



## CASCAVEL EE-9

### Armored Fighting Vehicle

By David R. Haugh

#### DEVELOPMENT

The war in the Middle-East has pointed out again the value of the armored wheeled fighting vehicle. These vehicles are light, fast, easily deployed by air, and now-a-days; capable of mounting medium caliber direct fire weapons, and/or missiles. A new renaissance for the armored car seems to be on the horizon. It is significant that two of the three vehicles being considered for replacement of the M551 Sheridan ARV in the 82d Airborne Division are wheeled. Tanks may again have to share center stage with the armored car.

Out of the mixed bag of wheeled fighting vehicles that took part in the Hundred Hour War, I chose the Brazilian built EE-9 Cascavel for this month's article. LAVs, Commando-150s, EBR-90s, FUGs, etc., were all present, but the EE-9 represents sort of a budget, classic armored car.

Expanding on basic, proven design, Brazil is a prime supplier of wheeled armored vehicles to South and Central America as well as Africa and the Middle-East; with (Engesa Engenheiros Especializados) becoming the world's largest manufacturer of wheeled armored vehicles.

Intended as a replacement for the ageing M8 Greyhound armored cars, the first production EE-9's, entered service with the Brazilian Army in 1975. These early vehicles bear an obvious descent from the M8.

Under continuous development, the EE-9 has reached the stage where the fourth and fifth successive models are already in production, replacing the Cascavel Mark III, II and the original 37mm gun Cascavel Mark I built in 1972-73.

#### DESCRIPTION

The first EE-9 to really gain worldwide attention, the Mk III (many of which are still in service), featured a new locally produced turret and main armament, in contrast to the Mk II which was fitted with the H-90 turret and 90-mm gun used on the French AML series of armored cars.

The Mk III thru Mk V also use hulls welded from Engesa's dual hardness armor. This armor is made from two different steels which are rolled into plates with a hard outer layer and a softer but tougher inner layer which gives better protection than a single surface material, providing protection from small arms and fragments. The front plate being proof against .50 caliber

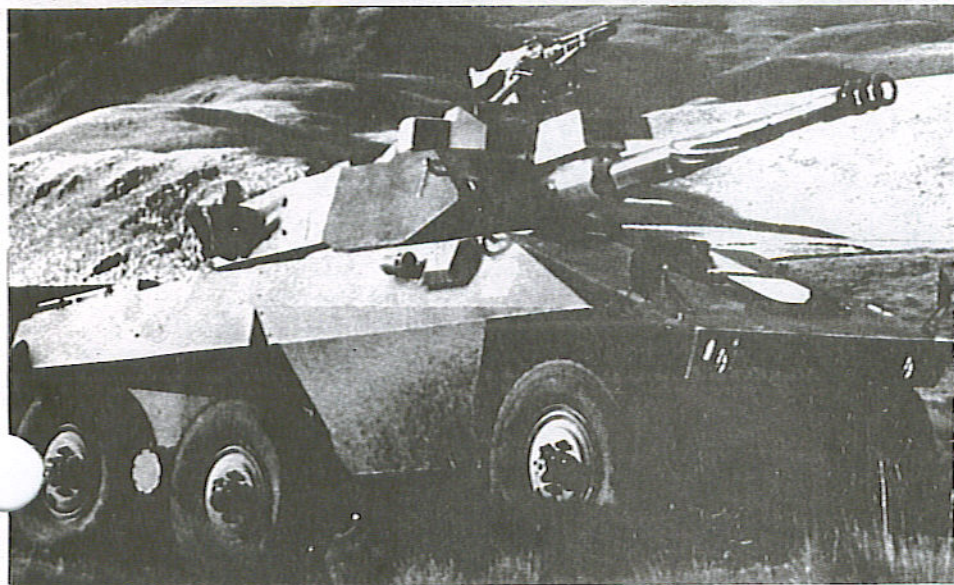
fire. While the crew are protected against mine blast and fragmentation by a hull bottom plate with a thickness of 8.25mm

The Mk III is powered by a 174-hp Mercedes Benz diesel built in Brazil. This is coupled to an Allison automatic transmission. Front wheels feature double wish-bone, independent suspension with Engesa's walking-beam suspension for the rear wheels.

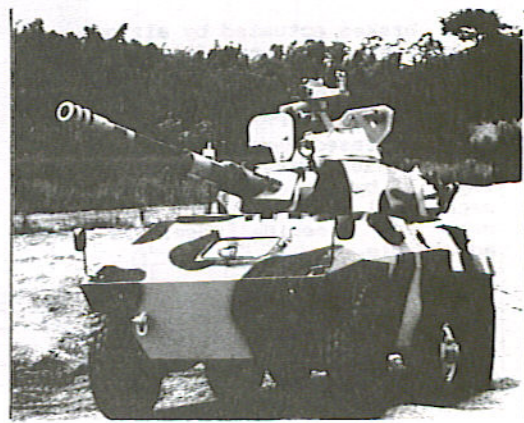
The Mk IV incorporates further automotive improvements, including a more powerful 212-hp Detroit diesel engine, disc brakes and a driver controlled central tire inflation system. This same inflation system had already been fitted to some Mk IIIs, considerably increasing their cross country ability.

The turret of the Mk IV/V has also been improved by incorporating a commander's cupola with an externally mounted machinegun which can be fired by remote control. This turret can either be fitted with a .50 caliber or 7.62mm machinegun.

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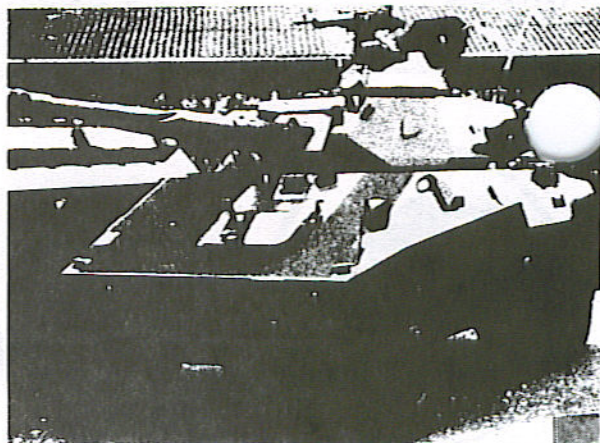


EE-9 Cascavels, machine at bottom right is a mid-production Mk IV. Photos: Engesa





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Left: A pre-production Mk I Cascavel. The M8 influence is clearly visible. Right: An early Cascavel Mk IV. The fittings at the front of the copula are counterbalances for the commander's machinegun.



