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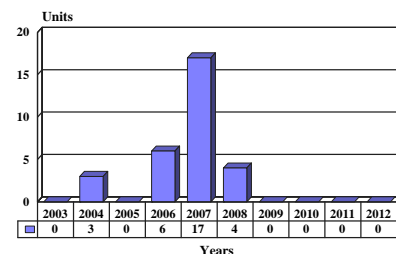
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Véhicule de Combat à Roues, Véhicule de Combat à Roues TT2 and Véhicule de Combat à Roues-2 - Archived 8/2004

Outlook

- Production of these vehicles is on an as-needed basis
- All forecast production is for export
- All versions of these vehicles will continue to be enhanced in order to maintain marketability
- Latest version (VCR-2) was being promoted for major Polish procurement

10 Year Unit Production Forecast
2003 - 2012



Orientation

Description. Wheeled armored vehicles.

Sponsor. These vehicles are all private development programs funded by the contractor, Panhard et Levassor.

Contractors. These vehicles have been developed and are manufactured by Société de Constructions Mécaniques Panhard et Levassor, Paris, France. Giat Industries, Peugeot, and Zahnradfabrik Friedrichshafen are the major subcontractors.

Licensees. For the competition to supply Poland with 720 new vehicles of this type, Panhard was teamed with the Fabryka Samochodow Cieszarowych firm.

Status. The Véhicule de Combat à Roues (in the 4x4 and 6x6 versions) is in production on an as-needed basis; the Véhicule de Combat à Roues TT2 and Véhicule de Combat à Roues-2 versions are awaiting production orders.

Total Produced. As of January 1, 2003, a total of 268 Véhicule de Combat à Roues 6x6 and 26 4x4 vehicles had been manufactured. In addition, three Véhicule de Combat à Roues TT2 prototype vehicles had been manufactured. No Véhicule de Combat à Roues-2 vehicles had yet been fabricated, even in prototype form.

Application. Armored vehicles designed primarily for armored personnel carrier, reconnaissance, and other infantry support missions.

Unit Price. In equivalent 2003 United States dollars, the unit price of the base Véhicule de Combat à Roues 6x6 vehicle is \$327,600; for the 4x4 version, the price is \$287,900. The unit price for the TT2 version is \$333,400, and the newest Véhicule de Combat à Roues-2 has a projected unit price of \$352,000.

Technical Data

Véhicule de Combat à Roues 4x4

Crew. Three: commander, driver and gunner, plus nine infantrymen.

Configuration. 4x4

Armor. The Véhicule de Combat à Roues is fabricated from steel-alloy armor having a maximum thickness of 12 millimeters, proof against 7.62 millimeter Ball projectiles and ballistic fragments. The configuration of the floor armor enhances protection against land mines.

Design Features. The Véhicule de Combat à Roues is a robust-design amphibious vehicle that is optimized for sale on the export market.

Dimensions. The following data are for the 4x4 TT armored personnel carrier version of the Véhicule de Combat à Roues. The height figure is with the 7.62 millimeter machine gun mounted.

	<u>SI units</u>	<u>US units</u>
Length:	4.88 meters	16.01 feet
Width:	2.48 meters	8.13 feet
Height:	2.69 meters	8.83 feet
Combat weight:	7.8 tonnes	8.59 tons
Fuel capacity:	242 liters	64.36 gallons

Performance. The maximum speed and range figures are for a metaled road. The water speed is 7.2 kilometers per hour (4.47 miles per hour).

	<u>SI units</u>	<u>US units</u>
Maximum speed:	100 kilometers per hour	62.5 miles per hour
Maximum range:	800 kilometers	497.1 statute miles
Step:	40 centimeters	1.31 feet
Trench:	1.1 meters	3.61 feet
Slope:	30%	30%
Gradient:	60%	60%
Fording:	amphibious	amphibious

Engine. Peugeot supplies the Model PRV V6 spark ignition engine rated at 115.58 kilowatts (155 horsepower) at an engine speed of 91.67 revolutions per second (5,500 revolutions per minute). The power-to-weight ratio is 14.82 kilowatts per tonne (18.04 horsepower per ton). A 24 volt electrical system is standard.

