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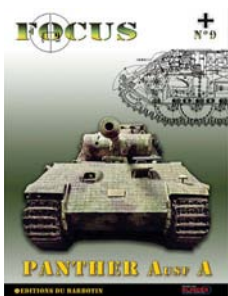


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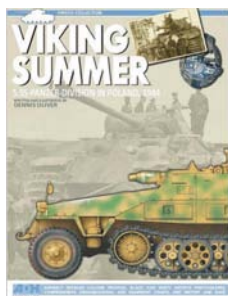
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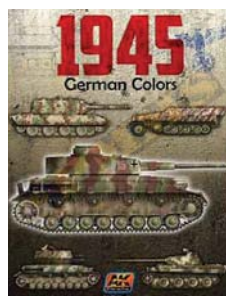
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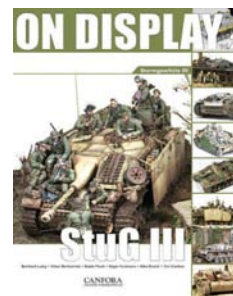
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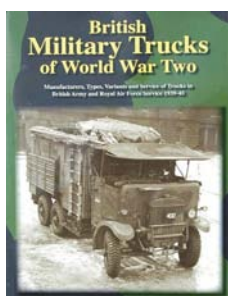
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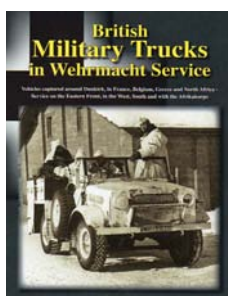
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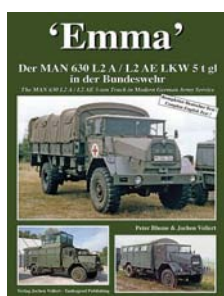
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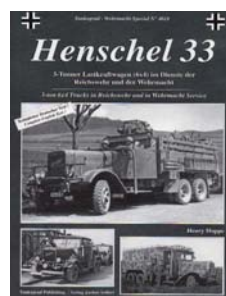
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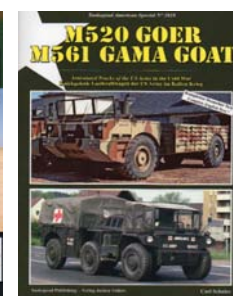
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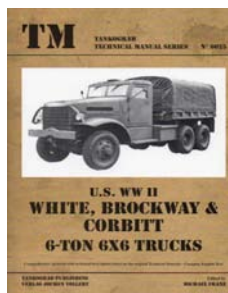
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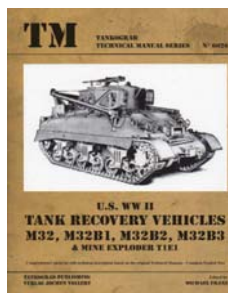
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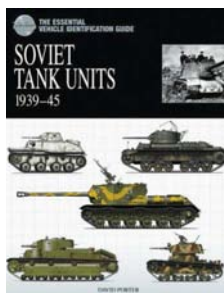
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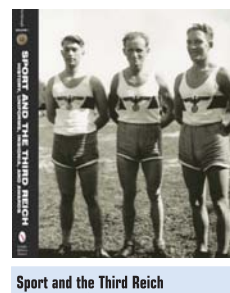
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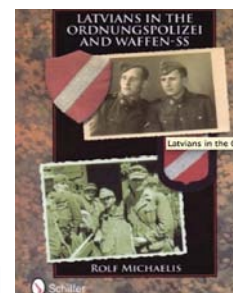
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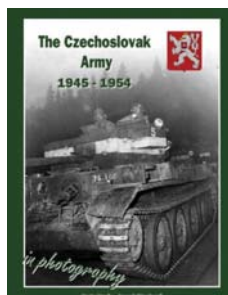
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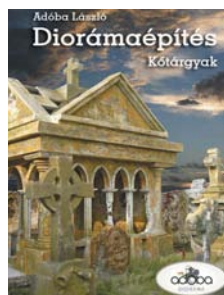
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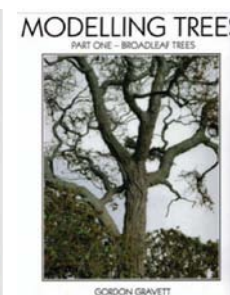
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The annual Militaria show held at the Stoneleigh Exhibition Centre just outside Coventry at the end of January is one of the first opportunities for people to get together and grab the items they may need to finish off their winter projects. It has long been seen as an indication of the health of the hobby and a pointer towards how good the coming show season is likely to be, and judging by the hoards of enthusiasts visiting the show the hobby is most definitely alive and kicking!

I would like to thank those who stopped by the MMI stand to say hello, and to the many friends and acquaintances I met during the day. Hopefully you'll enjoy the articles this month, but don't forget that you can have your say regarding the content and design of Military Machines International by completing the Reader Survey for us, which you'll find in the centre of this issue, or there's an online survey for those who prefer. I'll be back with another fascinating selection of articles next month - Ed.



*Ian Young*

Ian Young  
Editor



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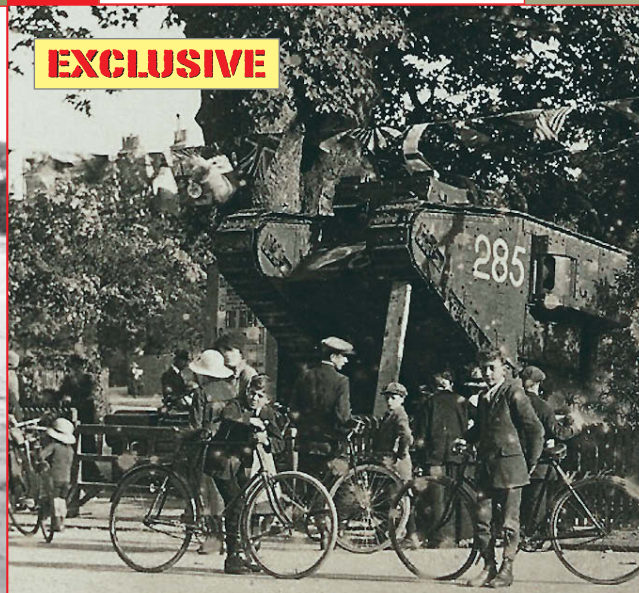
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# UP FRONT

### Yves Debay 1954-2013

We are sorry to report the untimely death of well-know freelance military journalist Yves Debay who was tragically shot and killed by a sniper whilst reporting from Aleppo, northern Syria on January 17th.

Yves is perhaps best known as the founder of the magazines 'Raids' and 'Assault' and for the many articles and books he wrote for French publishers Histoire & Collections.

Those who knew him saw Yves as a jovial man, physically massive and a former soldier who turned from shooting guns to shooting film for a living. Born on the 24th December 1954 in the former Belgian Congo town of Lubumbashi, Yves later took French nationality and as a highly experience military journalist had been reporting from trouble spots around the world for many years.

A measure of the level of respect for Yves is perhaps the fact that a memorial service with full honours was held in Paris on the 4th February, attended by his family, many friends and fellow journalists.

Yves will be sorely missed, as will his contributions to the world of military journalism, and especially by those who knew him well. Our thoughts are with his family at this difficult time.

## More Feedback

Dave Hardway emailed us this information and accompanying picture in response to the article in the January 13 issue of MMI. This is what he had to say – Ed.

Hi Ian,

The January issue of MMI has just arrived in New Zealand and I read with interest the article on the Australian Ser 2 Land Rover workshop and can report another survivor outside Australia with a survivor in New Zealand too. The example shown is held by the National Army Museum's collection and is seen after an open day at Trentham Military Camp in 1995.

Regards - Dave Hardway



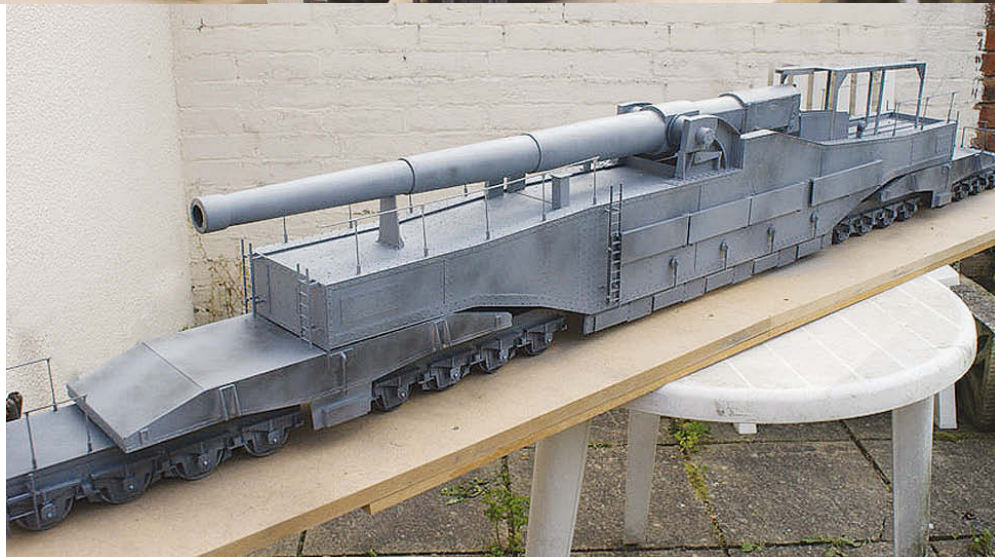
## BIG RAIL GUN



Dave Tootill sent in a couple of photos of a huge scratchbuilt French rail gun that he has built to a 1/16th scale that measures a massive seven feet in the length.

The gun in question is apparently a French 340mm Mle dating from 1912, and according to what references I have on the subject they were mainly used during WW1, but were also used in prepared positions to strengthen the Maginot Line during WW2 before being subsequently captured by the Germans.

I'm sure you'll agree with me that it's an impressive model, sadly Dave hasn't got the room for it now and is offering it for sale, so if you're interested contact the editorial office at the usual address and we can put you in touch with Dave.



## Rangers on the run at Bovington

Roland Groom, former photographer at the Tank Museum, Bovington, and now retired is still keeping a close eye on the military vehicle movements at Bovington and emailed us this photo (shown below right) of a pair of Ranger armoured personnel carriers built by local firm Universal Engineering who are based in Weymouth/Portland. The vehicles apparently turned up at the training area at Bovington and Roland tells us that they hired some time on the training area to trial the two Rangers, one 6x6 and one 8x8. Roland says that he suspects that they may be new vehicles going by the registration plates and while the light was grotty on the day, sent in this photo for our perusal.

Interestingly the Ranger, which has been developed as a protected armoured personnel carrier for use in such places as Afghanistan, has until now only been seen in the 6x6 guise, with a vehicle being displayed by Universal Engineering at Tankfest in 2011 (shown above right), where it attracted a great deal of attention, and I myself also came across the Ranger at both the Defence Vehicle Dynamics show held at Millbrook Proving Ground and the 2011 Protected Mobility Display (as shown above left). Our thanks to Roland for sending in the photo, and keep on snapping – Ed.



## Tiger 131 70th Anniversary Prints

In celebration of the 70th anniversary of the capture of Tiger 131, world famous artist Nicolas Trudgian has been commissioned to create a very special commemorative oil painting, of which 3ft x 2ft prints will be available to buy at £90 plus P&P.

'Panzer Marsch' depicts the final advance on 20th April 1943 of Tiger 131 attached to the 3rd Platoon, 1st Company of the Schwerer Panzer Abteilung 504, on the day before it's capture by the British 48th Royal Tank Regiment in Djebel Djaffa, Tunisia. Roaring overhead are BF109G's of JG77 that were based at Creteville, near Tunis.

As part of The Tank Museum's collection, Tiger 131 is the world's only running Tiger 1. Proceeds from the sale of this limited number of numbered prints, will be donated to The Tank Museum, Bovington, to support the continued upkeep of this rare historical artifact.

The Tiger 1 will again be the main attraction at The Tank Museum's annual TANKFEST. The TANKFEST 2013 examines the adversarial nature of tank warfare, pitting one nation's fighting armour against that of another and with arena displays, will examine the great armoured confrontations of the last century with



a unique collection of working tanks. 'Panzer Marsch' will be the first in a series of five depictions of some of The Tank Museum's most treasured Panzer tanks.

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...and for those lucky enough to be attending, the artist Nicolas Trudgian will be signing copies exclusively at The Tank Museum's 'Tiger Day' scheduled for the 30th March and again at their annual 'TANKFEST' show held over the weekend of 29th/30th June 2013.

# Stars of Sandstone Festival



South Africa's Sandstone Estates may be familiar to some, especially those with an interest in steam trains, but they also have an impressive collection of military vehicles in their collection, and for the forthcoming 'Stars of Sandstone Festival', which runs between the 4th and 12th May 2013, many of them will be on display and running around extensive estate.

The Sandstone Heritage Estate works closely with South Africa's Armour Museum to operate a collection of vehicles used in South Africa by their defence forces and its enemies between WW2 and the present day. The collection includes tanks, rocket launchers, armoured cars, artillery and soft skin vehicles, all in running order, a small selection of which is shown here.