**SPECIFICATIONS**

(Note: two Mk IV versions have been produced, the latest version is 50mm longer and 50mm wider than the earlier production runs. The dimensions listed are for the more numerous early run).

- Crew: 3
- Armament: (1) 90mm Cannon and (1) 7.62mm MG
- Length: 5.25m (Hull) (17' 2")
- Width: 2.59m (8' 6")
- Height: 2.6m (8' 6")
- Weight: 24,000 lbs (approx)
- Engine: (1) Detroit Diesel Model 6V-53, 6 cylinder, water cooled. Maximum power 212 hp at 2800 rpm. Optional Mercedes Benz diesel.
- Transmission: Automatic, 4 forward, 1 reverse.
- Transfer case: 2-spd, mechanical
- Fuel cap: 103 gals (390 ltrs)
- Max Speed: 62mph (100km/h)
- Range: 466 miles (750 km)
- Tire size: 12.00x20
- Vertical obstacle: .6m (23.6")
- Ford: 1m (3' 3")

**STATUS**

The EE-9 is in service with Bolivia, Brazil, Chad, Chile, Colombia, Cyprus, Gabon, Iran, Iraq, Libya, Qatar, Tunisia, Uruguay, and Zimbabwe.

- Rotary cupola for the commander with one 7.62mm or .50 caliber machinegun.
- Passive day/night vision/sights.
- VHF/FM and/or HF/SSB radios and intercom.
- Laser rangefinder.
- Electrical traverse and gun elevation systems.
- NBC protection.
- Fire protection for engine bay and crew compartment.

The Cascavel Mk V is identical to the IV except for being powered by a 190 hp Mercedes Fenz diesel.

**OPERATIONS**

The Cascavel's combination of an effective main armament and high degree of mobility has found them a role in reconnaissance, screening, security, fire support and antitank missions. Besides taking part in the recent fighting in Kuwait and Iraq, the EE-9 was used by Iraq during the Iraq/Iran war (some being captured by Iran) during the 80's, and a number were used in the invasion of Chad by Libyan back forces in 1983. (The EE-9s in the Chad invasion were of the early model with the French H-90 turret with low pressure 90mm gun). Several of these vehicles were later captured by Chad forces.

In addition, the commander has been provided with a passive day/night sight. There is also a laser rangefinder; a feature a number of earlier Mk IIIs have also retrofitted with.

The current 90-mm gun available for the Cascavel has a range of eight different rounds; APDSFS, HEAT-T, TP-T, HESH, HE, Shrapnel, Canister and WP (Smoke). This wide range of rounds allows for the ability to tailor ammunition loads to the mission.

Six smoke grenade launchers (three on each side of the turret) provide smoke screening when needed. The ET-90 turret has an ammunition capacity of 24 rounds of 90mm ammunition, 800 rounds of 7.62mm and 400 rounds of .50 caliber ammunition. Another 20 rounds of 90mm, 800 rounds of 7.62mm and 400 rounds of .50 caliber are stowed in the hull.

In order to enable the vehicle to continue fighting if the tires are punctured, the EE-9 uses Engesa Run-flat tires. This system consists of an alveolar core inside a pneumatic tire. When the tire goes flat, it contacts the inner core allowing continuous if limited operation.

The driver is able to control tire pressure from within the vehicle, allowing changes in the tire footprint. The three usual pressures are:

- Road.....(57 psi)....4.0 kg/cm<sup>2</sup>
- Off road.....(43 psi)....3.0 kg/cm<sup>2</sup>
- Poor surface.(28.5 psi)..2.0 kg/cm<sup>2</sup>

Disc brakes actuated by air over a hydraulic system are fitted to all wheels, while the safety/parking brake is hand operated acting on transmission output shaft.

For increased maneuverability, and to decrease driver fatigue, steering is by a hydraulic system with mechanical back-up. The driver's seat and steering wheel are both adjustable.

The electrical system uses 24 volts with independent civilian and military lighting provided.