Suspension and Running Gear. In the 4x4 version, all wheel stations are fitted with single coil springs and telescopic hydraulic shock dampers. The 11.00x16 tires are fitted with run-flat inserts. It is propelled in the water by two waterjet units mounted on each side of the hull.

An alternate engine fit is the Peugeot XD3T supercharged diesel engine rated at 73 kilowatts (97.86 horsepower). With this engine, the power-to-weight ratio is 9.36 kilowatts per tonne (11.39 horsepower per ton). A 24 volt electrical system is standard.

Armament. The basic armored personnel carrier version mounts a 7.62 or 12.7 millimeter machine gun or a 20 millimeter cannon. These weapons can be mounted in a variety of ring mounts/shields, cupolas, or turrets. Other versions mount the MILAN anti-tank missile system in the MCT turret or the HOT anti-tank missile system in the UTM 800 turret. Other armament fits are described below.

Gearbox. Panhard supplies the manually operated gearbox for the Véhicule de Combat à Roues. It has one reverse and six forward gear ratios. A limited slip differential is fitted.

Véhicule de Combat à Roues 6x6

Crew. Three: commander, driver and gunner, plus nine infantrymen.

12 millimeters, proof against 7.62 millimeter Ball projectiles and ballistic fragments. The configuration of the floor armor enhances protection against land mines.

Configuration. 6x6

Armor. The Véhicule de Combat à Roues is fabricated from steel alloy armor having a maximum thickness of

Design Features. The Véhicule de Combat à Roues is a robust-design amphibious vehicle that is optimized for sale on the export market.

Dimensions. The following data are for the 6x6 TT version of the Véhicule de Combat à Roues. The height figure is with the 7.62 millimeter machine gun mounted.

	<u>SI units</u>	<u>US units</u>
Length:	4.88 meters	16.01 feet

	<u>SI units</u>	<u>US units</u>
Width:	2.50 meters	8.20 feet
Height:	2.56 meters	8.39 feet
Combat weight:	7.9 tonnes	8.71 tons
Fuel capacity:	242 liters	64.36 gallons

Performance. The maximum speed and range figures are for a metaled road. The water speed is 4 kilometers per hour (2.49 miles per hour).

	<u>SI units</u>	<u>US units</u>
Maximum speed:	90 kilometers per hour	55.9 miles per hour
Maximum range:	700 kilometers	434.7 statute miles
Step:	40 centimeters	1.31 feet
Trench:	110 centimeters	3.61 feet
Slope:	30%	30%
Gradient:	60%	60%
Fording:	amphibious	amphibious

Engine. Peugeot supplies the Model PRV V6 spark ignition engine rated at 108.1 kilowatts (145 horsepower) at 91.67 revolutions per second (5,500 revolutions per minute). The power-to-weight ratio is 13.69 kilowatts per tonne (16.65 horsepower per ton). A 24 volt electrical system is standard.

Alternatively, the Peugeot XD3T supercharged diesel engine rated at 73 kilowatts (97.86 horsepower) can be fitted. With this engine, the power-to-weight ratio is 9.24 kilowatts per tonne (11.24 horsepower per ton). A 24 volt electric system is standard. The vehicle is propelled in the water by two engine-operated waterjets with steering deflectors located at the rear of the hull.

Gearbox. Panhard supplies the manually operated gearbox for the Véhicule de Combat à Roues. The unspecified unit has one reverse and six forward gear ratios.

Suspension and Running Gear. In the 6x6 version, all wheel stations are fitted with single coil springs and telescoping hydraulic shock dampers. A hydropneumatic shock damping system is included for the center two wheels. These wheels are normally raised when the vehicle is operated on a surfaced road. The 11.00x16 tires are fitted with run-flat inserts.

