

ERC-90 DEVELOPMENT

Standing for *Engin de Reconnaissance Canon*, or gun-armed reconnaissance vehicle, the ERC-90 was based on experience gained from development of the EBR-90 and AML series of armored cars now in operation with more than 30 countries.

Designed to meet the growing requirement for a light, air-portable, heavily armed vehicle to support the French Rapid Deployment Force (*Force d'Action Rapide*), the ERC-90 S as developed by Panhard, is an outstanding example of an armored vehicle that is both very light and has considerable fire-power.

DESCRIPTION

Sporting a turret mounted 90mm Gun, the ERC-90 can fire a fin-stabilized, high explosive antitank (HEAT) round with a velocity of 950 m/s (3,116 ft/s). At nearly 1,000 meters per second, this speed gives a flat trajectory, improving first round hit probability. In addition to firing the HEAT round, the ERC-90 also fires high explosive (HE), smoke, and canister, as well as a fin-stabilized, discarding-sabot round (APFSDS). The APFSDS round can penetrate 120mm of armor plate at 60 degrees from a range of 2,000 meters.

To improve accuracy the 90mm/22-caliber cannon is fitted with a thermal sleeve to reduce tube bend.

There is also a muzzle brake fitted to reduce recoil force. This was one of the first guns fitted with a muzzle brake that is still able to fire the discarding sabot type round.

In addition to the 90mm gun the turret of the ERC mounts the usual 7.62 mm coaxial machinegun. Equipped for a two man crew in the turret, there is also room for 20 ready rounds of 90mm, with a further 10 to 20 rounds stored in the hull.

In order to improve the combat silhouette the ERC has a drive train that runs down the sides of the hull so that there are no drive line components in the center of the vehicle. As a consequence the top of the hull of the ERC is no higher off the ground than a comparable fully tracked vehicle.

The use of trailing arm suspension has also made it possible to have a wider hull in relationship to it's length than is usually the case with wheeled armored vehicles. Each of these trailing arms contains a set of gears through which the wheels are driven.

The Panhard ERC-90 S

David R. Haugh

It is also possible to lift the center set of wheels off the ground for operation on surfaces where four wheels are sufficient. The center set of wheels are powered even when lifted off the ground. This arrangement is similar to the EBR 90 series of vehicles.

Running on four wheels also made it possible to design for front wheel steering only, allowing for a wider center section since room didn't have to be allowed for steering the center wheels. The floor of the hull consists of two plates welded



Panhard
ERC-90S
Photo:
Panhard
et
Levassor



Panhard ERC swimming, using its two hydrojets. Note the engine compartment ducts in the raised position.

EMC 81mm Mortar Gun Carrier. An open topped turret fitted with an 81mm breech-loading mortar and a 7.62mm machinegun.

Several other one off versions also been produced, mostly with various twin anti-aircraft 20mm turrets.

SPECIFICATIONS

- Crew: 3
- Armament: (1) 90mm Cannon (1) 7.62mm MG
- Length: 7.78 meters (26' 2") w/gun forward Hull 5.2 meters (19' 3")
- Width: 2.5 meters (8' 10")
- Height: 2.24 meters (7' 7")
- Weight: 10,000 kg (22,046 lbs)
- Engine: Two Peugeot XD 3T 4-cyl diesels developing a total of 196 hp
- Fuel Cap: 242 liters (63.9 gals)
- Max Road Speed: 100 km/h (62 mph)
- Range: 600 km (370 miles)
- Tire Size: 11.00 x 16
- Vertical Obstacle: .8 meters (2' 8")
- Trench: .8 meters (2' 8")
- Maker: Panhard et Levassor

STATUS

In service with France, Iraq, Mexico, Chad, Argentina, Ivory Coast, and Niger.

SUGGESTED FURTHER READING.

Jane's Light Tanks and Armoured Cars by Christopher F. Foss. Jane's, 1984.

Jane's World Armoured Fighting Vehicles by Christopher F. Foss. St Martin's Press, 1976.

New Observer's Book of Tanks & Other Armoured Vehicles, The by Charles Messenger. Frederick Warne Publishers, 1984.

Armor In French Rapid Assistance Forces, *ARMOR*, September-October 1982 by Col. Andre L. Rilhac

Le 1^o Regiment de Hussards Parachutistes, *ARMOR*, November-December 1987 by Captain Emmanuel Legendre.

The Panhard ERC-90S, *ARMOR*, November-December 1981 by Richard M. Ogorkiewicz.

together to form a flat V, as an aid against mine blast, and centering on obstacles.

In it's basic form the ERC-90 is not amphibious, but it can ford in water up to 1.2 meters (approximately 3 feet 10 inches) deep.

To make the ERC-90 amphibious, it is fitted with sheet metal floats at fender level. Each float is filled with closed-cell foam to inhibit water entry in case the cell is punctured. The amphibious version is also fitted with two hydrojets for propulsion. This gives the ERC a water speed of approximately 9 km/h (5.6 mph).