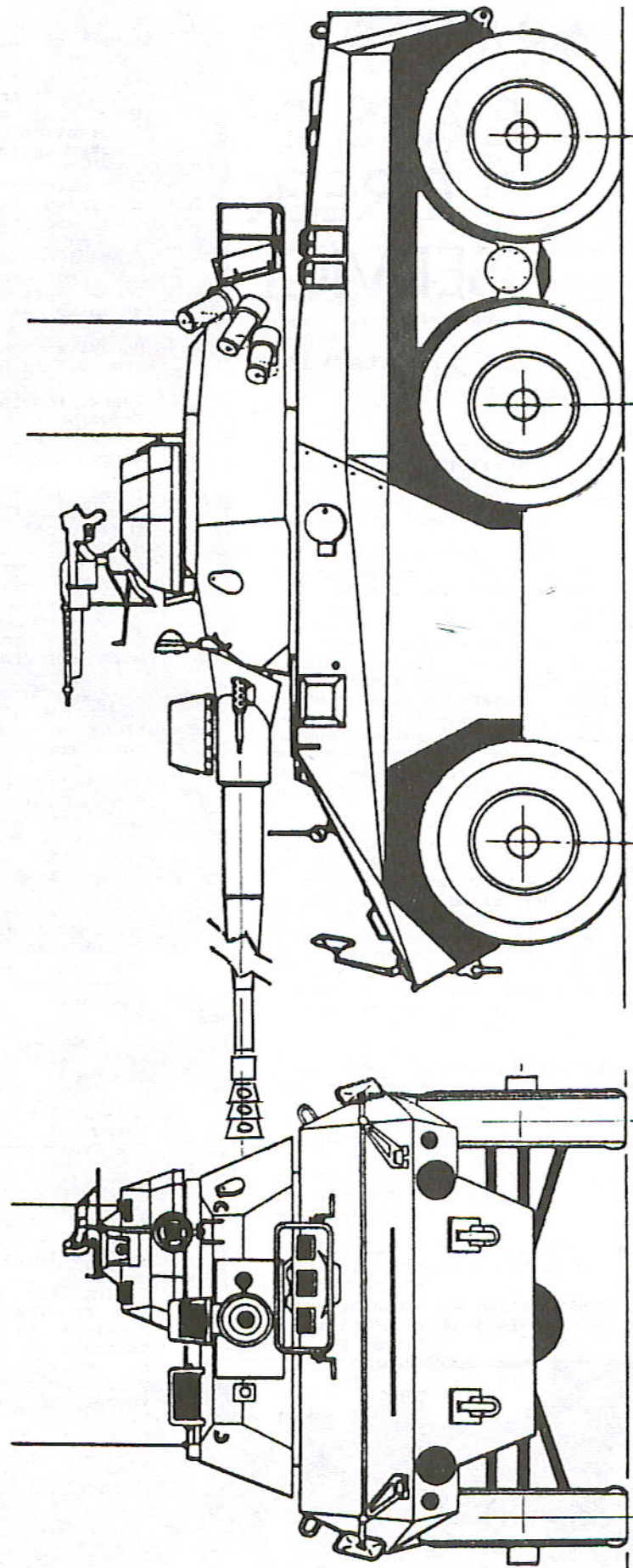
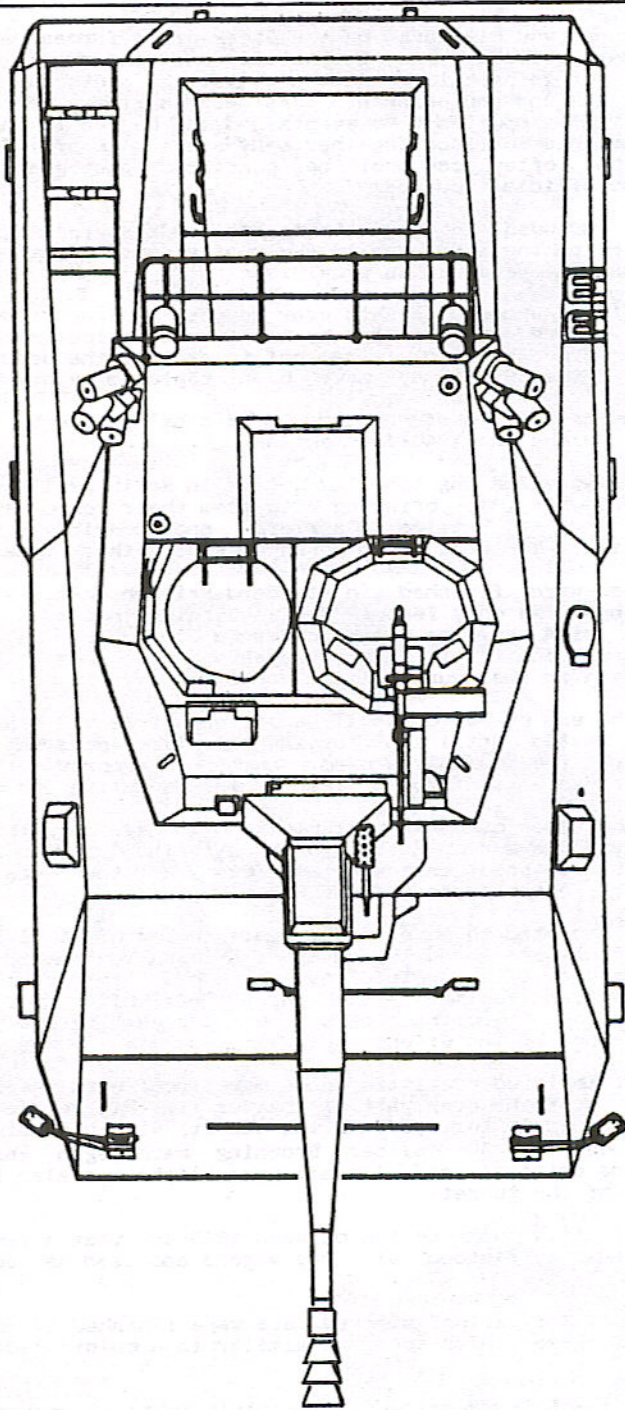
Optional equipment on the current Mk IV/V series includes:





# EE-9 Cascavel Armored Car

Scale 1/35th





# ARMORED CARS IN GREEK SERVICE

By T. Metsovitis

When researching vehicles used by the Greek armed forces, especially those of older periods, one is usually confronted with an almost complete lack of information; written as well as pictorial. It is as if both historians and photographers considered anything mechanical being of trivial importance to events and to the men taking part in them. So, one has to piece together many small bits of informal information that often can not be confirmed photographically or checked against official sources.

The material included in this article has, on its greater part been confirmed from photographs, and indeed mostly come from them, but in some cases should be regarded as provisional.

Probably the first armored cars to ever be used by Greek forces, were two Peerless armored trucks used by the Athens police in the 1920s. These were not armed and had a wire roof to protect the occupants. At a later date, the wire may have been replaced by armor plate.

No evidence has been found of any armored cars being used by the Greek army before or during the 1940-41 fighting.

Greek forces fighting along side the allies in North Africa and Italy returned to Greece in 1945, bringing with them their vehicles. Amongst these were Indian Wheeled Carriers and possibly a number of Marmon-Herrington MK IVf's and perhaps some other types also.

These vehicles were finished in standard British colors and arm of service markings, The only feature distinguishing them as Greek being the formation sign of the Greek forces, a blue square with a white head of Minerva on it. It is also appears that the vehicle numbers were not prefixed in the usual British manner.