Armament. The basic armored personnel carrier version mounts a 7.62 or 12.7 millimeter machine gun or a 20 millimeter cannon. These weapons can be mounted on several types of ring mounts/shields or in a variety of turrets. Other versions mount the HOT anti-tank missile system in the UTM 800 turret or the MILAN anti-tank missile system in the MCT Turret.

Véhicule de Combat à Roues TT2

Crew. Two: commander and driver, plus 10 to 12 infantrymen, depending on the interior fit.

Configuration. 6x6

Armor. The Véhicule de Combat à Roues is fabricated from steel-alloy armor having a maximum thickness of 13 millimeters, proof against 7.62 millimeter Ball

projectiles and ballistic fragments. The configuration of the floor armor enhances protection against land mines.

Design Features. The Véhicule de Combat à Roues TT2 is a robust-design amphibious vehicle that is optimized for sale on the export market. A unique feature of the vehicle is that it has two engines.

Dimensions. The following data are for the latest prototype of the Véhicule de Combat à Roues TT2.

	<u>SI units</u>	<u>US units</u>
Length:	6.14 meters	20.14 feet
Width:	2.7 meters	8.86 feet
Height:	2.27 meters	7.45 feet
Combat weight:	9.6 tonnes	10.58 tons
Fuel capacity:	350 liters	93.09 gallons

Performance. The maximum speed and range figures are on a metaled road, with the vehicle powered by two spark-ignition engines. The water speed is 7.2 kilometers per hour (4.47 miles per hour).

	<u>SI units</u>	<u>US units</u>
Maximum speed:	110 kilometers per hour	68.31 miles per hour
Maximum range:	600 kilometers	372.6 statute miles
Step:	80 centimeters	2.63 feet
Trench:	80 centimeters	2.63 feet
Slope:	30%	30%
Gradient:	52%	52%
Fording:	amphibious	amphibious

Engine. The Véhicule de Combat à Roues TT2 is equipped with two engines. It is offered with either the PRV V6 engines as described above, giving a total power rating of 216.34 kilowatts (290 horsepower), or the Peugeot XD3T supercharged diesel engines, each rated at 73 kilowatts (97.86 horsepower), giving a total power rating of 146 kilowatts (195.72 horsepower). With the two PRV V6 engines, the power-to-weight ratio is 22.54 kilowatts per tonne (24.41 horsepower per ton); with the XD3T engines, the power-to-weight ratio is 15.21 kilowatts per tonne (18.5 horsepower per ton). This vehicle uses the same 24 volt electrical system used in the basic Véhicule de Combat à Roues, only doubled. It is propelled in the water by two steerable propellers.

Gearbox. The Véhicule de Combat à Roues TT2 uses two Zahnradfabrik Friedrichshafen 4 HP 22 automatic gearboxes, each with one reverse and four forward gear ratios. Two Panhard two-speed transfer cases are used.

Suspension and Running Gear. The 6x6 Véhicule de Combat à Roues TT2 features an all-wheel independent suspension system, with each wheel linked to trailing arms with a helicoidal spring suspension. The front and rear wheel stations are provided with a hydropneumatic suspension unit. The center wheels, which are normally raised when traveling on a surfaced road, have hydraulic shock dampers.

Armament. The Véhicule de Combat à Roues TT2 has essentially the same armament options as the basic vehicle described above.

Véhicule de Combat à Roues-2

Note: This vehicle was proposed for the major Polish contract which was won in early 2003 by Finland's (Patria Vehicles) Armored Modular Vehicle. At the time of this writing, it is not known whether the Véhicule de Combat à Roues-2 program is being offered in any form.

Crew. Two: commander and driver, plus 8 to 12 infantrymen, depending on the interior fit.

Configuration. 8x8

Armor. The Véhicule de Combat à Roues-2 is fabricated from steel alloy armor having a maximum thickness of 13 millimeters, proof against 7.62

millimeter Ball projectiles and ballistic fragments. The configuration of the floor armor enhances protection against land mines.

Design Features. The Véhicule de Combat à Roues-2 is a robust-design amphibious vehicle that is optimized for sale on the export market. A unique feature of the vehicle is that it has two engines.