In addition to the usual hinged splash board or trim vane, there are two swivelling ducts at the sides of the engine compartment that are raised for water operation to prevent the engine being flooded.

OPERATIONS

A typical mission for the ERC-90 is supplying mobile firepower combined with low weight and rapid movement. An example is the employment of the ERC-90 with Le 1^o Regiment de Hussards Parachutistes of the French 11th Airborne Division.

Le 1^o Regiment is a true combined arms unit made up of seven troops able to operate semi-independently. The regiment consists of: three light armored cavalry troops (each with 12 ERC-90s) and one Troop of 1/4-ton mounted Milan Anti-tank Guided Missiles.

In operations each ERC troop has four platoons with three ERCs and three 1/4-ton. The anti-tank troop itself consists of four platoons with six ATGMs mounted on jeeps; the HQ/Svc platoon which includes one Air Defense platoon of 20mm guns, and one long-range pathfinder and reconnaissance airborne platoon.

Another French unit is the *Marine Armored Cavalry Squadron* (the only one of it's type). Part of the 9th *Marine Division* based in Brittany, the squadron is equipped with 160 VLRA personnel carriers and 62 ERC-90 armored cars.

VARIANTS

The The basic Panhard ERC design has sprouted a whole set of variants and sub-versions including:

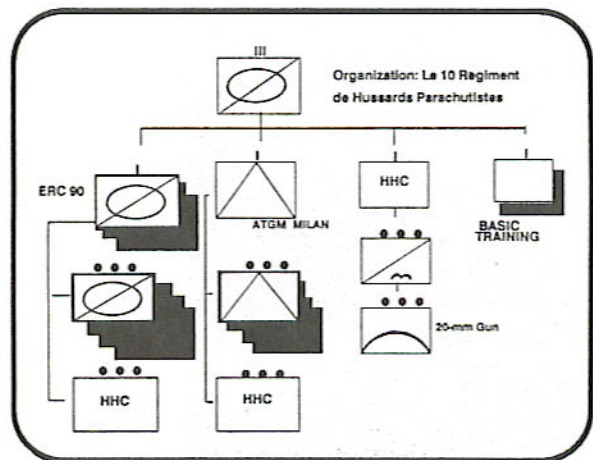
ERC-90 F4 Sagaie. This is the first version fitted with a GIAT TS 90 turret.

ERC-90 F4 Sagaie TTB 190. This version is fitted with a larger, better armored SAMM TTB turret. The same 90mm cannon as the original ERC is still used.

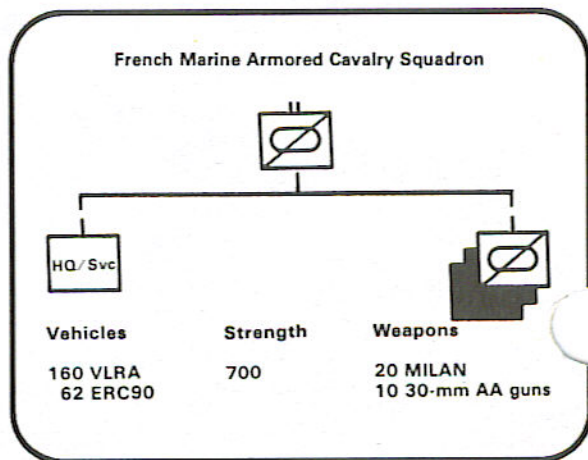
ERC-90 F1 Lynx. Fitted with a Lynx 90 turret, this is the version used by Mexico.

ERC-90-20 Serval. Fitted with a turret mounted 60mm breech loading mortar and a 20mm cannon.