Soon after the end of World War II, a violent civil war broke out in Greece which lasted until 1949. During this time, government forces fighting against the communists used a number of armored cars many of which were received as aid from Britain or the US during the conflict.

The most common types of cars available seem to have been the M8, the Humber Mk IV and the Marmon-Herrington MK IVf. The Canadian Ford Lynx along with Humber scout cars were also used, and there was at least one Humber Light Reconnaissance Car (LRC).

One unit is reported to have used a small number of T17E1 Stag armored cars which were found in a dump of British equipment, and sequently repaired. It is possible that these had formerly belonged to the 50th Royal Tank Regiment, which for a short while after 1945 had been stationed near Florina in Northern Greece. The Staghound was called "Stan Hound" by the Greeks.

Some M8s were modified by fitting an armored roof with two rearwards opening flaps over the open part of the turret. This version had two vision slots added in the front of the turret, with possibly more on the other sides. A .30 caliber Browning machinegun was mounted centrally on the original roof. A small searchlight was also fitted to the right side of the turret.

It was during this same period between 1945-49, that a few armored cars were lashed to flatbed rail- way wagons and used as escorts for trains.

During the Civil War period, armored cars were finished in an overall shade of dark green which could be similar to a color used today by the Greek army.

All types of vehicles carried British style tactical markings front and rear. These markings consisted of; on the right, a white 22 on a colored square (probably green), which denoted the reconnaissance regiment and on the left the divisional badge. This system of markings was abolished after the war.

During the same period, there also appeared on the sides of the Lynx and on the Marmon-Herringtons, turret sides, British style squadron markings (a colored hollow square with a number inside it of the same color).

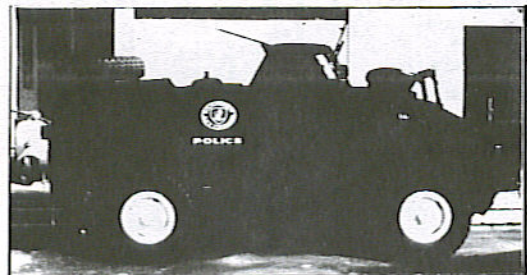
M8's sometimes had a small Greek flag painted on the sides of the turret and small numbers in white on the hull front and vehicle sides.

Most of the types mentioned previously survived the war to continue service along with other vehicles that were received postwar

First the survivors.

The Humber seem to have stayed in service for several more years and then had all their automotive components removed, along with most external fittings, to continue service as static pill boxes.

MOWAG Roland with the Athen's Police.  
Vehicle is blue with white markings.  
Photo: F. Iordanidas





The same fate befell a number of Marmon-Herringtons, which, apart from the above mentioned modifications, also had their turret roofs extended upwards.

Those Marmon -Herringtons that remained in service were rebuilt in 1980 and were modified with a 6305 Perkins diesel engine, new electronics, and brake components from the M-series tactical trucks fitted. These vehicles are still in service today mostly with mechanised infantry recon elements.

Some of the Lynx armored cars survived and in the early eighties three were donated to a Canadian museum.

M8s that survived the civil war, were joined by others received in the mid-fifties. Some are still in service today, although the types with the closed turret seem to have disappeared. Reportedly, a few of the ones still in service have had their original Hercules engines replaced by Steyr diesels.

The most numerous scout car in service after the civil war was the M3A1 White. Most seem to have been received in the mid-fifties and a few survive in service to this day. M3s were modified by having their original Run-flat tires replaced by conventional tires. This made a spare wheel necessary, which was carried on the driver's side in a recess in the fender. The jerrycan holder which was removed due to this, was usually fitted to the opposite lower right fender.

A small number of M3s were used until the late seventies by the police. Some were fitted with a iron mesh superstructure with three small sliding ports on the sides and the rear for use of weapons. Also in use with the police at some time, were at least two Canadian Otter armored cars and two GM C15TA armored trucks. (At least one MOWAG Roland is also presently in use by the Athens Police -ed).

From 1950 to the mid-sixties, all vehicles were finished in an overall dark green and carried a four or five digit number, prefixed by the letters EZ (Ellinikos Stratos - Greek Army) in white. This was carried front and rear except on the M3s and the Marmon-Herringtons.

On the M3 this was placed on both sides of the engine and at the rear of the vehicle.

On the Marmon-Herrington the serial number was painted on both sides above the fender, just in front of the drivers side windows and on the rear of the turret.

Yellow bridge class circles with black numbers were carried centrally or on the right fenders of all vehicles. At some time during the mid-fifties, a crest shaped form of national insignia was adopted. This crest was about

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From top to bottom: Carrier Wheeled Mk II, on return to Greece in 1944. Serial number is 65226 and a horse-shoe is mounted on the bow. M3A1 with runflat tires, probably mid '50s. (Photos: T. Metsovitis). Pair of Daimler Scout cars circa 1949. Vehicle on right carries code '22'. Bottom: Left to right, Humber Scout Car, M8 with roof, daimler Scout Car, M8 with roof, circa 1949. (Photos: Orfanoudakis).





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12cm high and outlined in white. It appeared on the sides of the turret, or on the hull, if the vehicle was not turreted.

In the mid-sixties the type of numbering system described above was replaced by a number in black prefixed by a Greek flag, all these being on a white background. Positioning of these markings remained the same. The use of the

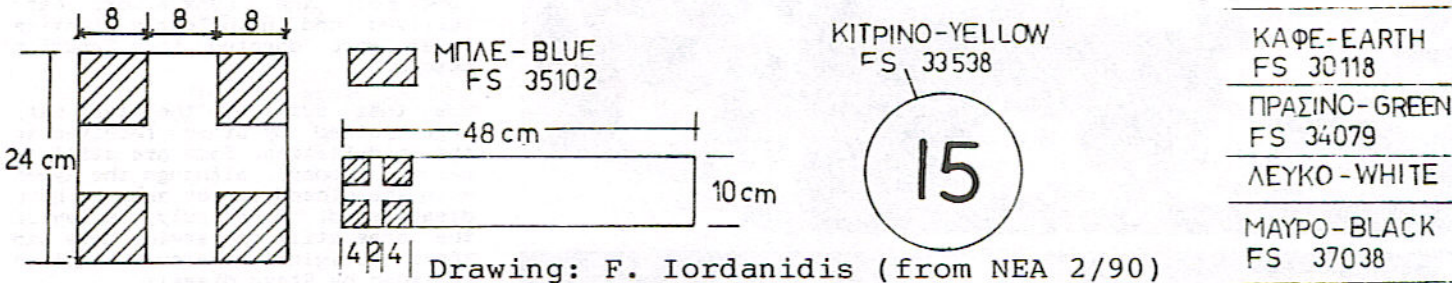
crest seems to have been discontinued in the late sixties.