Dimensions. The following data are provisional for the Véhicule de Combat à Roues-2. The length and fuel capacity are estimated.

	<u>SI units</u>	<u>US units</u>
Length:	6.78 meters	22.24 feet
Width:	2.7 meters	8.86 feet
Height:	2.27 meters	7.45 feet
Combat weight:	14.6 tonnes	16.09 tons
Fuel capacity:	350 liters	93.09 gallons

Performance. The maximum speed and range figures are on a metaled road, with the vehicle powered by two spark-ignition engines. The water speed is 10 kilometers per hour (6.21 miles per hour).

	<u>SI units</u>	<u>US units</u>
Maximum speed:	100 kilometers per hour	62.1 miles per hour
Maximum range:	800 kilometers	496.8 statute miles
Step:	80 centimeters	2.63 feet
Trench:	80 centimeters	2.63 feet
Slope:	40%	40%
Gradient:	60%	60%
Fording:	amphibious	amphibious

Engine. The Véhicule de Combat à Roues-2 is equipped with two engines. It will most likely be offered with supercharged diesel engines of sufficient combined power to provide a power-to-weight ratio of at least 20 kilowatts per tonne (27 horsepower per ton). A doubled 24 volt electrical system will be used. It will be propelled in the water by two steerable propellers or waterjets.

Gearbox. The Véhicule de Combat à Roues-2 will use automatic gearboxes.

Suspension and Running Gear. The 8x8 Véhicule de Combat à Roues-2 features an all-wheel independent suspension system, with each wheel linked to trailing arms with a helicoidal spring suspension. The front and rear wheel stations are provided with a hydropneumatic suspension unit. The center wheels, which are normally raised when traveling on a surfaced road, have hydraulic shock dampers.

Armament. The Véhicule de Combat à Roues-2 has essentially the same as armament options as the TT2 vehicle described above.

Variants/Upgrades

Variants. As is common with French light wheeled vehicles, the Véhicule de Combat à Roues and Véhicule de Combat à Roues TT2 have been developed and produced in a number of variants. The Véhicule de Combat à Roues has also been developed in a 4x4 configuration which was unveiled in 1979 at the Satory weapons fair. Other than a slightly different roof arrangement and the different automotive components, the 4x4 version is identical to the basic vehicle. Similar versions of the 4x4 variant have been developed. One new version mounts the Mephisto launcher system for the MBDA (Euromissile) HOT anti-tank guided missile; this vehicle has a crew of three and weighs 7.8 tonnes (8.6 tons).

VCR/TH. This variant is a dedicated anti-tank platform. It mounts the HOT anti-tank guided missile system in the UTM 800 turret on a raised plinth to the rear of the commander's station. Four missiles are at the ready, and an additional 10 missiles are carried in the hull; these missiles are reloaded via a hatch in the roof. To the rear of the HOT turret on the roof of the vehicle is a Mascot remote-control 7.62 millimeter machine gun mount with 360-degree coverage and 200 rounds of ready-use ammunition.

VCR/AA. This variant is a dedicated anti-aircraft weapon system mounting the Bofors Defense RBS70 anti-aircraft missile system. One missile is carried at the ready with eight additional missiles in reserve. When traveling, the RBS70 launcher is retracted into the hull. A crew of three men operate the vehicle, which weighs

7.5 tonnes (8.27 tons). Unveiled in 1984, this model has yet to enter serial production.

VCR/IS. This is an ambulance vehicle. It has a higher hull than the rest of the Véhicule de Combat à Roues vehicles. The vehicle carries a crew of three plus four stretcher patients (or six sitting and two stretcher). Additional medical equipment is also carried.

VCR/PC. This is a command vehicle that has been modified from the basic Véhicule de Combat à Roues. Additional communications equipment, mapboards, and related equipment are carried.