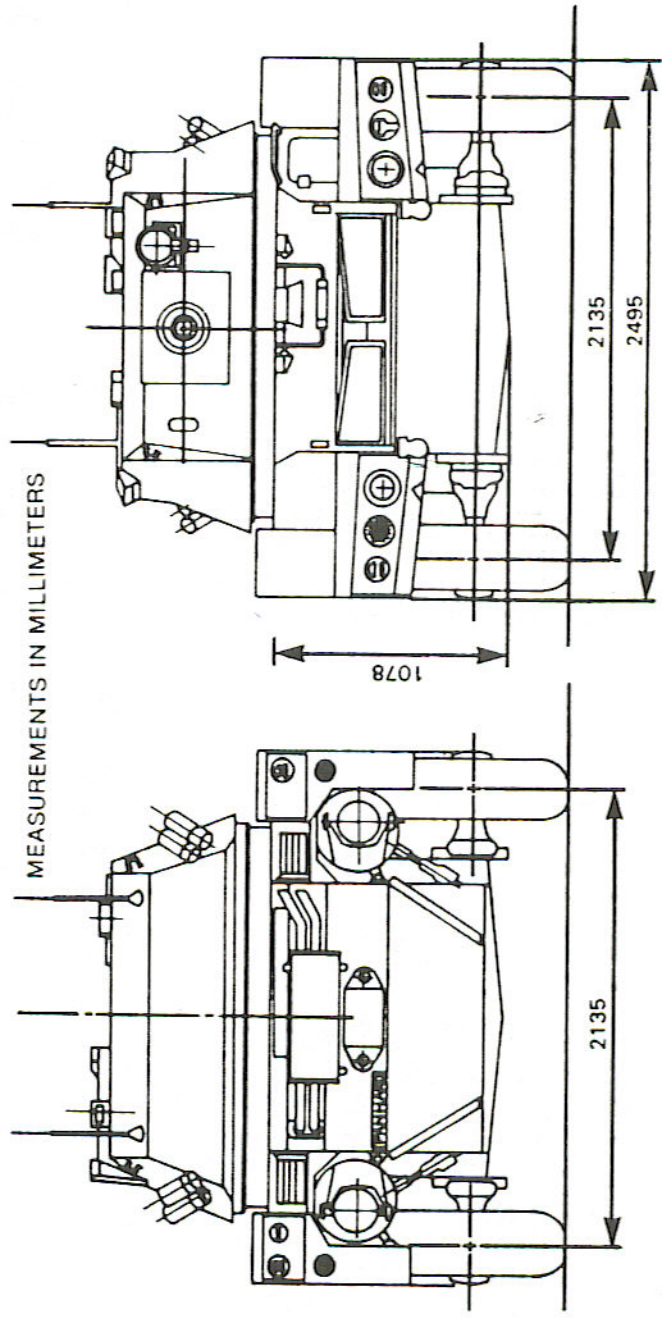
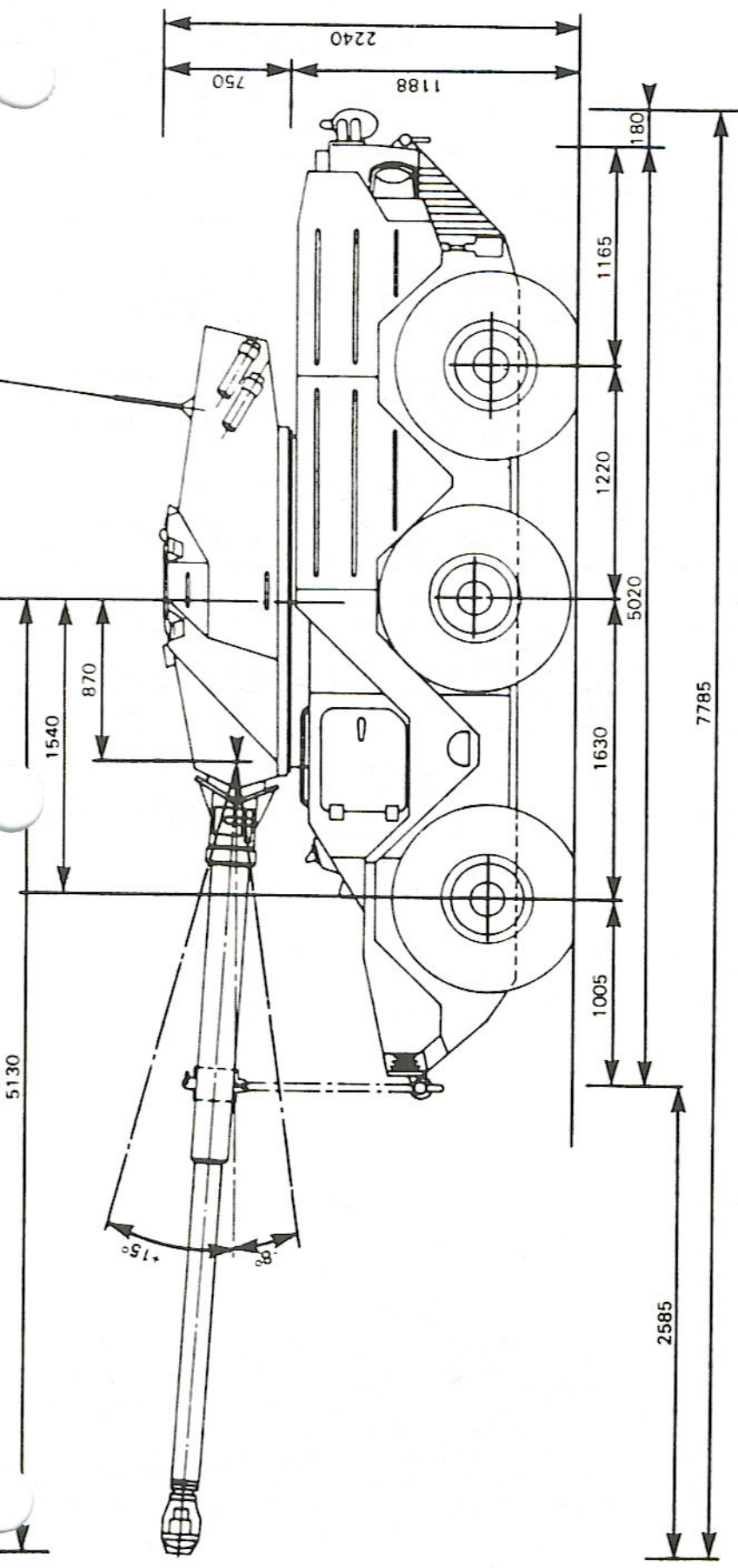
ERC 60/12. Fitted with a 60mm Brandt LP mortar and a .50 caliber machinegun.