With ample room to allow the impressive collection to be put through its paces in surroundings of outstanding beauty, the Trust opens its doors one a year for a nine-day festival, with visitors flocking to the event from around the world. Unfortunately attendance is limited so if you're interested book now!

Check out the website for further details at:

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# Stoneleigh Militaria 2013



The annual Militaria show at the Stoneleigh Exhibition Centre just outside Coventry got the new season off to a flying start with huge queues stretching around the building despite swift and efficient entry to the show. The problem was simply the sheer number of people attending this popular event, which for 2013 was under new management in the form of the well-known husband and wife team of Graham and Amanda Lycett, collectively known as GA Promotions and of course the force behind Jeeparts UK.

This year the halls were a little more spaced out, making negotiating the busy show that much easier, but it wasn't down to a lack of traders, but down to a lack of exhibiting clubs and living history displays. That said there was still the regular collection of living history displays in Hall 1 along the one hall, which included a number of vehicles.

All the old favourites were at the show, selling everything from complete vehicles to parts to uniforms, badges, books and militaria, and as usual I spent much of my time at the





show talking with people! Thankfully I still found time to go and buy a few items, in between popping back to the MMI stand in the entrance foyer to show support for the sales and marketing team manning the stand this year.

This show is often seen as a barometer for the state of the hobby, and if you go by the sheer numbers of people in attendance then it's in a very healthy state indeed. Of course there were the usual differences in opinion between traders, with some saying trade was brisk while others said it was slow, but from what I could see there was no shortage of people walking around with bags in their hands and items being taken back to the car park, which hopefully is a good sign that the attending traders did well.

I'm already looking forward to the start of the season proper, and in case you hadn't heard, there's to be a Stoneleigh 'Mini Militaria' on the 29th September at the Blackdown Buildings, Stoneleigh Park. For further details check out Mission Briefing or see the G.A. Promotions website at: [www.militariashows.com](http://www.militariashows.com)



## A love affair with a Topless Blonde!

I had an interesting, if slightly misleading email from reader Kevin Browne, which Kevin thought might be fun to share with readers so here's Kevin's tale of love at first sight and an ongoing passionate love affair with a mystery blonde. This is what Kevin had to say on the matter – Ed.

We first met at Bovington, it was summer, but she was with someone else. She was petite but very well equipped. I could see she was high maintenance. I knew she was a little older than me but this did not dampen my interest. I found out her name was Delilah. She was with Russ and we saw each other occasionally over the next few years.

One weekend when working in the workshops, Russ said he "had become bored with her"! He had fallen for the delights of a big Brazilian with Amazonian charm and lots up top. This was my chance; I had to have her so I made my move. I knew she had been about a bit but it wasn't her fault. She moved in with me and we got properly acquainted.

She is high maintenance, and when we go out she costs me a fortune. After a long weekend on the Isle of Wight we got hot and steamy in the dark, at the Devil's Punch Bowl. She demanded a lift home costing me a King's ransom.

She prefers the rough to the smooth. I do look after her and would not do anything to cause her harm and despite our ups and downs and rough patches we are still together after nearly 10 years. She has almost reached retirement age but still regularly appears in a certain kind of 'Gentleman's magazine', in fact she has even appeared in a couple of DVD's and can be viewed on the Internet topless! There is even a book with everything on show.

She has charisma; people still admire her youthful, timeless looks. She tells me I wind her up, and when she has let me down, it's usually been my fault for not giving her enough attention, but for all her faults I wouldn't be without her - to find out who the mystery blonde is **PTO...**

## Topless Blonde - Revealed!

Continued.... and now for the explanation if you haven't guessed already, Delilah is my Ferret Mk1 in desert trim (35 BA 22), which has appeared in Military Machines International on several occasions and is a regular attendee at shows up and down the country.

As for Russ's Brazilian dalliance, it is of course the Tank Museum's Cascavel Armoured Car armed with a 90mm gun, as seen here at Tankfest 2012.



## REVELL NEW RELEASES

Plastic kit manufacturers have a couple of new releases this month, the first being a set of 1/72 scale WW2 Australian Infantry figures (Ref. 02501). The 49 unpainted figures are moulded in a sand coloured polythene type plastic and arrive on a folded sprue and require careful removal with side cutters or a knife. On my sample there was a little flash present, which would need careful removal with a sharp knife prior to painting, but detail wise they're pretty good for figures of this scale. The figures are supplied in a range of poses that include firing rifles and machine guns, loading rifles, using a bayonet, using a pistol, running and some even combine to make up machine gun teams on a small base that is also provided. The set has a recommended retail price of £6.99. Revell model kits are available from all good toy and model retailers. For further information visit:

**[www.revell.eu](http://www.revell.eu)**

or email: **[ukbranch@revell.de](mailto:ukbranch@revell.de)**

The second release this month is a 1/35 scale model of the ever popular Leopard 2A4/A4NL Tank (Ref. 03193). The Leopard is part of an expanding collection of 1/35 scale vehicles in the Revell Catalogue and is one of a range of modern Bundeswehr armoured fighting vehicles they currently offer in the 2013 catalogue. In the case of this latest release the kit and supplied decals do enable the builder to choose from a range of vehicle markings that represent not only the Bundeswehr, but Dutch, Greek, Polish, Spanish and Austrian armies who were sold or gifted the tanks once they became surplus to requirements with the German Army.

The kit is nicely moulded in dark green plastic on eight sprues of varying sizes, while the one-piece tracks are of the traditional moulded rubber/vinyl type, which need joining together to make one loop. A comprehensive decal sheet and a length of thin wire for the aerials complete the kit, which has a recommended retail price of £26.99. All in all it looks to be a good kit that should build up into a nicely detailed model and while not suitable for the very young model maker, shouldn't present any great problems for someone with relatively little experience.

Revell model kits are available from all good toy and model retailers. For further information visit: **[www.revell.eu](http://www.revell.eu)**





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# PACKING A PUNCH



**Above:** a unit from the 3rd Armored Division passes through the village of Theux en route to Liege in Belgium on the 10th September 1944.

The half-track in the foreground is an M4A1 Mortar Motor Carriage.

## Patrick Sarrazin describes the American WW2 half-track Mortar Motor Carriage

In 1941, initial studies were made to produce an infantry support vehicle. It had to be able to transport, and put into a fighting position, a mortar with its equipment and munitions close to the infantry operating at the frontline. The first study began in October 1940 and was based on an M2 half-track chassis that was modified to transport the standard 81mm M1 mortars, crew and the munitions. Produced in the 1920s, the 81mm M1 mortar was used on all battlefields throughout the conflict where it was

used for indirect infantry support. It was identical to the French Brandt mortar from which it was derived, with only the sights being modified. The range of fire was variable depending on the projectiles used, with a maximum range of 3200 metres.

With a traditional manufacturing process, its only flaw was its 60kg weight, but despite this more than 30,000 units were produced. By the end of 1940 the vehicle had been standardised, however, the project was not launched before the spring of 1941.

The M4 Mortar Motor Carriage was produced on the base of an M2 half-track, but the rear compartment was redesigned to be able to receive a support for the mortar base, which was installed in the centre of the box and the installed mortar had a maximum range of 130 miles. In principle, the mortar had to be stripped down in order to be used outside of the vehicle, but in a case of absolute necessity it could be fired from the interior of the vehicle, however, the base support and the compartment were not resistant

# M4 MORTAR MOTOR CARRIAGE

A first production M4 Mortar Motor Carriage photographed at Aberdeen Proving Ground on the 25th June 1942. Equipped with its tarpaulin, the external appearance of the M4 is the same as the M2 half-track.



**Left:** an aerial view of the M4 81mm Mortar Motor Carriage taken at Aberdeen Proving Ground on 20th August 1941.

**Below left:** view of the left munitions compartment on the M4 prototype with the door in the open position.

**Bottom left:** view of the M4 prototype show the interior arrangement. Note the shell crates either side of the rear door carrying 81mm shells, which were removed on the production vehicles.



## M4 Technical Sheet [based on M2 half-track]

Units produced	572
Manufacturer	White Motor Company
Crew	6
Engine	White 160 AX
Length	6.01m (with roller)
Width	1.96m
Height	2.27m
Weight	7870kg
Maximum speed	72km/h on road
Range	320km
Weapons	1 x M1 81mm mortar, 1 x .30 cal MG 1 x M1A1 rocket launcher
Munitions carried	96 shells of 81mm, 2000 cartridges .30 cal and 10 x M1A1 rockets

# M4 MORTAR MOTOR CARRIAGE

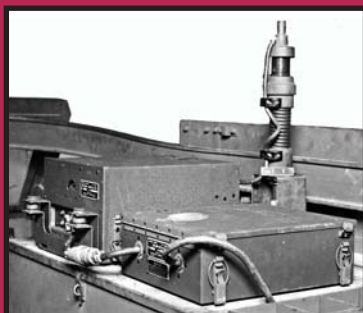


A side view of a final production M4 recognisable by the mine racks fitted to the side of the compartment.



**Above:** rear view of the M4 Mortar Motor Carriage half-track prototype with the rear door open.

**Right:** close-up of the rear compartment showing the positioning of the SCR-510 radio on top of the exterior munitions crate on the right hand side of the vehicle and its support antenna MP-48.



enough to absorb recoil shocks of the weapons for any extended time. Moreover, the fixed positioning in the interior of the compartment meant that the vehicle had to be manoeuvred in order to direct fire.

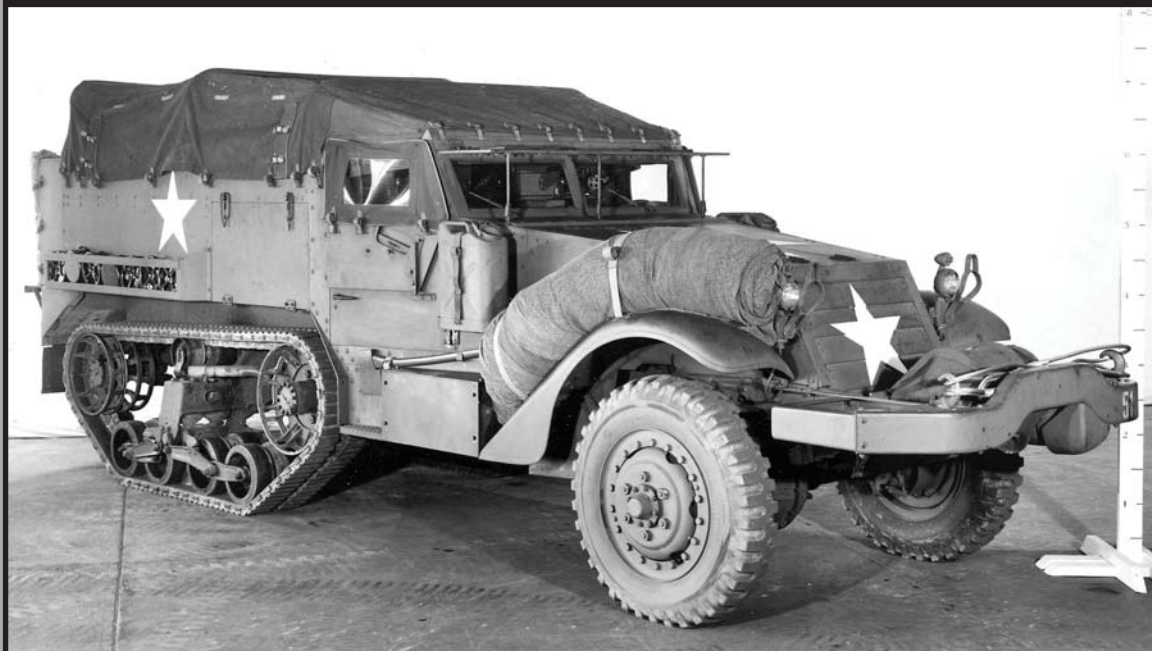
The compartment had a rear access door identical to the M3 model, but the retained machine gun support rail prevented an easy exit for the soldiers to put the gun in position on the exterior of the vehicle. Four seats from the M2 model were removed and replaced by boxes of ammunition, each containing 56 shells. It retained the munitions crates with exterior side doors redesigned to carry twenty-eight rounds each, bringing the total up to one hundred and twelve 81mm shells. The fact that the munitions crates were only accessible from the outside was born of the fact that the vehicle was only there to provide transport, with the mortar designed to be removed and placed in a firing position on the ground.

The M4 Mortar Motor Carriage prototype was based on a prototype based on an M2 White and was sent Aberdeen Proving Ground in August 1941 to take part in a series of tests. During the trials, the made change to the original design was the removal of two cases of 8 shells each side of the rear door, in order to provide more space when moving of equipment, reducing the shells carried to 96.

The White Motor Company undertook the production of the vehicle. In March 1942, there was only one model in trials, however, the White company had already produced 278 vehicles. In September and October of 1942, 293 new units of the M4 MMC were delivered bringing the production total to 572 units. The use of the M4 MMC was quickly proven to not be easy. The heavy forward mortar was fired through the small door, which was obstructed by the circular gun ring before it could be put into a firing position. In December 1942, the vehicle was declared obsolete and production was stopped.