In 1976 the Greek army adopted a four color camouflage scheme based on the US MERDC patterns. At the same time a new form of national insignia was adopted, this being a light blue, 24cm square, with a 8cm thick white cross. Gradually, all vehicles were repainted in these colors. As no official patterns existed for older vehicles, it was up to the unit commander or the fellow doing the actual painting,

thus resulting in a wide variety of patterns.

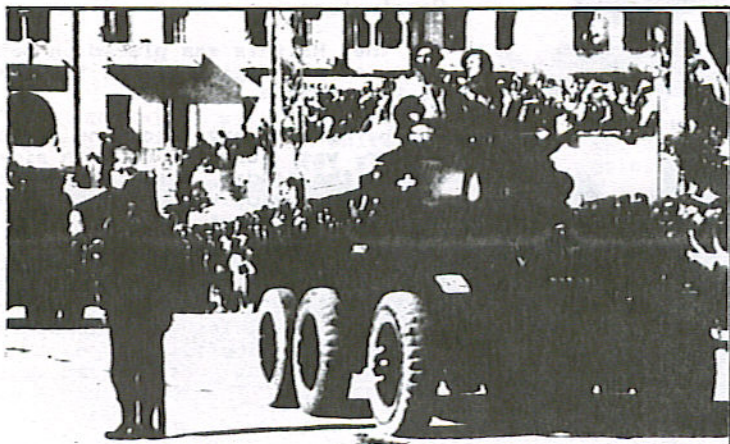
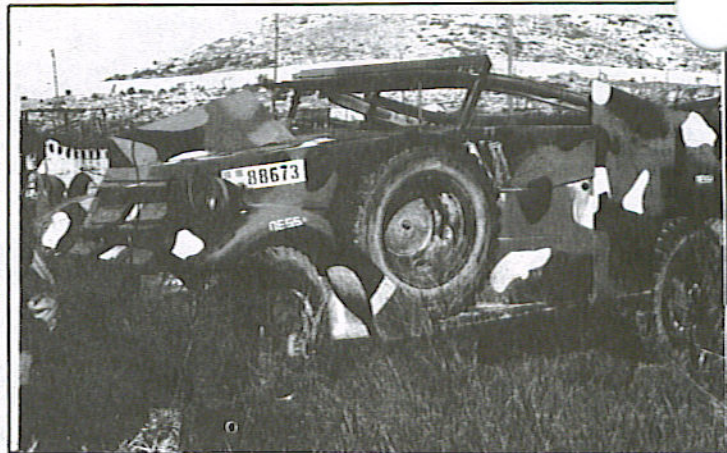
The Marmon-Herringtons after being rebuilt had a somewhat stark pattern as well as a unique type national insignia on the turret sides, this being shield shaped. All markings used with the new scheme were the same as before.

The police M3s were light grey and the Otters and C15s olive green. The MOWAG was blue with white markings.



Top left: Marmon-Herrington Mk IVf. This is a refitted vehicle with the new multicolor camouflage. Turret sports the small shield shaped Greek blue & white device. Top right: M3A1 White in service at least until the early '80s. Note the unique mounting of the spare tire used on Greek M3's. Colors are green, tan, black and pale grey. Bottom left: M8 with roofhatch in the mid-fifties. Color is overall dark green with small white serial

numbers. Bottom right: Two M8s without the roofhatch. Colors are probably from the late '60s or early '70s. The closest machine is red-brown, green, pale grey and black, while the M8 to the rear is sand, light brown and black. Note the different width of the turret crosses. On the front machine the prefix EA 21281 is used rather than the Greek letter for Army. (All photos: T. Metsovitis).





## Reviews

*of Military & Armored Fighting Vehicles Photographs* in the Collection of Seized Enemy Records Group RG-242-GAP in the National Archives; by Price, Auerbach, Frandsen, & Merriam. Publisher, Merriam Press, Bennington, VT, price \$5.75.

This booklet has to qualify as one of the longest titles around, but how else to describe what's inside? This is a booklet of lists, but what lists! Drawn from the Seized Enemy Records Group of the National Archives, there are over 1500 entries in this booklet covering everything from Belgium Light Tractor (ammunition carrier) to Soviet Union BA-20M armored car.

Each entry gives the Country of use, Vehicle type, and then a brief description of what's in the photo. For example, Panhard 178 armored car, 63-C-14 Rear/side, good shot, Butrimony, Lithuania, 24 June 1941. This booklet is a gold mine of WWII references. You'll have to mail for this one, send \$5.75 plus \$3.00 shipping to *The Merriam Press, 218 Beech Street, Bennington VT 05201, USA*. While your at it, you may as well add another \$2.00 for their jam packed catalog of booklets you'll probably never find at the local book store or hobby shop. *Highly recommended.*

*War in Afghanistan 1979-1989*, David C. Isby, color plates by Ron Volstad. Publisher, Concord Publications Co., Hong Kong, price \$7.95, ISBN 962-361-009-2.

Another in Concord's pictorial series, this one is a must have for those interested in military vehicles and armor. There are 177 photos, 10 of which are in color, along with 10 color uniform plates covering mujahideen, government and Soviet uniforms. As a single source pictorial on the Afghan war it will be hard to find a better reference. *Highly recommended.*

*The Encyclopedia of World Military Weapons: The World's Armies and their Equipment*, Edited by Chris Bishop and Ian Drury. Published by Crescent Books, New York, ISBN 0-517-65341-9. (1988).