Typical organisation charts for a French airborne and Marine Cavalry unit. The Hussards 10th Regiment has a total of 36 ERC-90s.



Panhard ERC-90 S



MEASUREMENTS IN MILLIMETERS

Drawing Panhard
Scale 1/35th

L'automitrailleuse White-Laffly

By David R. Haugh

Designated an Automitrailleuse de decouverte or AMD (for long range road reconnaissance and attack) armored car the French, the White resulted from the installation of armored body by Segur et Lorfeuvre on the American White chassis. Originally constructed on a set of 20 truck chassis imported in 1915, the White proved to be among the best and most useful of all the French cars of World War I.

(Just to add to the confusion, the White was also referred to as an AMC Automitrailleuse de Cavalerie or Cavalry armored car.)

Fitted with a single large turret, the White carried an 8mm machinegun and a 37mm cannon mounted directly opposite each other. Some cars had a second machinegun in place of the cannon.

In July of 1917 as the Allies geared up for yet another year of war, the French Army put forward a requirement to rebuild and reequip their armored car units. This work included 150 new vehicles and reconstruction of all existing Whites.

French industry was overstretched and work didn't start until late 1918. The first contract had been let to Berliet, but an explosion at the production line and the resulting delay forced moving the contract to Renault, who eventually completed the modifications and new construction.

At the end of World War I there were 17 groups of armored cars assigned in groups of two or three to the major cavalry units at divisional and army corps level. Each of these groups consisted of three combat sections of 4 armored cars, generally Whites but occasionally Peugeot or Renaults, plus a command and service section. These vehicles made up the base of the motorised Cavalry into the early '30s.

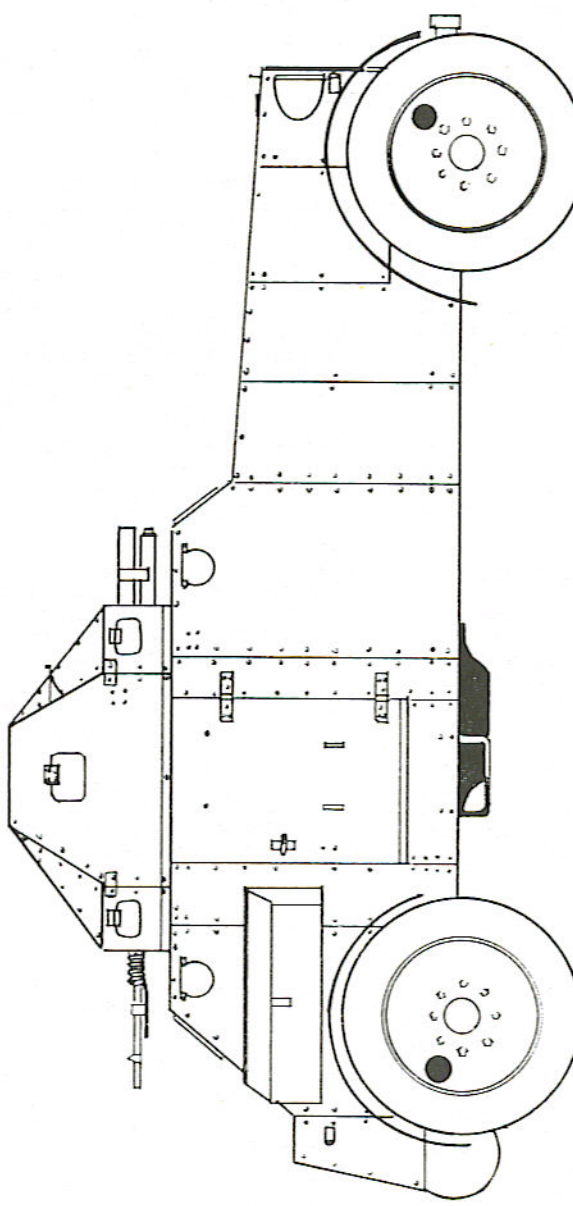
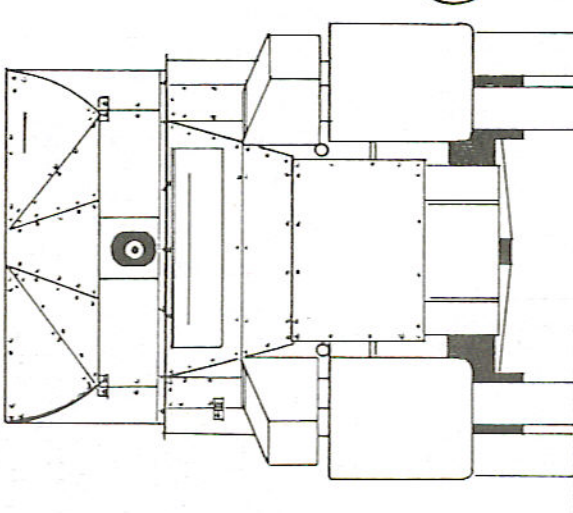
Whites saw action in France during WWI, the occupation the Rhine region, Morocco and North Africa, the Levant (Syria and Lebanon) and even Shanghai. Whites were operation until at least 1941 where they saw action against the occupation of the Levant by allied and Free French forces, as part of the two regiments of Chasseurs d'Afrique and Foreign Legion units equipped with Whites among other vehicles.