In October 1942, a new project was born. The same mortar was installed on an M3 half-track chassis, which offered more room and allowed for a larger ammunition payload. From early experiments it was clear that the mortar needed to be used directly from the interior of the vehicle. As a result a new sights system, the M6 model, was installed on the mortar and the floor was reinforced and a new fixed base for the mortar added. This new set up allowed the mortar to be positioned without the need to move the vehicle, giving a clearance of 65° to the left and right, and an elevation from +40° to +80° - thus increasing the range of fire. The reinforcing of the floor meant that the munitions boxes were raised by a height of seven inches.

# M4A1 MORTAR MOTOR CARRIAGE



**Left:** an M4A1 81mm Mortar Motor Carriage, photographed at the Engineering Standards Vehicle Laboratory in Detroit on the 9th February 1944.

**Below left:** rear view of the M4A1 showing the external detail and stowage racks either side of the door.

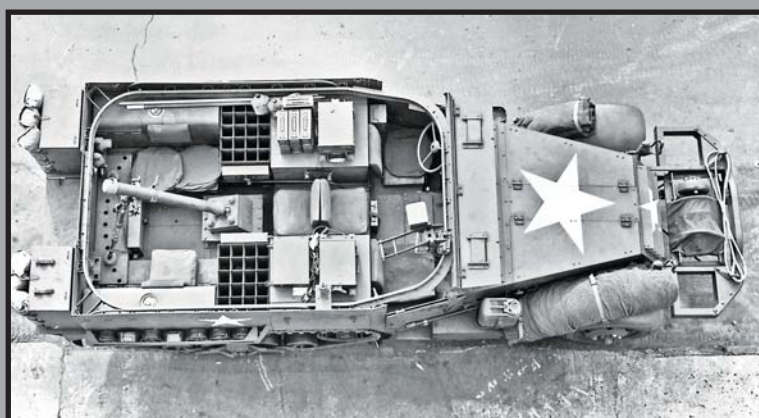
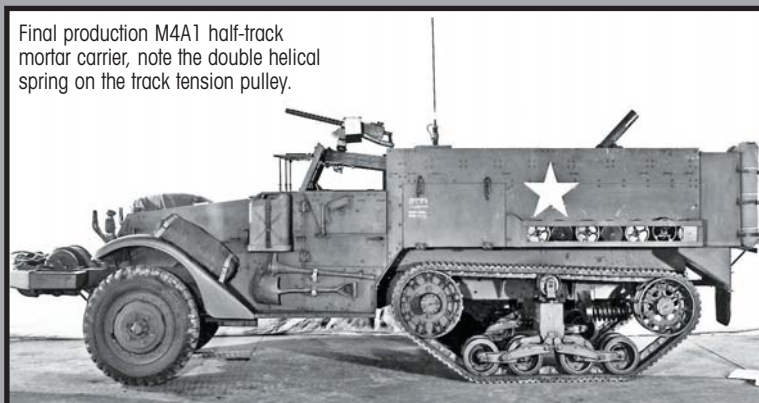
**Below centre:** with the rear door open we can see the installation of the mortar in the M4A1 in more detail.

**Below right:** an M4A1 81mm Mortar Motor Carriage photographed at the Armored Force School as indicated by the letters written on the star on the compartment.

**Bottom left:** photograph showing the interior arrangement of an M4A1.



Final production M4A1 half-track mortar carrier, note the double helical spring on the track tension pulley.



## M4A1 Technical Sheet [based on M2 half-track]

Units produced	600
Manufacturer	White Motor Company
Crew	6
Engine	White 160 AX
Length	6.19m (with winch)
Width	1.96m
Height	2.26m
Weight	8165kg
Maximum speed	72km/h on road
Range	320km
Weapons	1 x M1 81mm mortar, 1 x .30 cal MG 1 x M1A1 rocket launcher
Munitions carried	96 shells of 81mm, 2000 cartridges .30 cal MG and 10 x M1A1 rockets

# M21 MORTAR MOTOR CARRIAGE

Lovely view of the M21 81mm Mortar Motor Carriage half-track taken in April 1944 by the Engineering Standards Vehicle Laboratory in Detroit with the 50 calibre in position.



## M21 Technical Sheet

[based on M3 half-track personnel carrier]

Units produced	110
Manufacturer	White Motor Company
Crew	6
Engine	White 160 AX
Length	6.22m with winch
Width	2.22m
Height	2.26m
Weight	9072kg
Maximum speed	72km/h on road
Range	320km
Weapons	1 x M1 81mm mortar, 1 x .50 cal MG 1 x M1A1 rocket launcher
Munitions carried	67 shells of 81mm, 400 cartridges .50 cal and 6 x M6 rockets

The Ordnance Committee recommended the standardisation of this new modified vehicle on 28 January 1943 after which it received the designation M4A1 81mm mortar carrier. By May 1943 the White Motor Company had produced the first 100 units and production continued until October of the same year, reaching a total of 600 units.

## M21 MORTAR CARRIAGE

Experience on terrain showed that it was preferable to be able to use a mortar from inside the vehicle and to be able to fire backwards. The 2nd Armored Division used this programme to provide an improved mortar carrier. Given an M4 mortar carrier, they reworked the mounting for the mortars to enable it to fire backwards. The modified M4s were successfully used in combat until the end of the war in Europe.

At the same time, the Armored Force Board completed new studies for a mortar carrier based on the M3 half-track personnel carrier with the mortar directed towards the rear. The study was approved and the vehicle took the name T19 81mm mortar carrier by the Ordnance Committee in October 1942. The prototype T19 was again produced by the White Motor Company.

This time it combined the 81mm mortar on the strongest M3 chassis and was able to fire from inside the vehicle from the rear and on a 30° angle from each side without the need to change the chassis. The compartment was rearranged with the mortar at the rear and the mortar bipod was fixed on a semi-circular rail for clearance. The munitions payload was reduced to 67 shells, and a .50 calibre anti-aircraft machine gun was positioned to fire towards the rear, on a pedestal at the rear of the

**Right:** rear view of an M21 at the end of production with the new package racks. The mortar base is now positioned on the rear door.

**Far right:** the M21 81mm Mortar Motor Carriage was equipped with a normal tarpaulin, permitting the use of weapons (mortars and guns) with having to completely uncover the vehicle.



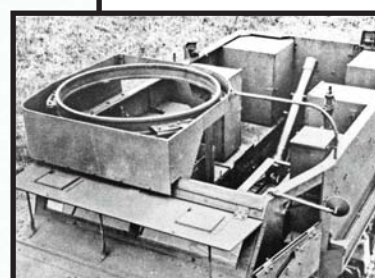
# T21 MORTAR MOTOR CARRIAGE



**Left:** photograph of the prototype of the T21 mortar motor carriage equipped with the 4.2-inch Mortar Carrier designed for chemical warfare.

**Below:** the final version of the mortar half-tracks, the model T21E1, based on an M3 chassis, shown here with its 4.2-inch mortar pointed to the rear. Like the M21, it received a .50 cal MG on a pedestal.

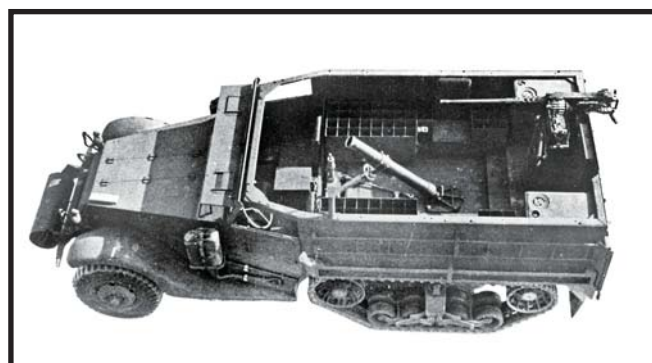
**Bottom:** detailed view of the 4.2-inch mortar and its base under which it is possible to see the 7cm rubber plate.



compartment. It was delivered to the trials centre in Aberdeen in April 1943, for evaluation and underwent a complete series of tests until July 1943. A few small modifications were requested, the main one being the improvement of the .50 cal machine gun pedestal. After modification, the T19 was standardised on 7th June 1943 as an M21 81mm half-track mortar carrier OCM-20846. The White Motor Company delivered the first M21 units starting from January 1944. Production continued until March of the same year with a total of 110 units constructed. The last models produced were identifiable by the new folding package racks on each side of the rear door.

firing tests were successful, they caused serious damage to the half-track chassis, which required a complete reconstruction. At that point, the specifications for the new vehicle had changed and demanded that the mortar was placed forward, to obtain a maximum range. On 14th October 1943 the new vehicle, the T21E1 4.2-inch mortar carrier, was designated OCM-21810.

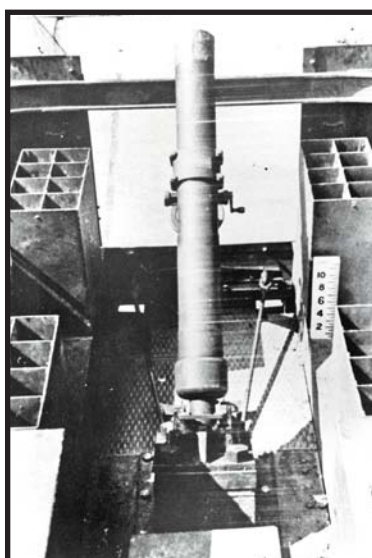
This time the T21 prototype was not produced by White, but by the Autocar Company, and while the firing tests were satisfactory, the interest in developing a 4.2-inch mortar half-track was no longer there, and on 29th March 1945, OCM 27124 recommended the end of the T21E1.



## THE T21 AND T21E1

In December 1942, responding to a request from the head of the Chemical Warfare Service, studies were started at the Aberdeen Proving Ground to examine the possibility of installing a 4.2-inch mortar on the half-track. This vehicle was therefore given the name T21 4.2-inch mortar carrier. The first tests were directly aimed at replacing the 81mm mortar of the M4 with a 4.2-inch chemical mortar, however, the first firing tests caused considerable damage to the vehicle structure despite the use of a 7cm thick rubber plate beneath the mortar.

The programme was next based on an M3A1 half-track with a reinforced chassis. This vehicle kept the .50 calibre machine gun, which was aimed towards the rear and while the first




## T21E1 Technical Sheet (based on M3 half-track personnel carrier)

Units produced	1 prototype
Manufacturer	Autocar
Crew	5
Engine	White 160 AX
Length	6.02m (with winch)
Width	1.96m
Height	2.57m
Weight	9072kg
Maximum speed	72km/h on road
Range	320km
Weapons	1 x M2 4.2-inch mortar, 1 x .50 cal MG 1 x M1A1 or M9 rocket launcher
Munitions carried	90 shells of 4.2-inch, 400 cartridges .50 cal and 10 x M6 rockets



# YAMAHA Grizzly





In army service the Yamaha quad bike is normally teamed up with the Logic two-wheel trailer designed specifically for it, which is capable of carrying supplies, ammunition and even two stretcher cases and has ramps to allow the unit to cross small gaps.

## British Army Yamaha Grizzly quad bike goes under the spotlight

**A**s the British Army begins to dispose of a small number of its most recently acquired quad bikes, we take a closer look at them and offer a little advice to collectors who may be considering buying one. While the quad bike may not be the first military vehicle you think of in terms of ownership, they do have an avid following and can be very useful tools in the right situation. If you're not a motorcyclist they're easier to use than a motorcycle and don't fall over quite as easily (when driven properly!), and are small enough to be easily stored and transported to shows. Couple that with the fact that they can be useful at home should you have a large amount of land, and can be a useful thing to have at some of the larger shows to save your feet, and you quickly see why these quad bikes are so popular with collectors.

The British Army's most recently acquired quad bikes replaced the ageing Honda TRX 450s (most of which have now been sold off, with just a few trickling through the ex-MoD sales) and while the military has had a long association with Honda, in 2008 it was decided by the powers that

be to change to Yamaha and by 2009 the new quads were being issued to troops. In total some 450 Yamaha quad bikes have been acquired, specifically for operational requirements in Afghanistan.

### CIVVY SPEC?

The quad bike in question was the Yamaha Grizzly 450 IRS, a quad that was essentially a similar specification to the earlier Hondas, having selectable two and four-wheel-drive plus diff locks, front and rear load carriers, front winch and numerous other minor detail changes over the standard civilian model to enable the quad to meet military specifications.

The quad also has a left hand throttle for greater manoeuvrability and is capable of wading through water up to half their wheel height. The other easily identifiable difference between the standard civilian Yamaha Grizzly and the military version was the use of sand-coloured plastic panels to replace the more usual colours offered on civilian specification quads by Yamaha in the showroom.

In terms of performance the 450cc quads can attain top speeds of around



**Above:** the military version of the Yamaha Grizzly is essentially the same as the civilian version with specific modifications for military use.

**Below:** despite the fact that the Yamaha quad (which replaced the older Honda TRX450) was only introduced in 2009, a small number have already been released, perhaps an indication of how tough the conditions are out in Afghanistan where they primarily serve.