In the large coffee table format, this book has been out for a couple of years, and is best found on the remainder/sale table of one of the chain booksellers. At the markdown price it's a good value.

Divided into eighteen sections, about half a dozen of those relate directly to wheeled fighting vehicles. The last section is a brief overview of the major armies of the world in statistic fashion.

Taken from the *War Machine* series published in Great Britain, there is just enough new material to make the book worthwhile. If you don't

have any of the magazines, this makes a good bound set.

Each vehicle is covered with a short history, photographs (many times in color), specifications, and an occasional color side view drawing.

The drawings aren't to any particular scale, but rather what ever will fit. Covering only equipment in operation today, there isn't anything here for the World War II fan.

*This book is recommended if you can find it on sale.*

*Land Forces of the World*, by Christopher Chant. Published by Crescent Books, New York. ISBN 0-517-69128-0 (1990).

Another coffeetable reference from Crescent, you'll have to look in the larger booksellers to find a copy. If you wait a little while it may even be on the sale table.

This book contains more new material than Crescent's previous offering, but in rather brief fashion. Broken into five sections; Tanks & Tank Destroyers, Combat Vehicles, Artillery, AA Guns and SAM Systems, and Rockets and Missiles, there is enough wheeled fighting vehicle information to make the book worthwhile.

Probably the best thing about the book is the large clear photos, many in color. I recognized several as having come from the manufacturers, but there are many that were new, with excellent detail for the modeller.

A real gem of a find was material on the Communist Chinese NORINCO WZ 551 six wheeled Infantry Fighting Vehicle. This was the first time I've come across really clear, detailed photos of this machine.

Each section is broken into two pieces, basic information as to type, crew, dimensions, etc., and a second variants section with a brief rundown on types in service or development and their use. *This book is highly recommended.*

*War and Conflict: Selected Images from the National Archives, 1765-1970*. Edited by Jonathan Heller. Published by (Smithsonian Institution Press, 470 L'Enfant Plaza, Suite 7100, Washington DC 20560) 1990. 355 pages. \$28.00. More than 1500 images relating to our wars grace the pages. The images which were culled from the files of the Still Photo Branch of the National Archives (another 1500 images were also selected will appear in a subsequent catalog) by Jonathan Heller, who heads the Branch. The catalog format was selected for several reasons, one being to simplify the process of

ordering reproductions of the photographs, prints, drawings and posters shown in the publication. World War II images make up the largest number, and only a few are from Vietnam, Lebanon and the Dominican Republic.

-review from *Infantry Magazine*, Sept-Oct 90.

*I've included this review in case someone wants to order this book through their local interlibrary loan service -ed.*

*U.S. Army Light Forces Panama to the Middle East*, by Michael Green. Published by Concord Publications Co., Hong Kong. ISBN 962-361-901-1 (1990). \$9.95.

This time Concord has gone to a conventional 8 1/2 by 11 upright format, perfect bound edition. There are 8 pages of color in addition to the front and back covers.

Covering the so-called "Light Infantry"; airborne and the 9th Motorized Division soldiers and equipment are covered as well.

Besides the uniforms and infantry weapons covered, *ARMORED CAR* readers will be interested in the sections on LAVs loaned to the Army; (one photo incorrectly calls a six wheel Canadian Grizzly a LAV), various M151 and HUMVEE versions, and best of all nine photos of the now dropped Fast Attack Vehicle (FAV) as used the the 9th Division.

These vehicles should not be confused with the FAVs used by the Marines and Navy in Kuwait and Iraq. *This book is Highly recommended.*

*USMC Firepower Armor & Artillery*, by Yves Debay. Published by Concord Publications Co, Hong Kong. ISBN 962-361-011-4 (1990). \$7.95.

Concord has been putting out a steady string of "must have" booklets over the past year, and here's another.

In the now usual 8 1/2 by 11 horizontal format, there are 172 photos, B&W and color of modern USMC AFVs, wheeled fighting vehicles, artillery and weapons.

Probably the most fascinating photos are the LAVs, HUMVEEs, M151 "Mutts", and the first shots I've seen of Marine Recon Force "Fast Attack Vehicles (FAV) modified M151s.

The latter are a standard M151 with extra wide tires, locally fabricated roll bars, extra protection for the grille, infrared driving lights, and new weapon mounts. This would make an easy and different conversion for the Tamiya or Academy M151A2 kits. *This book is Highly Recommended.*



## ARMORED CAR



AMD White  
Laffly in  
Tunisia.

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## Letters

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### The AMD White-Laffly Revisited

Dear Dave,  
I think you may have raised some confusion about the White-Laffly versus the White, so I will try to shed some more light.

AMC White (also known as AMAC = Auto Mitrailleur/ Auto Cannon).

Sample in July 1917 (armored plates from Lorfeuvre on a 2 ton White chassis).

GHQ approval on 25 August 1917.

No production before May of 1918 by Berliet. Production run was between 130 (1st order) and 230 machines.

These vehicles were organized into 16 AMC Groups in 2 sections of 4 vehicles. Registration numbers seen in photos include 14502 and 44185.

AMC White-Laffly.

Sample on 24 October 1931 (ex-White plates on a Laffly chassis).

In December of 1931 the designation was changed from AMC to AMD.

Trials were carried out between October 1931 and February 1932. In February of '32, a 1st order was let for 60 vehicles (this was before GHQ approval).

22 April 1932, GHQ approves the White-Laffly.

In 1933, a 2nd order for 36 vehicles.

Registration numbers seen in photos include 56206 (one of the three samples), 79130 and 81887.

Captured White-Laffly's were known in the Wehrmacht as "Panzer-spahwagen Wh 201 (f).

Some amendments to the specifications for the White-Laffly include:

Length: 5.40m, Width: 2.30m,  
Height: 2.48m, Weight: 6500 kg.  
Chassis: Laffly, Engine: Laffly 4  
cyl 50 hp, Speed: 70 kph, Range 300  
Km, Gasoline tank: 120 liters.