Crew: 4. **Weight:** 6000 kg (13,324 lbs). **Power:** White, 4-cyl, gasoline, 35 hp. **Armament:** (1) 37mm cannon and (1) 8mm MG. **Armor:** 5mm. **Speed:** 45 Kph (28 mph). **Range:** 240 km (150 miles). **Maker:** (Chassis) White Motor Co., (Body) Segur et Lorfeuvre. **Length:** 18' 4" (5.58m). **Width:** 6' 1" (2.05m). **Height:** 9' 1/2" (2.75m).

Continued on page 8

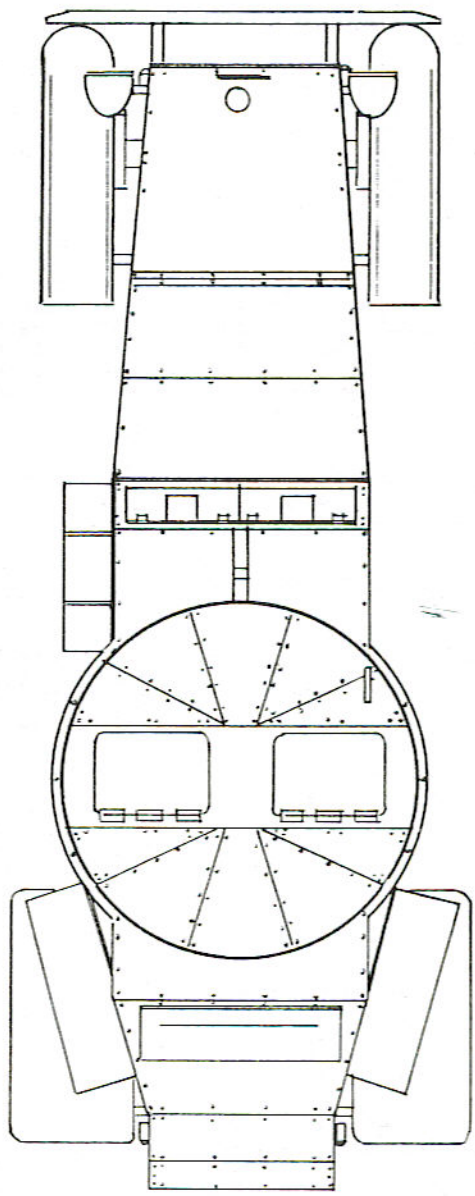
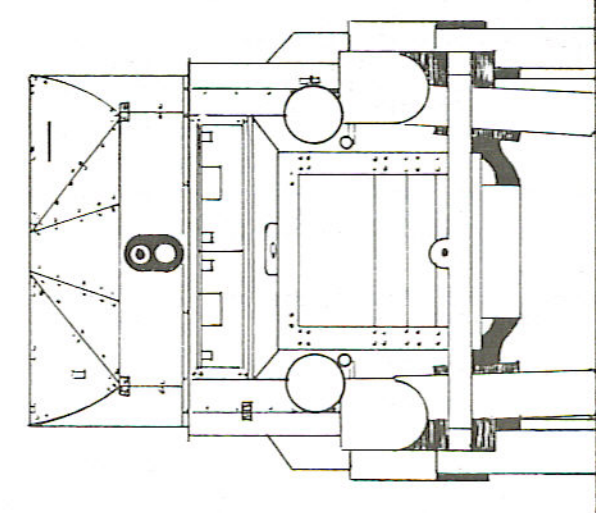
Below: AMD Whites in Syria sometime between 1939 and 1940. Note how the rubber has been gouged out of the solid rubber tire. Below right: An AMC White in Tunisia during the early 30s. The marking on the door is a large French tri-color, blue, white and red from left to right.





Scale 1/35th

David R. Haugh - March 1991



WHITE-LAFFLY circa 1939

Letters

Dear Dave,
 News from the "Old Continent". The Belgian magazine *Ve Mil* continues with a series on the French EBR family of armored cars. #5 contains the third part with interior photos, and technical drawings of the engine, steering, wheels and chassis. #4 also had a report on the new "Victory Museum" in Belgium. (*Ve Mil* can be obtained in the U.S. from *AMM Review*, 17525 SW Alexander, Aloha, OR 97006)

(Matthais Roth sent me some photos from this museum, and they have quite a collection. Once I can afford to change the reproduction methods for ARMORED CAR, I'll start printing many of the wonderful photos I've received over the past few months - ed)

The Musee Royal de l' Armee Belge in Brussels is restoring an AEC Mk II A/C and has received another Humber Mk IV.