A production-spec Yamaha quad on display at Defence Vehicle Dynamics (DVD) in 2009. Note the folding gap crossing ramps it is parked on, which are carried on the side of the Logic trailer.



**Above:** the wheels on the Yamaha are different widths with different size tyres, which can be deceiving if buying replacement wheels and tyres. This is an early production military spec Yamaha quad displayed at DVD in 2008 and is missing some of military-specific fittings.

46 mph, quite a lick on a bucking quad! In the field the quad bikes perform a wide range of tasks, from routine day-to-day jobs around the larger bases such as Camp Bastion, to delivering food, water and ammunition to frontline troops, and transporting injured soldiers using the purpose-built stretcher carriers and ferrying supplies to forward operating bases.

Like the Hondas before them, a purpose-designed trailer built by Logic was introduced around the same time, which was capable of carrying field stretchers and carrying small gap crossing ramps, a feature deemed necessary for service in Afghanistan following feedback from the frontline. It also followed the earlier practice of utilising the same wheel and tyre combination to aid commonality

between quad and trailer. Interestingly, a small number of the later Hondas to be released by the MoD were also fitted with this same style of wheel, albeit only on the front wheels due to the difference in offsets.

## WHAT TO LOOK FOR

So what should be looking for if considering the purchase of one of these quad bikes? Firstly, if funds (and vehicle availability) permit, it is preferable to purchase a complete vehicle that is running and driving so as to properly assess the mechanical aspects of the quad. The engines and gearboxes on quad bikes can be notoriously expensive to replace, even with second hand units, which is due in part to their popularity with farmers, which ensures a steady market for spare parts. It goes without saying that if assessing an engine you should ensure that there are no nasty oil or water leaks (the Yamaha is water cooled) or cracks in the engine casing itself, and definitely no rattles, clunks or noises that clearly aren't normal, so it's best to start with a visual inspection first.

Should the engine need a repair and you're in a position where you have the mechanical know how to be able to do the repairs yourself, there's a good supply of spare parts on the civilian market both new and second hand via a network of dealers and retailers who offer Yamaha quad spares, but be warned, they're not that cheap and some parts can be hard to find.

Gearbox wise the Yamaha is relatively complicated, with optional two and four-wheel drive and differential locks so you'll need to check that all the drive system is working and engaging as it should do without any unusual noises, clunks or excessive take up in the driveline, but also check for wear and damage to the actual prop shafts and drive shafts

## Logic Quad Trailers



**Below left:** a new trailer was built by Logic specifically for the introduction of the Yamaha quads, and incorporates a number of improvements over earlier trailers.

**Below:** both types of Logic trailer have been released in reasonable numbers over the last few years. Typically they're the first thing to get damaged in accidents!





because they will have had a hard life in the army, whether that be in Afghanistan or at one of the training establishments. Of course if you're buying a quad for restoration then both the engine and the gearbox condition will be a bit of an unknown, but it can at least be checked over for any obvious signs of external damage or missing components.

Talking of damage, the quad is fairly robust in construction and designed for a hard life, however, they can be damaged by misuse and accidents, especially with the harsh terrain they may have encountered in Afghanistan, so they need checking over carefully. Check for any damage or derangement in the suspension arms and frame. This can be done by eye, and while it may not be fool proof, should identify any serious problems by showing components to be damaged, bent or misaligned. Obviously this would apply to any quad whether it's running or not, and could save a lot of grief if you're planning to do a rebuild, but as with the engine and gearbox, parts should be readily available from dealers, and the civilian specification Yamaha Grizzly (of the correct model year) is virtually identical to the military counterpart in terms of the mechanical aspects of the vehicle.

The steel road wheels are specific to the Yamaha across several model years, but they are different to those fitted to the earlier Honda and earlier Yamaha, so if replacing a wheel or wheels be sure you get the right sort. In terms of the tyres there's plenty of choice via a plethora of tyre manufacturers, which can be obtained from regular tyre and ATV specialists and even via the Internet, but if replacing like for like on the military variant be warned, they're not cheap - only the best for our lads!

Cosmetically the Yamaha is not exactly the same as a civilian quad. Yes the design of the plastics and seating are the same, however, unlike the earlier Hondas, the plastics on the Yamaha are moulded in a sand colour and not over painted and this sand colour plastic was only offered to the military so while it would be easy enough to source replacement plastics should they be missing or damaged, it could be difficult to find any in the correct sand colour, which may be something to consider if purchasing a restoration project.

The seat is the same, identical in design to the civilian quad, but upholstered in a different sand colour; however, this would be a lot easier to fix by contacting a specialist trim company.



## VERDICT

While the Yamaha Grizzly 450 IRS isn't being disposed of in any great numbers at present, at least a dozen complete and semi-complete bikes have been sold via Witham Specialist Vehicles over the last couple of years, and when they do start to be released in greater numbers they may well be something you want to consider as a small collectors vehicle, being convenient in size to work on and store but still with a use.

I can hear some people saying: "Why not just buy a civilian quad?" and yes that would be an option, and some would argue that they won't have been worked so hard or taken so much abuse and are therefore better value, but as with most military vehicles quite often what you're buying is the 'military history'.

While the operations in Afghanistan may be ongoing, in years to come these operations will be no doubt be remembered in the same way as the many other historical conflicts currently represented such as WW2, Vietnam, the Falklands and the Gulf War, and at that point people will no doubt want to celebrate that fact with the ownership of 'genuine' ex-military vehicles that took part in that part of military history so it could be a collectors piece of the future?

**Top left:** this early example of the military Yamaha quad was released via Witham Specialist Vehicles in 2010, just one year after introduction, however, it is more likely to have been a trials or instruction vehicle rather than an in-theatre example. Note the small black box on the left hand front wing, which contains switches and electrics for the military black out lighting system.

**Top right:** while a few almost complete examples of the Yamaha have come out of service, many of them have been disposed of as little more than a spare parts bin! Having said that, there are plenty of useful spares here, which could be used to help rebuild several bikes once they're released in greater numbers.

**Below:** in the October 2012 MoD Tender Sale a small number of semi-complete Yamahas were released, but as you can see they've seen better days and have clearly led a hard life!



# Presentation Tanks



**Richard Pullen describes the remarkable story of the time when redundant tanks were gifted to towns and cities around the UK**

**Main photo above:** the Worcester Tank Bank and a captured German fighter arrived in the grounds of the Cathedral in March 1918. The tank, a Male, bears the number 113 and the name 'Julian'.

**Right:** Female Mk IV 'Kaloma' in the park at Wisbech. The tank is long gone, but the empty concrete plinth still remains. It's hard to believe that so much of our military history has gone forever when it once lay around the parks, towns and cities of the UK, making those rare survivors extremely precious military artefacts.





began in 1918 and soon the fields around Bovington Camp in Dorset were littered with the carcasses of dead tanks. Unfortunately, the army had bought so many tanks that the job of scrapping them was not complete until the mid 1930s.

During the war, there had been a competition to give away Egbert, a Mk IV tank that had seen action at the Third Battle of Ypres in 1917. The tank would be awarded to the town or City that raised the most money for the war effort by selling War Bonds and Savings Certificates. West Hartlepool won the tank, having raised £31 9s 1d per head. This left the army with one less tank to scrap, but soon, other towns said that they also wanted their own Egbert.

This was exactly what the War Office wanted to hear and they asked the National Savings Committee to provide them with a list of places that had gone above and beyond in collecting money for King and Country. The War Savings Committee drew up their Silver Bullet List covering 264 towns and Cities in England and Wales that they thought deserved a Presentation Tank.

The lucky towns covered the whole country from Durham to Southampton and from Cleethorpes to Aberystwyth. The tanks to be given away were mainly worn out Mk IV training tanks, fresh from the Tank Corps camp at Bovington, but there was the occasional, very rare Mk III mixed in.

The tanks were mainly the machine gun armed Female variety, as the removal of the guns from a Female didn't spoil the overall look, whereas the removal of the 6 pounder cannon from a Male tank would leave it looking very odd indeed. Another reason for not giving the Male tanks away was the fear of Red Revolution, which was a very real threat in post-war Britain. The army didn't want to risk large calibre guns falling into the hands of British Communists, so they tried to keep the Male machines back for themselves.

Several Male tanks were given away, but apparently only if a town had a good reason to receive one. The engines and transmissions for the early tanks were made by Daimler in Coventry, so in recognition of this, Coventry was awarded a much sought

after Male tank.

The first tank had come from the William Foster and Co Ltd factory in Lincoln, so Lincoln also qualified as a recipient of a Male tank, in fact the City was actually awarded one of only two 1916 vintage Mk I machines given away as presentation machines, the other one went to Hatfield House where the tanks had been tested before the Battle of Flers.

For some unknown reason, no photograph has ever surfaced showing the Lincoln Presentation tank, but I live in hope! Several Great War tanks were also put on display in France and Belgium, but, with the exception of those in the museum in Brussels, they were all scrapped after the German advance of 1940.

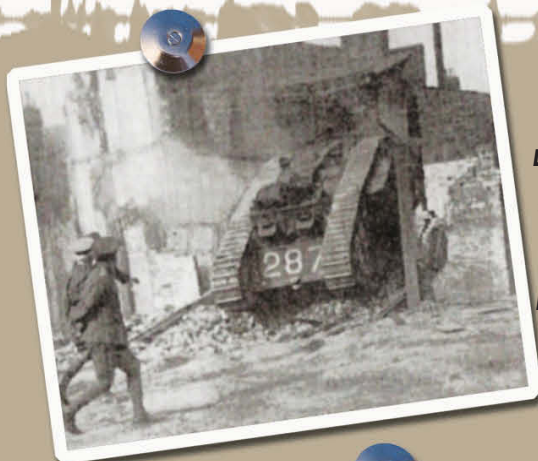
**Top right:** Female tank number 285 was once displayed in the heart of Cheltenham. Like most of the others it has long gone.

**Above centre:** this is possibly one of the last photographs to have been taken of the Ypres tank before it was scrapped by the invading Germans.

**Above:** Heroe of the Third Ypres, Egbert, arrives in West Hartlepool. At this time the significance of the tank was fully appreciated by the public who came in their thousands to see the tank arrive.



**A**t the end of the Great War the Army soon realised that it had a bit of a problem. They had bought hundreds of tanks and now these machines were redundant relics of Trench Warfare. The first rhomboid shaped heavy tanks were this distinctive shape and size purely so that they could trample over belts of barbed wire and crash in and out of the wide and very deep trenches being dug by the Germans towards the end of the war. The tanks were now too big, too slow and too old fashioned and replacements such as the Medium A Whippet and the Medium C Hornet were already taking over. The army decided to scrap most of its Great War rhomboids and invest in new machines and technology. The job of breaking up the tanks by hand with sledgehammers



**Left:** the Worcester Presentation Tank shows what it can do by flattening a derelict house.

**Below:** a photo of the tanks crew and reporters in Worcester with tank 287.



**Right top:** the female Mk IV in the park at Leigh seems out of place amongst the trees.

**Right centre:** fresh from destroying old buildings, the Worcester tank is officially handed over to the town.

**Bottom right:** the Male Mk IV tank in Newcastle under Lyme was a particularly grimy looking example, but like many still bore a number.

**Below:** like many of the tanks gifted to towns and cities, the arrival of the Mansfield tank was greeted by the usual civic reception of speeches and God Save the King.