VCR/AT. This variant of the Véhicule de Combat à Roues is a repair vehicle. A block and tackle can be erected in order to make engine changes. While this vehicle has no recovery capability, it can tow disabled vehicles. A tent can be erected at the rear of the vehicle for additional working space.

Véhicule de Combat à Roues TT2. At the 1983 Satory weapons fair, Panhard officials noted that many customers desired a diesel engine and an automatic gearbox in the vehicle. Also, a slightly larger and heavier version was desired. As further research indicated that a power-to-weight ratio of 15 kilowatts per tonne would be necessary, and no military or commercial truck engine of 150 kilowatts was acceptable for the projected 10 tonne weight, Panhard decided to couple two of the model PRV V6 engines that equip the basic Véhicule de Combat à Roues.

Alternatively, two 73 kilowatt (97.9 horsepower) XD3T supercharged diesel engines could be supplied to provide the power for the new vehicle. The XD3T engine was originally designed for commercial automobile applications and is a very reliable powerplant.

For the gearboxes, Panhard chose the Zahnradfabrik Friedrichshafen 4 HP 22 automatic gearbox with one reverse and four forward gear ratios. A two-speed transfer box from Panhard is also fitted. Power-assisted steering, run-flat tires, and disc brakes (also power assisted) are standard. The amphibious vehicle is propelled in the water by two steerable propellers.

The hull is of all-welded steel construction, affording protection from small arms projectiles and ballistic fragments. The driver is seated in the front of the vehicle at the center and is provided with a single-piece hatch cover with integral periscope and two additional periscopes. The center periscope can be replaced with an infrared or imaging intensification device for night vision requirements. The engine compartment is to the rear of the driver to the right. The commander is seated to the rear and left of the driver in an elevated position. The commander is provided with a single-piece hatch cover and periscopes. The machine gun or cannon armament is located in the center of the vehicle to the rear of the commander's position. To the rear of the vehicle, the infantrymen are seated along each side of the hull facing each other. While the standard number of infantrymen that can be accommodated is 12, fewer are carried when additional armament is fitted.

Four observation and firing hatches are on top of the vehicle, above the troop compartment. These can be locked open if desired. On the upper portions of each side of the vehicle are four single-piece hatches. A door is provided on each side of the vehicle; in addition, a large door that is hinged on the left is at the rear of the Véhicule de Combat à Roues TT2. It is fitted with two observation blocks and firing ports. Optional features on the Véhicule de Combat à Roues TT2 include air conditioning, a front-mounted winch, a nuclear, biological, and chemical overpressure system, and night vision equipment.

Véhicule de Combat à Roues-2. The 6x6 Véhicule de Combat à Roues TT2 has been further developed into the 8x8 Véhicule de Combat à Roues-2. This new vehicle, still a paper proposal, was being proposed to Poland, which has a requirement for up to 720 new armored vehicles of this type. For this competition,

Panhard has teamed with the Fabryka Samochodow Cieszarowych firm. However, in early 2003, the competing Armored Modular Vehicle from Patria Vehicles was selected to fill the Polish requirement.

Armament Options. The armament options for the various Véhicule de Combat à Roues vehicles are extensive and include the following: (While Creusot-Loire has been absorbed by Giat Industries, for clarity, the firm and its products are listed as they were referred to before the acquisition.)

- A 7.62 or 12.7 millimeter machine gun on a pintle mount.
- The Creusot-Loire Industrie CB rotating gun ring with a 7.62 millimeter machine gun.
- The Creusot-Loire Industrie STB Ring Mount with shield and 7.62 millimeter machine gun.
- The Creusot-Loire Industrie Twin 7.62 turret with two 7.62 millimeter machine guns.
- The Creusot-Loire Industrie CB 20 gun ring with a 20 millimeter cannon.
- The Creusot-Loire Industrie mount for TDA (Thomson-Brandt) 60 millimeter breech loaded mortar.
- The Creusot-Loire Industrie TL 20 one-man turret with a 20 millimeter cannon.
- The Creusot-Loire Industrie STR rail mount with a 7.62 millimeter machine gun.
- The Société d'Application des Machines Motrices BTM 263 with a 60 millimeter mortar and a 7.62 millimeter machine gun.
- The Giat Industries Toucan I turret with a 20 millimeter cannon and 7.62 millimeter machine gun.
- The MBDA (Euromissile) MCT turret with two MILAN anti-tank missiles.