Where do tired armored cars live now?

AB-41: Two of them were in the De Henriquez Collection in Triest, these seem to have now "disappeared".

AB-40: A running vehicle is in the Jackie Pichon Collection. Address: Auberge du Cheval Noir, 76690 Cleres, FRANCE.

AB-41: One is in South Africa at the South African National Museum of Military History, Erlswald Way, Sasconwald, Johannesburg, South Africa.

BA-64: One each are in the Armee Museum, Dr Kurt Fisher Platz 3, 8060 Dresden, Germany; the Moscow Museum, USSR; and at Aberdeen Proving Grounds, Maryland, USA.

Finally, I've seen some new kits: Two Ferrets from *Sovereign*, the Mk I and Mk II versions in 1/35th scale at \$25 (\$50) each; and an SdKfz 221 for \$29.50 (\$60). Also saw *Accurate Armour* FV 1611 Humber "Pig" for \$40 (\$80) and the Belgo Models conversion for the armored M151 Mutt. -Patrice DeBucquoy, Lannoy, France

Dear Dave,
 Over the last few weeks I have been in contact with various kit manufacturers and have lists of new kits for this year.

Dragon/DML 1/35th, BTR-70, BTR-80, BRDM-2, BRDM-3, BRDM-Gaskin.

Italeri 1/35th, LAV-25.

Tamiya 1/35th. Reissue of Daimler Dingo.

Cromwell Models 1/35th, GMC "Otter" LRC, Staghound Mk I/II, AEC 4x4 Dorchester ACV, AEC Decon 6 pdr SPG, AEC Mk II/III.

Dartmoor MM 1/35th, Alvis Saladin, Alvis Saracen.

Accurate Armour 1/35th, CVR(W) Fox.

Sovereign 1/35th, Humber Mk II/III/ IV, Humber Scout Car.

ADV-Azimuth 1/35th, M-8 Greyhound, M-20 "Utility".
 Phil Greenwood, Bridlington, GB

...an update on one of last issue's plugs...

Dear Dave,
 Just a quick note regarding the *Miniature Armoured Fighting Vehicle Collector's Association (MAFVA)*. We have been going AS long as *AFV News*. The current issue of both publications is Volume 26/1. We were one society until we went our separate ways each with Vol 1/1.

The sub rates you quoted will fall very short I'm afraid. Our glorious banking system charges us over £4.50 (\$9.00) to cash a US Dollar cheque!

We don't want to disappoint any of your readers by false representation, so please would you mention this problem in a future issue. We are persuing a US bank account but it has not yet been resolved. -Gary Williams, Heaton Mersey, GB

(A quick addition would make the subscription rate for *MAFVA* about \$20 a year surface or \$25 a year by air. Write to: M.A.F.V.A., c/o Gary Williams, 15 Berwick Avenue, Heaton Mersey, Stockport, Cheshire SK4 3AA, Great Britain. -ed)

...finally regarding models...

Dear Dave,
 Could you ask your readers to write *Monogram* to ask them to reissue the M8 and M20 armored car kits? Three years ago I gave my son an M8 kit, which he built, he ended up winning a trophy in one IPMS show and a ribbon and \$25 in another. I always thought the M8 was a nice kit for a beginner to start with.
 -Rick Almedia, Pawtucket, RI

(I still have a pair of the *Monogram* M-8 kits sitting on my shelf waiting for inspiration to strike. I never have seen the M20 version, although different people have told me they saw them. The address for *Monogram* is: *Monogram Models Inc.*, Morton Grove, IL 60053. -ed)

Plugs

For the *real* military vehicle collectors out there, here are a couple of publications that you'll find of interest. The first is *Military Vehicles*. The latest issue I have on hand is #24 which covers collecting and restoring Chevrolet 1-1/2 ton trucks; a guide to military vehicle restoration (this part was about restoring power trains); an article on the Car, Armored,

Utility, M20, and a piece on frame repair. The rest of the 72 pages are made up of an amazing array of both business and personal armored military vehicles and related for the collector.

Military Vehicles is published bi-monthly and at \$15 a year is a good bargain. *Military Vehicles*, P.O. Box 1748, Union, NJ 07083.

The second publication for the military vehicle collector is a pair of publications that you receive as a member of the *Military Vehicle Preservation Association (MVPA)*. For a \$25 membership fee, you get six issues of *Supply Line*. This publication is very similar to *Military Vehicles*, except that the copy I have doesn't contain any articles. It does contain a wealth of fascinating advertising both private and business on military vehicle related items. I had a great time just sitting down and reading all the ads.