Most of the Presentation Tanks given away in Great Britain arrived at their destination by rail and were driven to a local park or town square where the citizens would gather to welcome it. The Tank Corps officer in charge would usually climb up on top of the tank where he would be joined by the Mayor and other dignitaries for a round of patriotic speeches. The officer, often Captain Farah M.C. or Lt. Parker, would tell of the heroics performed by the tank and its crew and would point out any damage sustained whilst attacking the Hindenberg Line single handed. In reality the tanks were usually training machines that had never seen action

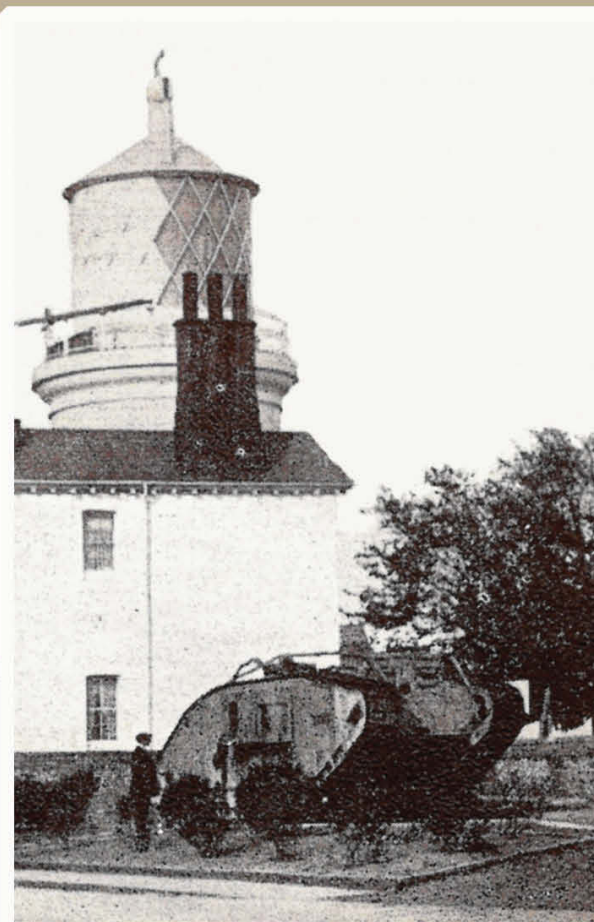
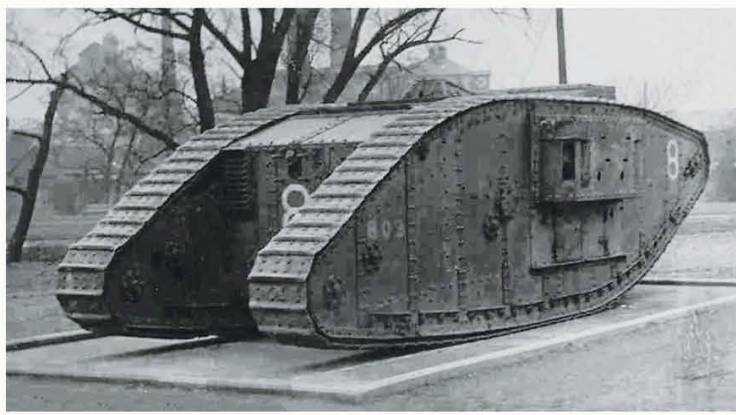
and any 'battle damage' was usually just scrapes suffered at the hands of over enthusiastic squaddies whilst learning to drive.

## EXCEPTIONS TO THE RULE

Friends of the Lincoln Tank have been researching the Presentation Tanks for several years and they have discovered that there were, of course, exceptions to the rule and several of the tanks given away really had seen action in the war, for instance, the machine given away to Windsor turned out to be a very interesting example. The tank arrived at the Great Western

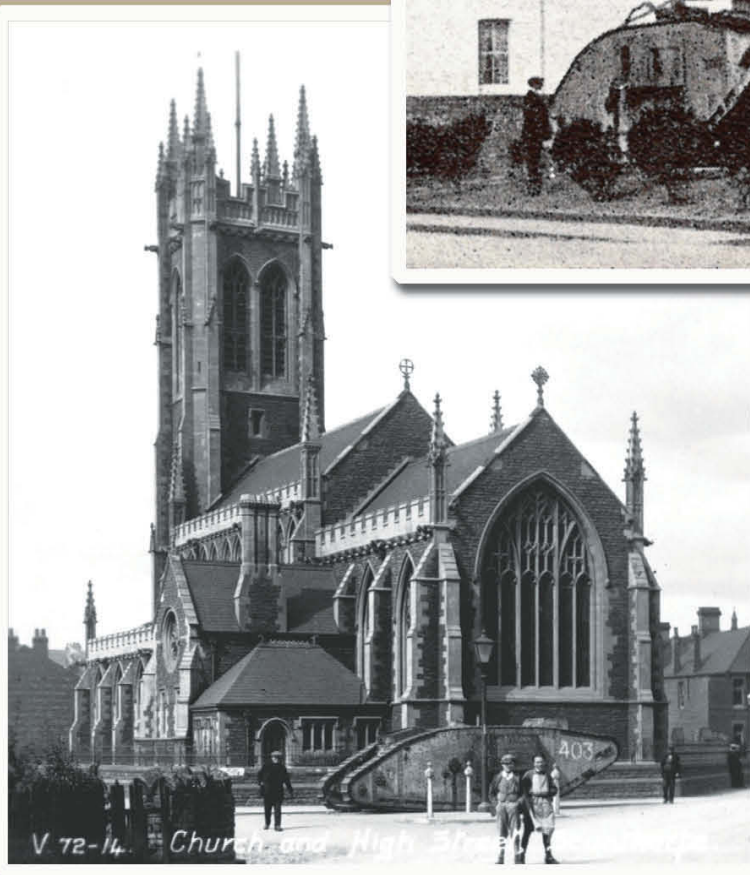
Goods Yard on Saturday 29th May 1920 and was driven to its new home at Bachelor Acre. The tank bore on its hull the four figure works production number 6039 and had seen action in France with 1st Battalion, Tank Corps. Lt. Parker was the Officer in charge of the handover and he pointed out the battle damage on the old female Mk IV, which included 'several bullet marks as well as two 'missiles', still embedded in the plate at the rear of the tank'. Tank number 6039 was actually one of two Mk IV machines used to recover the German A7V 'Elfriede' from the battlefield at Villers Brettoneux.





The Windsor tank was now in place on its plinth, but as Friends of the Lincoln Tank have discovered, the story doesn't end there. Soon after its arrival, the 105hp Daimler engine was requested by Windsor Electricity Works for use as a spare power source. The engine was removed, but it was allegedly found out that the Daimler engine was actually bound for the Windsor Electricity Works Managers car and the Council apparently made him re-instate the engine in the tank!

Unfortunately, in 1940 the Windsor tank was taken for 'War Salvage'. It and a great many of Windsor's railings and other scrap metal were taken away by barge along the Thames Estuary. There is a splendid rumour that a lone Luftwaffe bomber, on his way back to his aerodrome in France still had some bombs left and decided to jettison them over the Estuary. By chance, the scrap barge was right in the firing line and was sunk by the wash caused by the explosion of the unwanted bombs. The crew of the boat were apparently all saved, but if this story is true, there is an undiscovered female Mk IV tank with a fascinating, known military career, sitting on the bottom of the estuary, perhaps to be recovered at some time in the future?



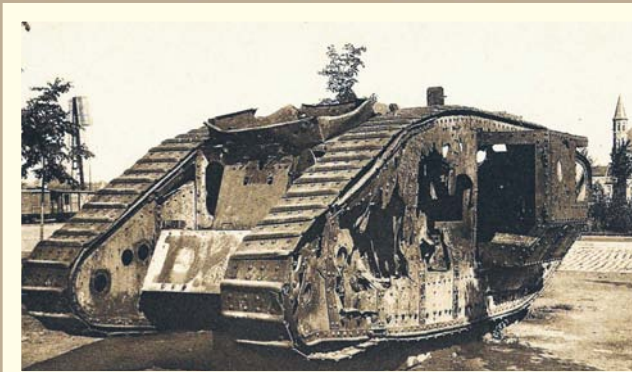
**Top left:** a very rare example of the Female Mk III tank on display in Worksop.

**Top right:** the Mansfield tank pictured sitting in the park.

**Above:** The Lighthouse at Lowestoft has changed little to this day, except that the tank seen here is long gone.

**Above left:** part of the War Memorial in Hythe was this Male Mk IV.

**Left:** this scene in Scunthorpe today has changed little except that the tank went for scrap many years ago.



**Top right:** the Ypres machine again seen in the late 1920s. The Germans disposed of it in 1941, but as you can see from the photograph, it was badly damaged and far from complete.

**Above left:** the Presentation Tanks weren't just seen in Britain, this Male Mk IV stood for many years in the middle of Ypres, Belgium, although the condition wasn't as good as those found in Britain.

**Far right:** just down the road from Ypres is the pretty little village of Poelkapelle and this was their Presentation Tank on display in the village.

Another fascinating story of a Presentation Tank comes from Worcester. The town had been visited by the Tank Bank, Julian No. 113, for their War Weapons Week from the 17th to 24th March 1918, the people of Worcester raised over £456,000 in Bonds and Certificates in one week alone and by the end of the Great War their total had exceeded an amazing £1,292,000 with another £150,000 raised post war.

On the 8th July 1919, Worcester's tank arrived in the town. It was an old training machine that carried Home Service number 287 and it actually arrived the day before the handover ceremony so that it could be driven to

## Ashford's Survivor



New Road Ground, a rough area of partly demolished houses billed as 'a Ruined Flanders Village'. On the day of the handover, the tank, commanded by Captain Farrar, gave an exciting demonstration of its power by crossing ditches and actually driving through several derelict houses.

The next day, the tank was driven off to Gheluvelt Park where it was renamed Cynthia, in honour of the Mayor's daughter and was then officially handed over to the citizens and remained on display until WW2.

The amazing demonstration given by the tank in Worcester spawned a bit of an urban myth about the first tanks. There has always been a tantalising story that a property developer in Worcester bought an army surplus tank in 1918 which he used to demolish old houses. Unfortunately, the story says that one day he was merrily flattening houses when the tank suddenly dropped through into an uncharted cellar. Unable to get the 30-ton machine back out, the developer was supposed to have simply filled the cellar up with concrete whilst leaving the tank in-situ. This is a great story, but it is likely to be embellishment and Chinese Whispers based on the original Presentation Tanks demolition demonstration.

Worcester Civic Council had promised to look after the tank forever, but by 1938 the machine was beginning to look very untidy and the council asked for offers to come and remove the tank. They eventually accepted an offer from a Mr. Jackson for 17s 6d per ton and before long it was gone.

This was unfortunately the way these Presentation Tanks ended their lives, going for a few pounds worth of scrap to the highest bidder or later on, for War Salvage. Of the original ones given away, only three still survive and only one of those is still in its original position. The Mk I, now at Bovington Tank Museum had been presented to Hatfield House in 1919 in recognition of the fact that the first tanks were tested in the grounds. The only surviving Mk IV Male in the world is also at Bovington and was once known as HMS Excellent, as it had been the tank given to the Royal Navy as they had helped train Tank Corps gunners at Whale Island. The only Presentation Tank still in its original position is the one awarded to Ashfield in Kent. This tank has stood in the same position for over 90 years and although once turned into an electricity sub-station, it is now an official War Memorial.

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# MAN Alive...

**MAN's Kat 1 trucks have origins  
that trace back to the Cold War...**





**Above:** in Afghanistan, a Kat 1 10-tonne cargo with winch, materials handling crane and first-generation KMW cab protection.

**Right:** Kat 1 A1 chassis were available in 2.9 width for specialist applications.

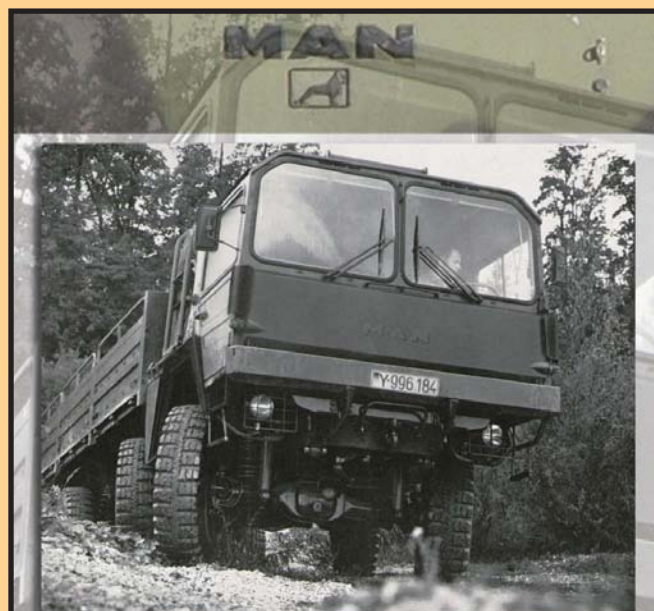
**Main photo right:** a late-production Kat 1 A1.1 15-tonne Multi in convoy ahead of an earlier Kat 1 10-tonne cargo.

In the late 1950s and early 1960s the West German Technical Office for Armament and Military Purchases drew up requirements for a new range (or second generation) of vehicles for the Bundeswehr. Covering all weight classes and mobility levels, this second-generation requirement originally called for 62,000 vehicles of all classes (including cars and buses) and including 4-tonne (4x4), 7-tonne (6x6) and 10-tonne (8x8) trucks, (4x4) and (6x6) armoured amphibious load carriers and an (8x8) amphibious reconnaissance vehicle.

To meet development and production demands, a joint venture led by MAN and including Klockner-Humboldt-Deutz (KHD), Rheinstahl-Henschel, Krupp and Bussing was set up. The first prototypes were shown at the end of the 1960s, and a further two prototype series were developed before the first genuine pre-production vehicles were designed and built.

Along the development trail it became clear that as originally specified the vehicles required would simply not be affordable, so many of the more ambitious features were dropped (such as the amphibious specification), while armoured vehicles would evolve as a separate development. From the outset, Category 1 (Kat 1) trucks were designed specifically for cross-country operations and to be capable of maintaining pace with mechanised forces.

In December 1975, MAN was awarded a contract to build 8,385 Kat 1 vehicles at a cost of DM 1,400 million, although in 1979 this total was reduced to 7,925. The (8x8) version was the first Kat 1 model to enter production and first deliveries were made in 1976. Deliveries of a (6x6) tipper and the (4x4) cargo truck began in 1977. Deliveries of the (6x6) cargo truck began in January 1979. Final deliveries were made in 1981.



