side of the vehicle; these doors are not fitted with a firing port or vision block.

The rear compartment contains the seated infantrymen, who enter and leave the vehicle via two outward-opening doors at the rear. On each side of the hull in the troop compartment is a firing port and rectangular window that can be covered by an armored shutter if desired. On top of the troop compartment are two roof hatches and the M2HB machine gun armament with shield.

Optional equipment available for the LOV vehicle includes a vehicle intercommunication system, different radios, air conditioning, an electrically powered winch, additional waterproofing, and a nuclear, biological, and chemical defense system.

## Funding

Funding for the development and procurement of the LOV Series of light armored vehicles is being provided by the Croatian Ministry of Defense.

## Recent Contracts

Not available, as contractual information is not released.

## Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Early	1992	Development begun
	1993	First armored personnel carrier prototype vehicle completed
	1993-1995	Additional prototype and developmental vehicles completed
Mid	1995	LOV Series of light armored vehicles first seen in public
	1995-1997	Fabrication and testing of additional prototype/developmental vehicles
Mid	2003	Production ongoing; development continues

## Worldwide Distribution

**Export Potential.** The LOV Series of light armored vehicles is being promoted on the export market. Interest in the vehicle has been expressed by a European nation whose identity has not been revealed. However, since Croatia is still a new and unknown entity in the market, it will be some time before any export sales are made.

**Countries.** **Croatia** (301)

## Forecast Rationale

The serial production of the LOV Series of vehicles has slowed considerably, a reflection of the maturation of the program, at least for the basic requirement for Croatia. Models of most of the known variants have been produced, again for domestic needs. The vehicle remains in development, and is being internationally marketed. The procurement objective for Croatia is now

put at around 340 vehicles, a goal that should be met in 2011. The LOV does have some sales potential on the export market, most likely to another country in the region or possibly to a country in the Middle East. We are not forecasting such a sale at the present time, however, as Croatia is still an unknown player on the market, and this program is still somewhat new.

## Ten-Year Outlook

### ESTIMATED CALENDAR YEAR PRODUCTION

Vehicle	(Engine)	<u>High Confidence Level</u>					<u>Good Confidence Level</u>			<u>Speculative</u>			Total 03-12
		through 02	03	04	05	06	07	08	09	10	11	12	
RH-ALAN													
LOV SERIES (a)	BT6L 912S	301	7	9	2	0	2	5	3	10	2	0	40
Total Production		301	7	9	2	0	2	5	3	10	2	0	40

(a) The through 2002 production figure includes six prototype and developmental vehicles. The production does not include the LOV-RAK 24 multiple launch rocket system or the Strijela 10 CROA1 surface-to-air missile system.