As for some news of the modelling scene:

Takashi: 1/35th photo etched details for the SdKfz 231/232 and SdKfz 222.

CRI-EL Models: A 1/35th metal AB41 from a new Italian Maker.

FIRE-FORCE: Re-issue of a remodelled South African Ratel 90, now moulded in France by NKC. -Patrice DeBucquoy, Lannoy, France

Dear Dave,  
Let me bring you up to date on new releases.

Available now, WWI Austin Armored Car in 1/32d scale. In resin with white metal parts for \$69.95, #1-001.

Soon to come, a resin SdKfz 221 conversion in 1/35th scale.

We have additional armored cars planned for the future and I will keep you up to date. Ted Paris, Commanders Models, 551 Wegman Rd, Rochester, NY 14624

(You might send \$2 to Ted for his latest catalog, well worth the money - ed)

Dear Dave,  
In issue #4 someone was asking about the Monogram M8 & M20 armored car models. The kits were in 1/32d scale - the M8 was kit #4100 and the M20 was #4101. To my knowledge these kits are not in production. Also many years ago, Revell had an M20 armored car in 1/40th. This kit was later produced under the Adams, UPC, and Life-Like name.

If some of your readers are really looking for these kits they may have to place a want ad with some of the modeling magazines or subscribe to Kit Collectors Clearing House.

Send a \$1 for a sample issue and subscription information to:

John W Burns, Kit Collector's Clearing House, 3213 Hardy Drive, Edmond, OK 73013.

- Glenn Kreinus, Milwaukee, WI 53215-4025.

(I'm afraid that I've let my subscription to KCC run out, but I'm going to have to resubscribe. My only reservation was the number of semi-professional kit sellers as opposed to modelers want to swap kits. Yes, I've thought about a section for "Wants" and etc., but there just isn't enough room in the issue yet. I've also gotten hold of the Monogram M20 since last issue and another M8. Evidently Monogram rereleased the M8 at least once, because the kit number on my version is 6402. - ed)

Dear Dave,  
One item in regards to your excellent advice on other publications, I would add *Wheels & Tracks*. Printed in Great Britain, it has a definite international flavor and has more photos than text, so modelers would have a great interest also. *W&T* is available through the *Military Vehicle Preservation Association* for \$23.50 per year (4 issues) or *Bill Dean Books Ltd*, PO Box 69, Whitestone NY 11357 (tel 718-359-6969).

I don't know what exposure your readers have given to Cadillac Gage vehicles and specifically the (XM-706/V100) but I have what seems to be a very early model or possibly a prototype unit of the V100.

It was manufactured in 1963 and serial number 10,001. As I learn more about these units it seems CG made about 900 and the serials of other machines I have seen are all in the 10,XXX range.

At any rate there are some pronounced differences between my vehicle and later models. For instance, instead of vision blocks in the hull, it has periscopes. There is no rear door and the side doors are really hatches above the center deflection angle line. (Production models have a corresponding lower half to the door).

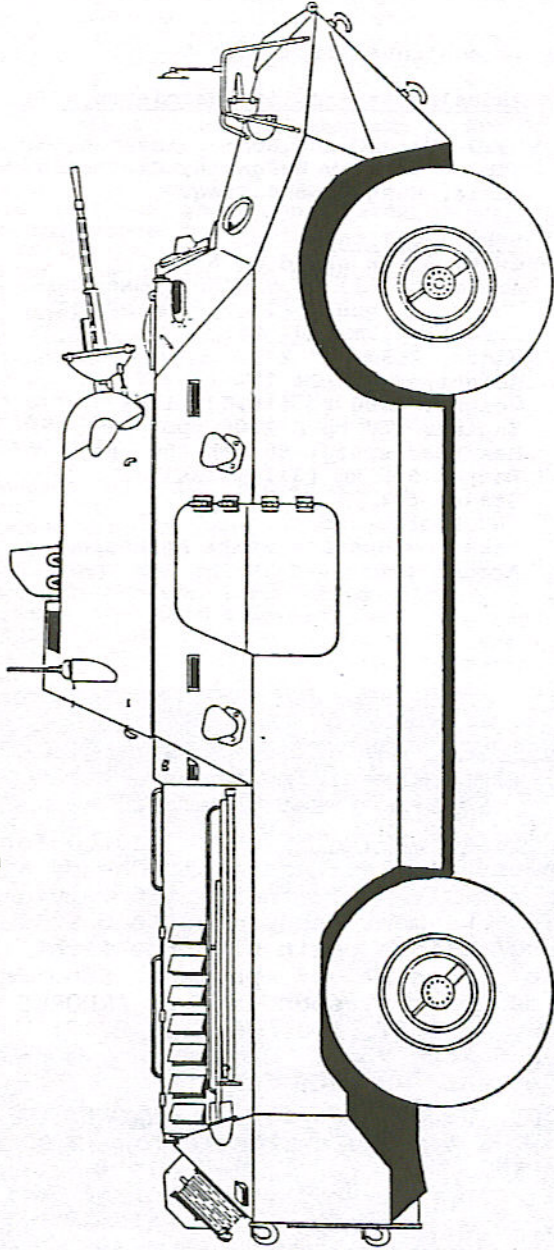
Where the rear door would be (next to the engine), my unit has a steering wheel with gas, brake and clutch for rearward extraction.

I have obtained a quite complete set of manuals (5) which include an in-depth listing of all modifications and production changes by serial number. If this is of any interest to you or your readers I would be glad to afford whatever information or pictures I can. There are some nice single line drawings as well as typical TM illustrations.