But, that's not all! Four times a year, you also get one of the finest MV publications around, *Army Motors*. I used to buy these one at a time at my local hobby shop, but I kept missing issues.

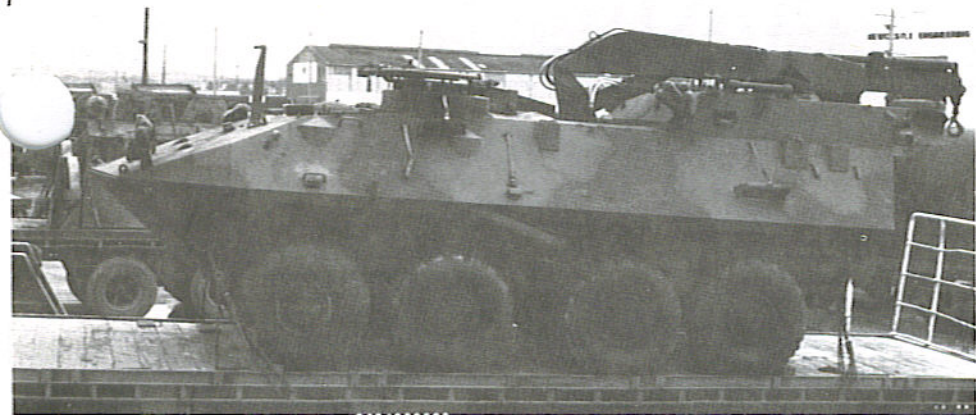
Each issue is full of everything you ever wanted to know about military vehicles, but were too shy to ask. These are real nuts 'n bolt articles with an outstanding selection of photos. This publication and membership in the MVPA highly recommended. *MVPA*, P.O. Box 260607, Lakewood CO 80226, USA. Regular membership is \$25 a year.

Now for the miniature military vehicle collector/builder I have two more recommendations.

Commander Series Models. Even though they only have a couple of wheeled fighting vehicles in their offering at the moment, I'm sure many of you sneak off and build a track layer once in a while. The *Commander Series* offers several 1/35 and 1/76 scale armor conversions and accessories at what are by today's standards, reasonable prices.

A handsome little SdKfz 252 conversion is offered, and Ted Paris says that a (1/35?) BA-64 is on the way. Send \$2.00 to *Commanders Models*, 551 Wegman Road, Rochester, NY 14624 for their catalog, you'll be glad you did.

The second catalog and price list comes from *MB Models*. A collection of resin and metal conversions and full kits, MB's catalog includes items they have produced themselves, as well as imported kits and figures at very reasonable prices. MB offers one of the nicest looking versions of the BTR-60 that I've seen. Get out your \$2.00 now and send them to *MB Models*, P.O. Box 8241, Charleston, SC 29418.



The sole Australian LAV-R Painted in USMC green, brown and black.



AUSTRALIAN LAV-25

Photos Barry Marriott

Armored reconnaissance in Australia is set for its biggest change since the purchase of the M113 APC, following the decision in the summer of 1989 to purchase 14 LAV-25 and one LAV-R wheeled armored vehicles from the USA.

Defense Minister Kim Beazley said the decision to acquire the vehicles for the 2d Cavalry regiment would cost \$25 million Australian dollars (approximately \$20 million dollars US).

The initial machines were delivered to provide working vehicles for one reconnaissance squadron, allowing the Australian Army to study their technical needs and develop tactical doctrine for their use in the Australian Defense Forces (ADF), particularly in northern Australia.

By purchasing the AFVs direct from the US Marines under US Foreign Military Sales regulations the ADF was able to acquire the vehicles together with spares and support quickly. Altogether 100 vehicles will be required eventually to fully equip the 2d Cavalry Regiment for reconnaissance operations in northern Australia.

The LAV-25s are the first new armored vehicle acquired by the ADF since the purchase of the Leopard tank in 1976.

Troopers from the 2d Cav Regt began operational testing in October of 1990, with the emphasis on operations in the north of Australia.