## Early Kat 1 Trials Vehicles



Early Kat 1 (8x8) cargo truck (shown above) and a 6x6 three-way tipper (shown left) both photographed during initial vehicle trials.





**Above:** a German Army Kat 1 7-tonne (6x6) three-way tipper.

**Right:** Kat 1's do not have a tiltable cab so an identifier is the maintenance door (the 'advent calendar') on the LH-side of the engine compartment.



**Right:** Austrian Army OAF Type 20.320, essentially an Austrian-specific Kat 1.



**Right:** Belgian Army Kat 1 A1 (6x6) with rear-mounted materials handling crane.



By 1983, 8,617 Kat 1 trucks had been delivered to West Germany's armed forces, these in seven 5-tonne (4x4) variants, 14 7-tonne (6x6) variants, and 9 (8x8) 10-tonne variants. Austria and Belgium also received Kat 1 trucks.

The Kat 1 range made extensive use of commercial components so that spare parts could be easily obtained, and all models were produced at MAN's Watenstedt plant.

## NEXT GENERATION

The next generation, Category II (or Kat II/Cat II), was developed at the request of, and in close co-operation with, US armed forces. By the end of 1986, 534 Kat II trucks had been delivered to US armed forces, 157 to France and 42 to Canada.

In a parallel development the so-called Category III (or Kat III/Cat III) vehicles were developed. Similar to Category I vehicles, these are essentially the military-specific Kat 1 chassis fitted with a militarised cab

from MAN's civilian truck range. A total of 1,594 Kat III trucks were delivered to Algeria (280), Ireland, Oman (95), Peru (165), Singapore (104), Venezuela (405) and possibly others.

In April 1985, MAN presented the first of the revised Category I A1 models to the German Federal Office for Military Technology and Procurement (BWB). It was planned that there would be 35 test vehicles of all configurations, including a 2.9 m wide (8x8) version for the Patriot and Roland surface-to-air (SAM) missile systems. Production of 1 A1 vehicles began in 1987.

Category I A1 was a further development of the original Category I but featured improved performance on- and off-road due to more powerful engines and improvements in the chassis and cab design. Category 1 A1 included a new (as a direct replacement for the earlier 10-tonne) 15-tonne (8x8) weight class. From 1988 the Bundeswehr ordered 1,100 Cat 1 A1 models.



Peruvian Army Kat III (6x6); Kat III trucks are essentially Kat 1 chassis mated to a MAN commercial cab.



Category 1 A1 models developed from 1988 carry the Category 1 A1.1 designation. Kat 1A1 models used some commercial components from MAN's F90 range of heavy commercial trucks introduced in 1986, while the later Kat 1A1.1 models (developed between 1988-1991) were based on components from MAN's F2000 range of heavy commercial trucks introduced in 1992. The MAN designation of SX range became prevalent around this time. From 1993 the Bundeswehr ordered around 500 MAN Kat 1 A1.1 trucks.

## TECHNICAL DETAILS

All Kat 1/SX models share a purpose-designed box-section torsionally rigid (non-flexing) chassis frame design that mounts beam axles sprung by long-travel coil springs. Early models (Kat 1/Kat 1A1) were powered by KHD air-cooled diesel engines as these were deemed to be essential at the time, being less susceptible to damage from small arms fire and shell splinters. This requirement was later found to be largely irrelevant and as development progressed the use of commercial components from MAN's heavy commercial truck ranges increased, firstly from the F90 range introduced in 1986 and later (Kat 1A1.1 models) from the F2000 range introduced in 1992.

Model evolution is ongoing and current models are fitted with driveline components, including an engine line-up, taken from the TG Worldwide commercial range.

The modular military cab fitted to current SX models is a continuing development of the cab fitted to the original Kat 1 vehicles. The latest version is 290 mm deeper than its immediate predecessor and has more than 600 litres of stowage space in the rear. The interior of the walk-through cab is primarily steel or washable plastic/vinyl, the bulk of the instrumentation package having been taken from MAN's TG WorldWide commercial range as this being deemed more practical and cost-effective than the purpose-designed instrumentation of earlier cabs. The detachable hardtop roof is reinforced to take the weight of two soldiers and the recoil forces of a heavy machine gun.

The cab readily accepts protection kits and at the production stage can be fitted for, but not with, an appliqué armour kit weighing around 1.5-tonnes. This is known as the Modular Integrated Cab, the original (British Army) version of which was developed by Ressenig of Austria. The current version has been developed by Rheinmetall. As an alternative SX (8x8) chassis can be fitted at production stage with an all-steel armoured cab, this known as the Integrated Armour Cabin, and developed in conjunction with Krauss-Maffei Wegmann. The IAC provides full crew protection from armour-piercing bullets and anti-tank mines.

The IAC was initially available on SX range (8x8) chassis only (for axle weight reasons), and on SX (8x8) chassis has been adopted by Austria



(24, delivery 2007-2009), Denmark (20 (+ option of 10)), delivery from 2007), Norway (six) and Germany (157). A Rheinmetall-developed IAC option is now available, this suitable for all SX range trucks, depending on front axle rating and protection levels.

The engine and cooling pack are located transversally at the cab rear on all models, offering protection from damage and blockage of the radiator with mud etc. when operating off-road. It also allows for a larger radiator to be used, this enhancing hot-climate operating capability. This location also ensures all standard width Kat 1/SX range trucks (subject to rear body fit) meet height requirements for transport by C-130 Hercules aircraft with limited preparation.

**Above left:** photographed at RAF Lakenheath in the late-90s, what was probably one of the last US Air Force Kat 1 V10-powered tractors.

**Above right:** a Kat 1 5-tonne cargo of the German Army.

**Above:** in Kosovo, a Kat 1 5-tonne cargo of the German Army, this example fitted with first-generation KMW cab protection.

**Top right:** Danish Army Kat 1 A1.1 SX45 (8x8) fitted with a Multilift load handling system and KMW all-steel cab.



**Below left:** rear three-quarter view of a British Army SX45 wrecker. Note that the cab is equipped with the stand off bar armour used in Afghanistan.

**Bottom:** recovering a Husky TSV, a British Army SX45 wrecker in Afghanistan. Clearly visible are the numerous theatre-specific modifications (armour, self-protection, ECM etc) to the base vehicle.



Motive power for the current SX range is provided by a MAN D2066 exhaust turbocharged and intercooled 10.518-litre 6-cylinder common rail diesel engine that develops 440 hp at 1,900 rpm and 2,100 Nm torque at 1,000 rpm. This is coupled to a ZF 6HP 902 six-speed Powershift automatic transmission with torque converter and MAN two-speed transfer box, with shift-controlling software developed by MAN. Separate and condition-specific shifting programmes are set for high (on-road) and low (off-road) ranges. Manual gear selection is available when required.

All current SX range models are fitted with MAN's latest beam-type hub-reduction axles rated at 9,000 kg (front) and 13,000 kg (rear), these fitted as standard with driver-controlled cross- and inter-axle differential locks. All rear drive axles have full-width casings and have been designed from the outset to accept single wheels/tyres, standard tyre fit

being Michelin 1400R or 1600R 20 XZL with a central tyre inflation system (CTIS) option. Drum brakes are fitted all-round, the ABS system featuring MAN-specified off-road logic.

Individual axle ratings for all SX range models are 9- or 11-tonne, front, and 13-tonne, rear. The 9-tonne rating for the front axle(s) (traditionally front truck axles, commercial and military, have been rated at around 7.5-tonnes) was introduced to accommodate an increasing number of requirements worldwide that call for vehicles capable of accepting a ballistic and anti-personnel mine protection kit. The latest 11-tonne rating was introduced during 2012 to accommodate ever increasing front axle loads, these brought about continuing increases in protection levels.

Since production commenced in 1975, over 12,000 Kat 1/SX range trucks have been supplied to over 60 countries, sometimes in small numbers. Figures released in 2008 stated that around 6,500 Kat 1 trucks remained in service with the German Bundeswehr, many of these now over 35 years of age and finally scheduled for replacement under the slow-moving GTF programme.

Current SX range production is based on two base chassis/driveline variants, the SX44 (SX 25.440 6x6) and SX45 (SX 32.440 8x8). Taking the SX45 (SX 32.440 8x8) as an example, in all instances MAN/RMMV designations denote: SX - model range; 32- GVW (can be limited by tyre choice or legislation); 440 - engine power output; 8x8 - drive configuration (8x8).

## MAN or RMMV?

MAN Nutzfahrzeuge AG (now MAN Truck and Bus AG) and Rheinmetall AG announced their respective intentions to form a joint wheeled military vehicles company in 2009. This alliance became a reality in January 2010 with the announcement of the founding of Rheinmetall MAN Military Vehicles (RMMV) GmbH. RMMV sees the merger of Rheinmetall's wheeled military vehicle activities with those of the military truck activities of MAN. Essentially this merger unites the complementary technological core competencies of MAN's automotive expertise in commercial vehicle manufacture with Rheinmetall's technological know-how in the military land sector/systems field. The result is the creation of a new single-source provider for the entire range of armoured and unarmoured transport, command and role-specific wheeled vehicles. (Source: Jane's)

Photos: Shaun Connors, Chris Foss, Michael Jerchel, MAN (archives), Stefan Marx, Martin Pagh, Carl Schulze, Cesar Cruz Tantalean.



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# *Irish* **WRECKERS**

**Colin Stone looks at some of the recovery trucks to have served with the Irish Defence Force**

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One of the more unusual purchases by the Irish Army in the 70s was three French Berliet wreckers.



This MAN beaver tail 4x2 truck is often used for smaller recovery and transport jobs

**W**e have all been in a vehicle that lets us down at the side of the road and needless to say that it is always raining and you're in an isolated spot when you join the 'Bonnet Up Club'. Imagine the same scenario in the military where you have to get you and your vehicle out of the danger zone as soon as possible. In this situation it is essential that vehicle gets back to the base workshop and repaired in as short a period as possible and to this end the Irish Defence Forces have at their disposal a small number of recovery vehicles to get their vehicles back on the road and provide a force multiplier. The fleet has been an eclectic collection to say the least, but before we look at the current fleet I want to jump back in time and take a quick look at some of the vehicles that have gone before.

One of the first purpose built trucks was a single Leyland Terrier purchased in 1938 onto which was grafted a Harvey Frost 8-ton crane. This truck also sported a locally made crew cab, which was fabricated in Dublin's now closed Clancy Barracks. The crane was transferred to an AEC Matador chassis in the early 60's and while the Matadors were boarded in 1980, thankfully the wrecker survived to be refurbished and is now on display in the National Transport Museum in Howth, which for any tourist is a short bus or train ride from the centre of Dublin and contains more than a few Irish military oddities.

The Army in its wisdom then purchased four, Bedford MFR2's, a version of the TK that had a double sand biased tyre on the back axle. The redeeming factor was that they were fitted with Holmes 655 twin boom equipment, in fact it was once said that Ernest Holmes made his equipment so well that he never had repeat custom and this eventually caused him to go out of business!



The recovery equipment on this 4x4 Leyland, especially the Holmes booms on the crane wouldn't look out of place on a wartime wrecker!

This is the case in Ireland as the Army refitted the bodies onto Leyland chassis, with very little needed to effect the transfer, as both chassis were very similar. Additional new equipment included a 5-ton Boughton winch and a rear mounted under reach spectacle lift rated at 2-tons. The Leyland has proved to be a great success both at home and on service overseas with the UN where they see extreme working conditions. It remains to be seen if they will be the last Holmes equipment to see Irish service or maybe they will get a new life on a third chassis?

### OTHER TRUCKS

A one off was the Leyland Buffalo with its classic Ergomatic cab. Again a Holmes twin boom unit was employed but on this occasion it was the heavy-duty 25-ton 750 version, however, the truck was rather long, which must have restricted her entry into some of Dublin's inner city barracks at the time. The other unusual purchase of the 70's was the three Berliet wreckers.

**Below:** in the days before the Leyland 4x4 the 6x4 Leyland Buffalo with Holmes recovery equipment was used, but their service did not overlap.



**Right:** amongst the various Acmat trucks used by the Irish is this recovery variant. This VLRA 640WRT.TD 6x6 wrecker is pictured undergoing routine service whilst in Chad.

**Below:** three views of the Leyland 4x4 recovery truck fitted with the Holmes 655 crane. The lattice work booms are similar in appearance to those used on many wartime recovery trucks.



## *"The other unusual purchase of the 70's was the three Berliet wreckers."*



Originally designed by Rochet Schneider in the 50's it would be marketed as a Berliet due to its absorption by Berliet. They were purchased for the Cavalry Corps who operates Ireland's armour. At the time of their purchase the Panhard was the mainstay of the armoured fleet and I have seen pictures of Panhard 60mm cars being picked up complete by the Berliet. It had a 5-ton front winch, which was complimented by a large 12-ton over the rear body. It was typical quirky French with it's framed cab covered by canvas and its skinny twin legged ground anchors.