This list is probably not all-inclusive; for further details on these turrets, mounts, and weapons, please refer to **Appendix II.**

Modernization and Retrofit Overview. As of mid-2003, no significant modernization and retrofit programs have yet been developed for the Véhicule de Combat à Roues.

Program Review

Background. The Panhard company dates back to 1866 with the manufacture of automobiles in conjunction with Levassor. At the turn of the century, Panhard & Levassor incorporated valveless engine technology into their automobiles, a development immediately recognized by the French military. Thereafter, a few of the Panhard vehicles were equipped with machine guns and used in the Moroccan campaign in the early 1900s, among the first uses of motorized vehicles in combat.

While automobiles remained its prime manufacturing business through the mid-1930s, Panhard developed and built the AMD 178 armored car for the French cavalry and delivered over 400 units through 1940. Its reputation was excellent, and production was resumed in 1946. During the post-World War II period, Panhard developed the Engin Blindé de Reconnaissance, and the series production model, fitted with an FL-11 turret, was delivered to the French Army in 1951. The 1950s saw the manufacture of 1,200 vehicles for the French and Portuguese armies, and some of them are still in service in ex-French and Portuguese colonies.

In 1959, Panhard presented its first prototype of the highly successful Automitrailleuse Légère armored car in response to French Army needs. The original order for 2,000 vehicles was preempted by the French decision to fabricate and deploy an embryonic nuclear force structure under President Charles de Gaulle. This action reduced the French order to 600 units, as funding for almost all conventional programs was reduced drastically by the priorities given to French nuclear forces. Panhard started a strong foreign sales effort which resulted in the Automitrailleuse Légère family of vehicles becoming a worldwide market leader in armored cars.

The success of the Automitrailleuse Légère as well as the other Panhard vehicles on the export market prompted the firm to develop another new vehicle for this market. The development of the new Véhicule de Combat à Roues in the 6x6 configuration began in 1975. In order to enhance the appeal of the new vehicle, the Véhicule de Combat à Roues was developed in a 4x4 version following its initial display at the Satory weapons fair in 1977. The Véhicule de Combat à Roues has 95 percent commonality with the Engin de Reconnaissance Cannon, another successful Panhard

program that was also first revealed in 1977. In 1979, the 6x6 version of the Véhicule de Combat à Roues entered serial production for the export market.

Description. This description is for the basic armored personnel carrier version of the Véhicule de Combat à Roues, which is designated VCR/TT; the 4x4 and 6x6 vehicles are essentially the same. The hull is of all-welded steel construction, affording protection from small arms projectiles and ballistic fragments. The floor of the hull is composed of two V-shaped plates for resistance to land mines. The driver is seated forward at the center and is provided with a single-piece hatch cover and seven periscopes. The center periscope can be replaced with an infrared or imaging intensification device for night vision requirements. The engine compartment is to the rear of the driver to the right.

The commander is seated to the rear and left of the driver in an elevated position. The commander is provided with a single-piece hatch cover and seven periscopes. The machine gun or cannon armament is located in the center of the vehicle to the rear of the commander's position. To the rear of the vehicle, the infantrymen are seated along each side of the hull facing each other. While the standard number of infantrymen that can be accommodated is 10, that number is reduced to six when a 20 millimeter armament system is fitted.

On top of the vehicle, above the troop compartment, are two observation and firing hatches; these can be locked open if desired. There is another single-piece hatch cover at the rear of the roof. A large door that is hinged on the right side is located at the rear of the Véhicule de Combat à Roues; it is fitted with a firing port.

Only the front wheels are steered; the steering mechanism is hydraulic. The front and rear wheels are sprung by coil springs with hydraulic dampers. The middle wheels are sprung with hydropneumatic units and are raised when the vehicle travels on paved roads.