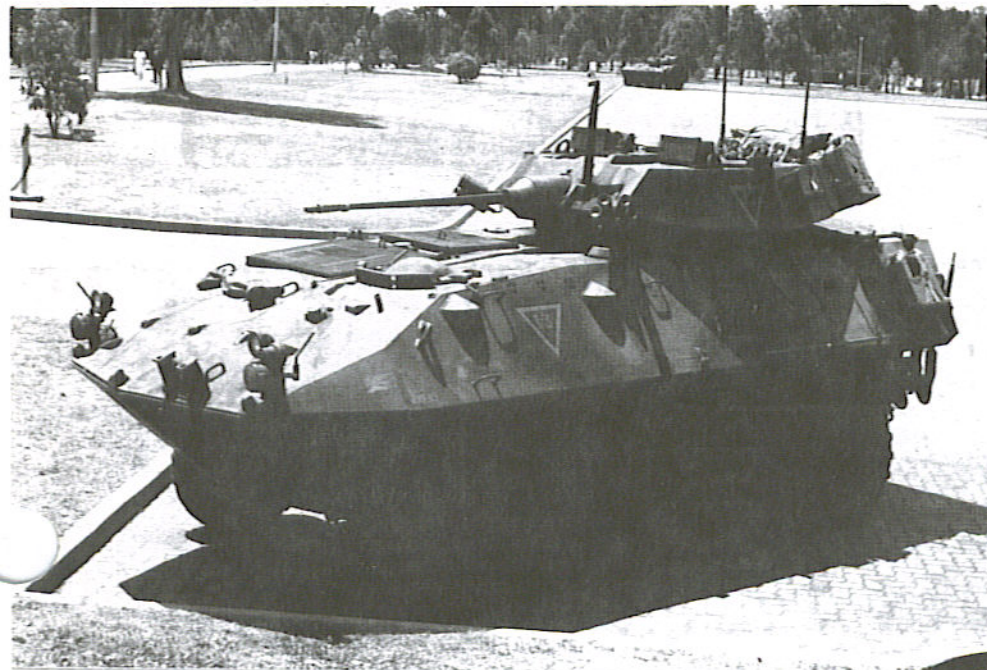
During an exercise in November of the same year, each vehicle covered more than 6500 km, much of it across country, and one troop of six vehicles drove the 4000 km from Tindal, North Territories to Sydney.

During 1991 the unit will return to the same area to gauge the LAV-25's performance during the wet season.

-Army, July 1989 and October-November 1990 issues



Above and below: LAV-25 of the 2d Cavalry Regiment. This machine is green, brown and black, with tan markings over the black. Not visible is the serial 17892 in black just below the headlights on either side.

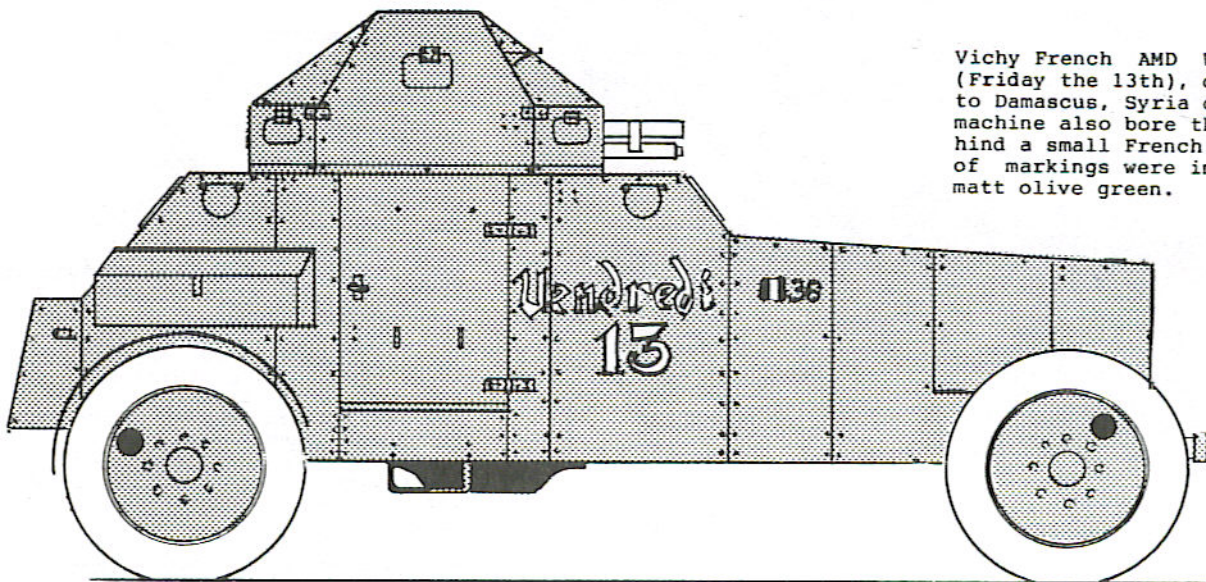


556 N 3rd Street, Woodburn, OR, 97071 U.S.A.

ARMORED CAR



Vichy French AMD White "Vendredi 13" (Friday the 13th), destroyed on the road to Damascus, Syria on 30 June 1941. This machine also bore the serial 36 just behind a small French tri-color. Both sets of markings were in white on an overall matt olive green.



ARMORED CAR

THE WHEELED FIGHTING VEHICLE JOURNAL

EDITORIAL POLICY: The purpose of the *ARMORED CAR* NEWSLETTER is to, "promote interest in; and exchange information on; the history, development, collection, reconstruction, and modeling of wheeled fighting vehicles from around the world". In support of this goal, *ARMORED CAR* encourages international cooperation in researching the history of the development and usage of wheeled fighting vehicles from their initial introduction to the present time. Subscribers are asked to support *ARMORED CAR* by submitting material (photos, drawings, articles, etc.) for publication. A member's subscription will be extended by one issue for each time their material is used. Material is copyrighted by *ARMORED CAR* and no reproduction in whole or in part is permitted without written permission.

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