Four Acmat 640 series wreckers were purchased between 1989 and 1994. They were all fitted with Acmat's European steel cab and had the ability to lift 10-tons with the rear

crane and it was also fitted with a front mounted 3-ton winch. The Acmat's were tough, no nonsense military vehicles and tended to fall foul of drivers who complained that they had no air con and all the mod cons of modern trucks, but they had given sterling service at home and on U.N. service in Somalia, Chad and Eritrea to name a few places.

To provide recovery capability to the new concept of 50-ton plus capable Iveco DROPS and Mowag armoured vehicles it was decided to employ another one off. The Iveco Astra DROPS vehicle was found to be a reliable and soldier proof vehicle, so it was decided to mount an Ekalift 2500 recovery hamper on its strengthened chassis. The main recovery arm has a 12.5-ton lift capacity that allows loaded trucks and Mowag APC's to be recovered. Also fitted is a Rotzler 25-ton electric winch, which allows rear and side recovery. This winch also requires a smaller 1-tonne winch to pay out the wire cable of its bigger



## Beavertail Trucks



**Left:** for the routine recovery and movement of smaller vehicles the Irish Army uses a variety of beavertail trucks, such as this MAN 8.150 4x2.

**Left:** for slightly larger recovery jobs the army has this newer MAN 8.163 beavertail truck capable of carrying several tons.

**Right:** an Astra M320.42 recovery truck lifts the turret off a Mowag Piranha for maintenance whilst serving in Liberia, the cradle for the turret is between the two vehicle.



brother. Out the front on a chassis extension is another Rotzler with a 10-tonne capacity and behind the cab is a 6-tonne Atlas crane with an extension reach of 17.9 metres. It has seen service at home and with the U.N. in Kosovo and Africa.

### MODERN TRUCKS

MAN Diesel have provided some of the most dependable recovery vehicles to the Irish Defence Forces. The MAN 8.150 4x2 was introduced in 1989 and has seen continuous service to this day, in fact it is so reliable that it has had its life cycle extended past the usual time period for trucks before being pensioned off. The first recovery models in 1991 were fitted with a simple beavertail with ramps and a Husky Superwinch. In 1996 the newer model 8.163 was provided with a tilt and slide body for Dublin units. The 1998 model had a tidy beavertail with side lockers to safely carry equipment in the Curragh while the Southern



**Above & below:** before the MAN 8x8 trucks came along, the army used the Astra M320.42 W BAD 8x8 DROPS fitted with Ekalift 2500 recovery equipment. Note the massive crane fitted and the front mounted winch shown on the UN vehicle below. The vehicle shown above finished in green was photographed during a deployment in Chad while serving with the UN.





*"The other MAN is known throughout the Defence Forces as 'The Beast'."*

Brigade resorted to their own beavertail pattern. These little MAN Diesels have been designed to carry rather than tow disabled vehicles.

The other MAN is known throughout the Defence Forces as 'The Beast'. It is a MAN 32:321 fitted with massive 24R-20.5 flotation tyres and its legendary ability has seen it in use with the Defence Forces, civilian authorities who request its capabilities and it has been used in Kosovo and Somalia on U.N. service. Even though it has officially been replaced by the newer Iveco, it still has a place in the

mechanics hearts who keep her in tip top condition. In configuration she is similar to the British Army Foden Heavy Recovery Vehicle, but unlike the 333 produced for the British Army we only received one! When she was abroad on U.N. deployment the Defence Forces were at a distinct loss for heavy recovery although she did have 30hp extra over the Foden wreckers, and I for one would love to see a drag race between the two!

The newest purchases are two MAN 8x8 trucks. One is an armoured cab for overseas U.N. deployment while the other is a normal steel cab for training at home. Currently the armoured MAN is seeing service with UNIFIL in Lebanon where Ireland has an enviable reputation as one of the

best-regarded peacekeeping nations. Powered by a 440Hp, 10.5-litre, 6-cylinder turbo diesel engine, the new MAN vehicles will be a worthy replacement for the existing heavy fleet. The MAN has an 8x8 wheel drive layout and self-levelling suspension to negotiate rough terrain.

The recovery hamper includes cranes and winches, designed by Gerrards Cross-based EKA Rotzler (UK). It is manufactured and bolted to the main chassis by Atlas Terex, based in Motherwell, Scotland.

The new recovery vehicle is capable of lifting 15-tons at a distance of 2.3 metres, and can tow any vehicle in current service. Its good to see that 'The Beast' has a worth successor snapping at it's heels.



**Top left & right:** the rear hamper of this MAN 32:321 6x6 recovery truck, often referred to as 'The Beast' is broadly similar to the British Army Foden 6x6 wreckers.

**Above right:** the army has two of these new MAN 8x8 recovery trucks, this one is fitted with the armoured cab and is used for overseas deployments, such as those with the United Nations.

#### **Acknowledgements:**

Thanks to: Sean O'Sullivan, Karl Martin, Michael Corcoran (NTM), RSM Mick Dillon and Commandant Martin Nolan, CVBW Curragh for their help with the article and photographs.



**Above left & right:** two views of the 'other' of the MAN 8x8 recovery truck, this one being the standard softskin variant used for home duties and finished in a more familiar overall green paint scheme.

# FREE PRIZE DRAW QUESTIONNAIRE



Hello! Ian Young, Editor of Military Machines International Magazine here. As you may know, Military Machines International is the UK's original monthly military vehicle magazine, and we need your help to make it even better!

Please spare a moment to help improve Military Machines International by honestly answering a few questions about the magazine.

By way of a thank you, all completed entries returned to us before May 31st 2013 will be entered into a special prize draw for £100 worth of military books. If you wish to be entered into the draw, please fill out the questionnaire, and don't forget to include your name and address!

Best wishes and thanks for your help.

Ian Young 

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**Please use a black ballpoint pen.**

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Vehicle profiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Museum visit reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Military Exercises reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
World War One stories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Restoration reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle profiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Museum visit reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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World War One stories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
World War Two stories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-war stories	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Centre Spread photo/poster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Archive features	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## QUESTION 8:

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World War Two	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Korean War	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vietnam War	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gulf War	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## QUESTION 9:

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If you could change one part of Military Machines International, what would it be?

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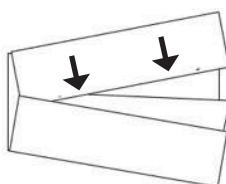
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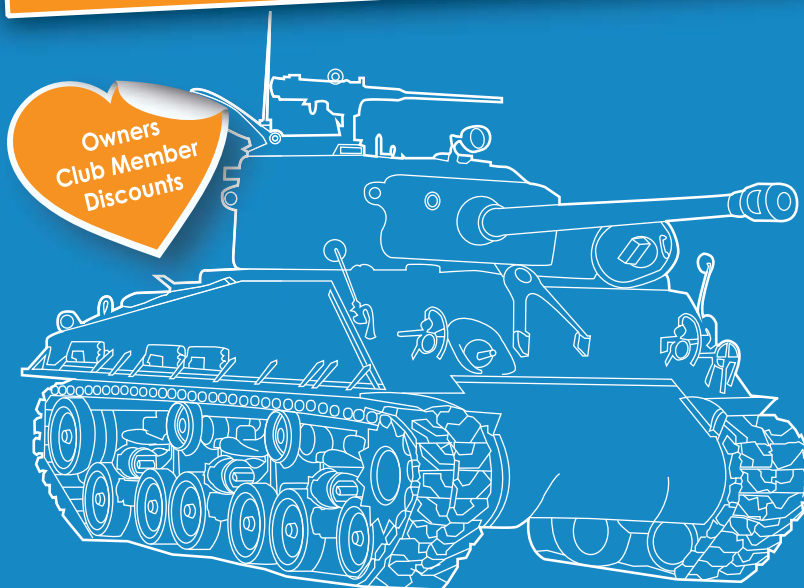
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# FRENCH FIREPOWER

**Eric Cunat takes a  
look at the French  
AMX-10RC 105mm  
wheeled AFV**





**This photo & opposite:** photographed during a joint exercise involving the 3e Régiment de Hussards and elements of French Army Aviation, here we can see some of the combat vehicles and a hovering Puma helicopter of the 3e Régiment d'Hélicoptères de Combat above them.



**T**he AMX-10RC is a medium-weight wheeled reconnaissance vehicle and tank destroyer built by GIAT (today Nexter Systems). Over 300 have been in service with the French Army since 1980, while 120 additional vehicles were sold to Morocco and Qatar. The AMX-10RC is a well-armed amphibious recce vehicle, endowed with very good mobility on and off road, is protected against light weapons and the effects of artillery, and able to fight in contaminated atmosphere.

The AMX-10RC was deployed by the French Army in Chad during Operation Manta between August 1983 and November 1984, during Operation Desert Storm in Iraq in 1991 and in support of UN operations in the former Yugoslavia with British forces in 1995, Kosovo in 1999, Afghanistan since 2009, and has been operating in Mali.

### HISTORY

The AMX-10RC was designed to meet a French Army requirement for a vehicle to replace the Panhard EBR (8x8) heavy armoured car in 1970. It was one of the first vehicles of its category to fit the hunter-killer technology.

Total production of the AMX-10RC for the home and export markets amounted to just 457 vehicles with the production of the turret undertaken at Tarbes, while chassis production and final assembly was undertaken at Roanne, both facilities being part of Giat Industries.

Morocco placed an order for 108 AMX-10RC vehicles modified to meet local operating conditions in 1978 and first vehicles were delivered in 1981. The AMX-10RC was also deployed by the French Army in the Persian Gulf during Operation Desert Storm.



**Above:** AMX-10RC of the 3e Régiment de Hussards at Djibouti in 2010. (Photos 3e Régiment de Hussards)

**Below:** here we see a front view of the AMX-10RC. Note the simulation systems on the gun and on the sides of the turret.



Note the quality of the camouflage draped over the vehicle and the new crew helmets of the French cavalry troops. ***Inset right:*** the low profile of the AMX-10 RC offers good protection on the battlefield.



***Right:*** close-up view of a vehicle showing the large camouflage nets draped over the vehicle to disguise its appearance.

***Bottom left:*** this AMX-10RC is waiting on the track because the ground forward has been mined.



## DESCRIPTION

The all-welded aluminium hull and turret provides the crew with protection from small arms fire, flash burns and shell splinters. The driver is seated at the front of the vehicle on the left side and is provided with an adjustable seat and a large single-piece hatch cover that opens to the right. There are three day periscopes, the centre one of which can be replaced by a passive OB-31A periscope for night driving. The turret is in the centre of the vehicle with the commander and gunner seated on the right and the loader on the left. Both

the commander and the loader are provided with a single-piece hatch cover that opens to the rear and the loader has three periscopes, one to the front, one to the left and one to the rear. The vehicle commander has six periscopes for all-round observation and a periscope and panoramic M389 telescope with magnifications of x2 and x8 which has 360° full rotation and enables the commander to observe the target regardless of the position of the turret. The M389 can be elevated from -12 to +24° and has automatic projection of graticules, x2 for the machine gun and x8 for the 105mm gun. The commander also has overriding controls enabling him to lay the gun onto the target. The gunner has three periscopes and an M504 telescope, which is the main part of the fire-control system. The M504 has a magnification of x10 and is combined with an optical compensator with electronic controls for automatic input of fire corrections, an M550 laser range-finder and an M553 bore sight unit which corrects for any abnormal droop or accidental misalignment of the main armament.

In a typical target engagement the gunner aligns the sight with the target, tracks the target and depresses the measuring button for two or three seconds, the time taken for the target information to be fed into the computer. The introduction of fire correction data takes only 1.5 seconds and the gunner opens fire. There are three modes of engagement, COTAC,





**Top left:** here we see one of the vehicles taking part in the exercise moving forward from its sheltered position.

**Top right:** the rear of the vehicle with the engine cowlings open showing the Baudouin Model 6F 11 SRX diesel engine.

**Far left:** AMX-10RCs of the 3e Régiment de Hussards undergoing combat training in Mailly. Note the depressed suspension on the vehicle.

tank laser sight and graticule judgement. The integrated test system of the modular fire-control system enables any fault to be quickly located and the defective unit replaced.

The NBC system is mounted in the rear of the turret and maintains a slight overpressure in the fighting compartment. For use in cold climates an auxiliary heater is installed. The turret is equipped with a SAMM CH49 electro-hydraulic control system consisting of a servo-controlled cylinder, a flow dividing unit, a servo motor, a hydraulic power source, an electronics box, twin handles for the gunner and a single handle for the commander. If required, the AMX-10RC can be delivered without the air conditioning system, heater, NBC system, night fire-control equipment, navigation system and amphibious capability. The vehicle is fitted with a thermal camera to extend observation and identification out to 4,000m in any weather conditions and a front wheel-mounted self-recovery device.

## MOBILITY

The engine at the rear of the hull is coupled to the gearbox through a hydraulic torque converter with a cut out clutch. The gearbox has three functions: Gear shifting with four ratios in both directions; Auxiliary drive for the two water-jets; and Steering with epicyclic gears and hydraulically actuated brakes. The AMX-10RC is fitted with the

Baudouin Model 6F 11 SRX diesel engine which develops 280hp, giving the vehicle similar off-road performance that of a tracked vehicle. Skid steering allows on-the-spot turning and the pressure in the tyres can be changed on the move to suit ground conditions.