A number of turret/ordnance options are available. In addition, the basic vehicle comes standard with Hutchinson run-flat inserts for the tires. Options include a turret-mounted ventilator; internal lighting; nuclear, biological, and chemical protection equipment; a ground navigation system; air conditioning; and a winch with 60 meters (196.85 feet) of cable.

Funding

Funding for the development of the Véhicule de Combat à Roues has been provided by the contractor.

Recent Contracts

Not available, as contractual information is not released.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1975	Panhard design/conceptual studies initiated
June	1977	Véhicule de Combat à Roues unveiled at Satory weapons fair
	1977	Development of 4x4 version begun
June	1979	4x4 version unveiled at Satory weapons fair
October	1979	Serial production of Véhicule de Combat à Roues begun
	1980	Development of Véhicule de Combat à Roues TT2 begun
June	1983	Véhicule de Combat à Roues TT2 unveiled at Satory weapons fair
	1995	Development of Véhicule de Combat à Roues-2 begun
Mid	2003	Production on an as-needed basis; development continues

Worldwide Distribution

Export Potential. In its marketing effort for the Véhicule de Combat à Roues, Panhard undoubtedly is focusing on user confidence in the Automitrailleuse Légère family of vehicles as well as its other products such as the M3, the Engin de Reconnaissance Cannon, and the Véhicule Blindé Légère, which are operating in at least 50 nations. Panhard has no problem with name recognition, and the continued success of its products, including all versions of the Véhicule de Combat à Roues, seems assured.

Countries. Sales of some variants of the Véhicule de Combat à Roues have been confirmed to **Argentina** (24 VCR/TT in 4x4 configuration); **Iraq** (100 VCR/TH – the original order); **Mexico** (2 VCR/PC); and the **United Arab Emirates-Abu Dhabi** (82 VCR/TT, VCR/IS, VCR/AT, VCR/PC). Other sales have gone unrecorded.

Forecast Rationale

No new sales of the Véhicule de Combat à Roues vehicles have been reported in some time. The most interesting recent development in the Véhicule de Combat à Roues program was the advent of the 8x8 Véhicule de Combat à Roues-2, in 1995, but this vehicle, developed for the large Polish requirement, lost out in early 2003 to a competing design and is now dormant. However, the Véhicule de Combat à Roues-2 design is indicative of the trend in light wheeled vehicles toward larger and more sophisticated designs.

Panhard's product line offers the more discriminating buyer of light wheeled vehicles a complete range. Except for the Véhicule de Combat à Roues-2, the other members of this vehicle family continue to be marketed worldwide, and some additional sales on the export market are expected. While the newer TT2 has yet to record its first sale, the marketing effort continues. As is the norm for this type of vehicle, some sales are expected to go unreported as they will be to national police or other internal security organizations.

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
		thru 02	03	04	05	06	07	08	09	10	11	12	
PANHARD & LEVASSOR S.A.													
VCR TT 2 (a)	MODEL PRV V-6	3	0	0	0	0	0	0	0	0	0	0	0
VCR-2 (b)	MODEL PRV V-6	0	0	0	0	0	0	0	0	0	0	0	0
VEHICULE DE COMBAT A ROUES (c)	MODEL PRV V-6	268	0	0	0	6	14	2	0	0	0	0	22
VEHICULE DE COMBAT A ROUES(d)	MODEL PRV V-6	26	0	3	0	0	3	2	0	0	0	0	8
Total Production		297	0	3	0	6	17	4	0	0	0	0	30

(a) The through 2002 production is for the initial prototype and developmental vehicles.

(b) This vehicle was a proposal related to the competitive Polish requirement for 720 new light wheeled vehicles. It is essentially an 8x8 version of the VCR TT 2 vehicle.

(c) The through 2002 production includes six prototype and development vehicles. This production line is for the 6x6 version only.

(d) The through 2002 production includes two prototype and developmental vehicles. This line is for the 4x4 version of the vehicle only.