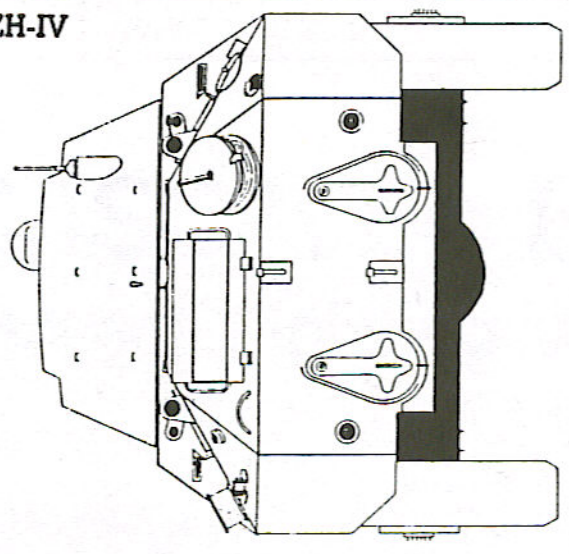
Cadillac Gage built the early production machines in Detroit. The company still exists, building complete hulls in Michigan and then shipping them to Boca Raton, Florida for final assembly. -Lyle Van Wert, 7109 Fraser Road, Freeland, MI 48623.



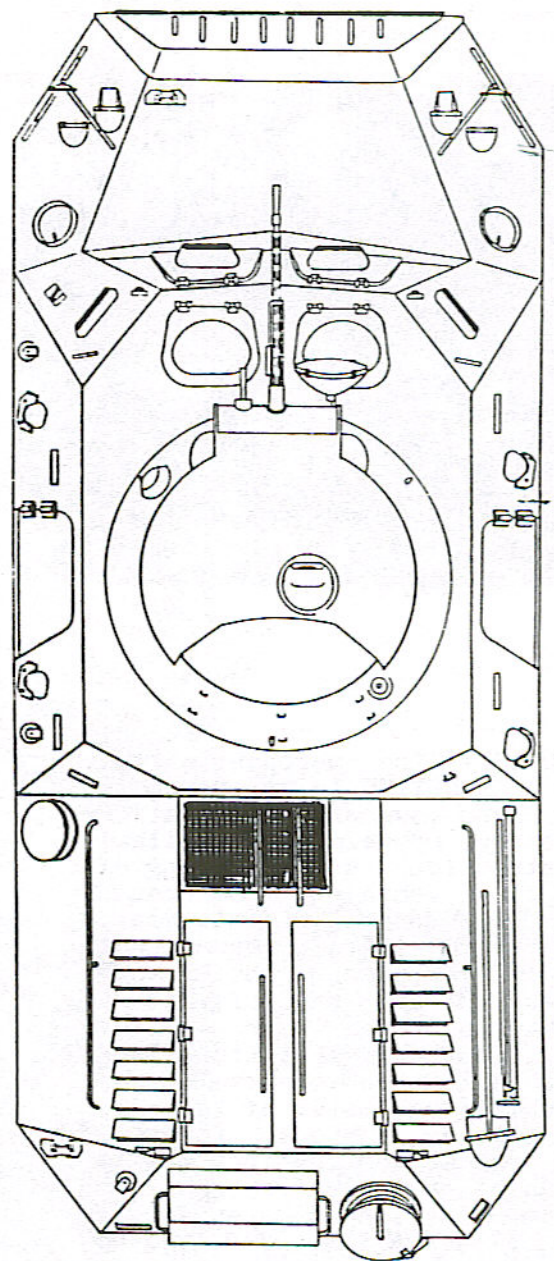
PSZH-IV armored personnel carrier



PSZH-IV



Scale 1/35th

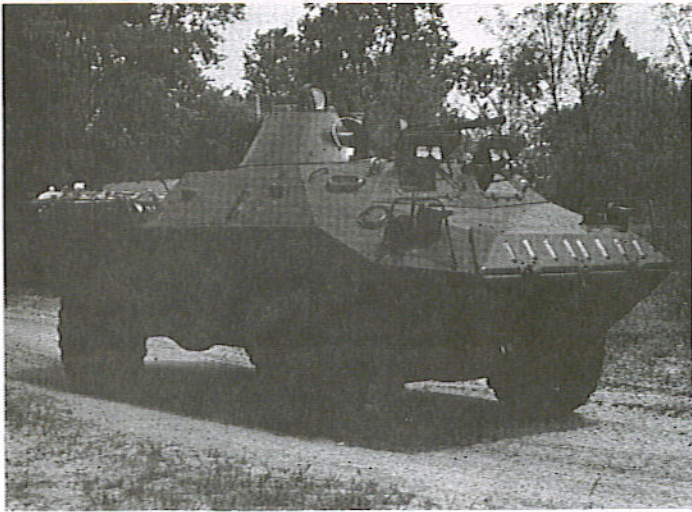


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556 N 3rd Street, Woodburn, OR, 97071 U.S.A.

## ARMORED CAR



...continued from page 9

### Pancelozott Szallito Harcjarmu - IV

PSzH-IV, APC and Reconnaissance vehicle. Used by Bulgaria, Czechoslovakia, Hungary and Iraq.

#### SPECIFICATIONS

Crew: 3 + a squad of 6  
Armament: (1) 14.5mm KPVT machine-gun & (1) 7.62mm PKT MG  
Length: 5.7m (18' 8")  
Width: 2.5m (8' 2")  
Height: 2.3m (7' 7")  
Weight: 7500 kg (16,535 lbs)  
Engine: 100 hp @ 2300 rpm  
Max road speed: 80 kph (50 mph)  
Range: 500 km (311 miles)  
Grade: 60%  
NBC Protection  
Maker: Hungarian State Arsenals  
Armor: 10mm

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SCHEDULE: *ARMORED CAR* is published six (6) times a year in January, March, May, July, September and November.

SUBSCRIPTION RATES: U.S. \$10.00 for six issues via surface mail. Canada \$12.00 via airmail. All others, \$15.00 via airmail. Payment should be in U.S. funds. Subscriptions begin with the first issue after receipt of payment. Send remittance or correspondence to *ARMORED CAR*, 556 N 3RD ST, WOODBURN, OR 97071 U.S.A. Checks or Money Orders should be made payable to *ARMORED CAR*.

BACK ISSUES: Copies of *ARMORED CAR* #1 #2 #3 & #4 are available for \$2.00 each.

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