The hydropneumatic suspension is supplied by Messier Auto Industrie, allowing the AMX 10RC to negotiate 60% gradients, 30% side slopes, 1.65m trenches and vertical steps up to 0.8m. The six hydropneumatic suspension jacks, three either side, act simultaneously as a pneumatic suspension spring and as shock absorbers. The driver can alter the ground clearance of the AMX-10RC from 0.2 to 0.6m by a single lever and can also tilt the vehicle left or right or back to front. The minimum ground clearance is 210mm, but for road travel 350mm is normal, with 470mm for off-road travel and 600mm for amphibious operations. The suspension at each wheel station consists of a roadwheel arm and suspension assembly (link rod, level and cylinder with the cylinder acting as spring and shock-absorber and allowing the height to be adjusted). The suspension cylinders are supplied by a hydraulic pump.

The vehicle has a sustained top speed of over 85km/h on roads and an unrefuelled range of 1,000km and is fully amphibious, being propelled in the water by two water-jets either side of the rear of the hull.

## ARMAMENT

Main armament of the AMX-10RC is a Giat Industries 105mm F2 semi-automatic gun with a vertical wedge breech block and a barrel with a thermal jacket and a two-stage muzzle brake. The gun itself is 48 calibres long without the muzzle brake, has a recoil length of 600mm and a recoil force of about 13-tonnes. The gun fires four types of Giat Industries fixed ammunition, APFSDS, HEAT, HE and



## Turret Details



**Above:** close-up of the turret. Note the simulation systems in blue and grey on the gun and each side of the turret.



**Left:** looking down inside the loader's hatch on top of the turret of the AMX-10RC.



**Above:** head-on view of an AMX-10RC seen here moving along a track during an exercise. The AMX-10RC has an endurance of 800 kilometres or 17 hours. Note that the vehicle has been draped in camouflage netting.

**Top right:** AMX-10RC of the 3e Régiment de Hussards photographed at Djibouti in 2010. Note that the vehicle has not been modernised like those serving in France, as evidenced by lack of the extra turret bustle at the rear of turret, which saw the smoke grenade launchers moved to the front. (Photo courtesy - 3e Régiment de Hussards)



smoke. The APFSDS round uses the penetrator of the 90mm Giat Industries APFSDS round and has a muzzle velocity of 1,400 m/s. This will penetrate a NATO triple heavy tank target at a range of 2,000m. The new APFSDS round weighs 13.1kg complete, the projectile weighing 3.8kg. Of 38 rounds of 105mm ammunition carried, 12 are for ready use in the turret. A 7.62mm machine gun is mounted coaxially to the left of the main armament. French Army AMX-10RC vehicles have been fitted with a roof-mounted 7.62mm MG.

Defense Electronics Systems and is based on the FINDERS system in service on French Army Leclerc tanks. Nexter is responsible for the software and system integration and EADS for the computer and graphics terminal. The system connects the weapon systems and the squadron command vehicles equipped with them to the chain of command. They allow the exchange of digitised data, including the tactical situation and graphic orders displayed on a background map, between the vehicle and the squadron command vehicle.

The upgraded AMX 10RC is equipped with the Galix defence system, which dispenses anti-personnel grenades, large band smoke grenades and decoys. The welded light alloy structure provides protection against artillery shell splinters and automatic medium calibre weapons. The LIRE infrared jammer system decoy infrared anti-tank missiles. The AMX 10 RC can be fitted with nuclear, chemical and biological warfare (NBC) protection with air filtering and crew compartment overpressurisation.

The TK 105 turret has a COTAC fire control system from Safran (formerly Sagem), allowing it to acquire fixed and mobile targets in less than six seconds by day or night. In the TK 105 turret, for daytime operations, the commander is provided with wide field episcopes and a 360° panoramic M389 sight with x2 and x8 magnifications. This serves to retain direct observation independently from the turret, whilst the gunner uses a x10 magnification M504 sight with an M550 laser rangefinder.

By night, the commander and the gunner are provided with a Thales DIVT 16 Castor thermal camera, which provides observation and identification to a range of 4,000m.



## Technical Data

Crew: 4
Overall length: 9.13m
Length of the hull: 6.35m
Overall width: 2.95m
Overall height: 2.60m
Ground clearance: 35mm
Weight: 17.2-tonnes
Fording: 1.10m
Main Armament: F2 (MECA) 105mm 48-cal Gun
Ammunition type: APFSDS, HEAT, HE
Secondary Armament: 7.62-mm coax MG
Engine: Baudouin Model 6F 11 SRX water cooled V6 diesel developing 280 hp @ 3000 rpm
Fuel capacity: 520 litres
Maximum road range: 1000km
Average road speed: 60km/h
Maximum road speed: 85km/h
Maximum water speed: 7.2km/h

## MODERNISATION

In December 2000, the French Army awarded a contract for the upgrade of 256 AMX-10RC vehicles. The upgrade includes: new automatic transmission, new electro-hydraulic suspension control system, additional armour protection, a battlefield management information system SIT (Système d'Information Terminal) V1, eight smoke grenade dischargers mounted either side of the front of the turret, active self protection LIRE (Leurre Infrarouge) by Sagem, laser warning system, IFF (identification, friend or foe) system, thermal imager for night vision and PR4G radios from Thales (formerly Thomson-CSF). Final deliveries were concluded by Nexter in 2010.

The upgrade will maintain the operational capability of the vehicles until 2020/2025. First operational deployment of the upgraded vehicles was in Cote d'Ivoire with the French Foreign Legion in 2006. The upgraded vehicle deployed in the French service is known as AMX-10RCR.

The battlefield management information system, the SIT V1 terminal information system, has been developed by Nexter and EADS

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# TRANSPORT TREASURES

**Roy Stevenson visits  
the United States  
Army Transportation  
Museum, Fort Eustis,  
Virginia**

**"N**othing happens until something moves". Thus reads a pragmatic sign in one of the galleries at the United States Army Transportation Museum, reflecting the U.S. Army's vigorous approach to getting soldiers and supplies into battle.

Long known for its willingness to create and adapt new technology, the U.S. Army arguably leads the world with its ability to transport men, beans, and bullets to a conflict via

mechanized transportation. And the outfit responsible for this, the United States Army Transportation Corps, proudly presents its history in its excellent museum at Fort Eustis, Virginia. Fort Eustis is a military oasis surrounded by the busy suburbs of Williamsburg and Newport News on the Virginia Peninsula. Adjacent to the fort's entrance, the museum encompasses 6 acres and traces the history of the U.S. Army Transportation Corps. An atmospheric indoor museum and four outdoor display areas (a marine park, a cargo vehicle park, a railway yard and an aviation pavilion) proudly display an eclectic collection of military machines.

A pristine Standard B Liberty Truck stands in the World War I gallery.



## EXHIBITS

Among the 109-vehicle collection you'll find a preponderance of prime mover cargo trucks and tractors including a 1924 TTSW 1 1/2-ton, 6x6 Cargo Truck, plus several World War II cargo-carrying stalwarts like the GMC 2 1/2-ton CCKW Cargo Truck and 4-ton 6x6 Wrecker Truck. And beside the museum, on a covered concrete hardstand, the Cargo Truck gallery displays a plethora of modern cargo trucks.

Despite the enticing outdoor displays, the ideal place to start your tour is in the indoor museum where you'll learn the history of the Transportation Corps. The early galleries show transport used in the

revolutionary war (mule-drawn wagons, carts, and horses) and proceeds chronologically from there, so I'm going to fast forward to introduce the World War I vehicle on display.

A superbly restored Standard B Liberty Truck, with Hinkley engine, stands in the World War I gallery, as if it's just rolled off the production line. General Pershing had estimated that U.S. forces would need 50,000 Liberty

**Below left:** a mint condition 1 1/2-ton 6x6 TTSW cargo truck manufactured in 1924. These were the precursors to the World War 2 1 1/2-ton truck that was based on Standard B components.

**Below right:** an M1114 HMMWV, one of several Hummers at the museum.

**Bottom left:** a Jeep, converted for railroad duty, sits on railroad tracks in the World War II gallery's 'MacArthur's Railroaders' display.

**Bottom right:** the M998 Cargo/Troop High Mobility Multipurpose Wheeled Vehicle, aka "Humvee" set within an in "Iraqi" diorama.





Oregon Trail to San Francisco. This epic trip, ending in San Francisco, took 61 days! Today, a similar military convoy would cover it in less than a week. But this ambitious feat proved that motor transport across the continent could work.

Next I come to a nicely restored 1924 1 1/2-ton Cargo Truck 6x6, manufactured at Fort Holabird, Maryland. This inter-war truck features separate drive shafts to each axle and dual pneumatic tyres that were recommended to the U.S. Army by one Lieutenant Colonel Eisenhower (yes - that Eisenhower!).

Moving on to the World War II Gallery I find an excellent display about the Red Ball Express, the never-ending convoy of U.S. trucks that delivered supplies and gasoline from Normandy to the receding front in Belgium and Germany until November 1944.

The amount of gas delivered to the front, and used, was staggering. War is a thirsty business! The 3939th Gas



**Top left:** Willys Overland 4x4 Command Reconnaissance Jeep in diorama setting.

**Above left:** WC-52 3/4-ton Weapons Carrier displayed beside a helicopter.

**Above right:** the 4-ton 6x6 Diamond T wrecker truck in a French town diorama.

**Far right:** the M274 Mechanical Mule's versatility was amazing. It could be used for signal cable reel carrying, as a boat for river crossing, fitted with a recoilless rifle, and even fitted with TOW missiles.

Trucks, which proved to be grossly inadequate.

The next display highlights a little known, but momentous fact about the Transportation Corps: the 1919 Transcontinental Motor Train. Marking the beginning of the use of large convoys of trucks by road, this ambitious convoy was the defining moment for the Transportation Corps. This 81-vehicle convoy proved the army could move soldiers and equipment across the vast U.S. continent by motorized vehicle and included 46 cargo trucks, a wrecker truck, fuel carriers, 11 passenger cars, 9 Indian and Harley-Davidson motorbikes, 5 GM ambulances, 2 ambulance trailers, 4 kitchen trailers, a pontoon trailer, a trailer-mounted searchlight, and a Maxwell caterpillar tractor.

Starting in front of the White House on July 7, 1919, the convoy wended its way across primitive roads and trails, including parts of the



Supply Company, for example, supplied 12 x 7,000 gallon tanks from 78 gas outlets, and could refill more than 400 vehicles in one hour.

Equally amazing are these figures: In January 1945, the Transportation Corps delivered 5.7-million gallons of gas to Liege, Belgium, with this figure quadrupling to 25.3-million gallons two months later. The U.S. Army maintained a reserve of 53-million gallons, stored in jerry cans, for the 12th Army alone!

The World War II gallery also features a 4-ton 6x6 Diamond T wrecker truck. Equipped with two heavy-duty booms, the wrecker had a winch load capacity of 15,000lbs and was used mainly for lifting disabled vehicles out of ditches.

## MUSEUM LAW

An immutable law of military vehicle museums is that they must have Jeeps, and the Army Transportation Museum delivers them by the dozen. I'm in the

Korean War gallery now, and see a tidy 1950 M38A1 1/4-ton 4x4 Jeep Utility Truck under the wing of a reconnaissance aircraft.

Based on the civilian CJ-3A model, the Willys M38A1 had rounded fenders, a two-piece windshield, and upgraded stronger military frame, with full-floating rear axle. This 4-cylinder workhorse could drive up a 69% grade and ford rivers up to 79.5-inches deep, and speed along at 55mph.

Jeep enthusiasts will find nirvana outside in the Cargo Vehicle Park on "Jeep Row". This tidy line-up includes almost every jeep model made including a 4x4, Ford GPW 1/4-ton Jeep, a Willys M38 4x4, 1/4-ton Utility Truck, an M38A1 4x4, 1/4-ton Jeep, a Ford M151A1 4x4, 1/4-ton Jeep, and a row of Humvees.

Continuing to explore the indoor museum, I find an M29 Amphibious Weasel Cargo Carrier. These tracked vehicles proved useful in snow, swamps, sand, deep mud and lakes. First introduced in 1942 by Studebaker,

the Weasel would see service in the European and the Pacific theatres in World War II, and was then used for polar exploration expeditions in the 1950s.

Moving on to the Vietnam War Gallery, a display pays homage to the remarkable M274 Mechanical Mule. Five versions of this 1/2-ton, 4x4 utility platform were built between 1956 and 1970. Nothing more than a flat wooden platform with a removable driver's seat, the rugged "Mule" could carry up to 1,000lbs and be dropped by parachute or lifted by helicopter to a landing Zone.

By 1978, the army had decided the Mule was simply too old to keep, and would replace it with the HMMWV. . . the M998 Cargo/Troop High Mobility Multipurpose Wheeled Vehicle, aka "Humvee", which is on display in the next gallery. The "Humvee", developed in 1981 by AM General, proved very popular with the Army, Navy, Air Force, and Marines with more than 70,000 built from 1983. More than one

**Below left:** the exhibits at the museum have been displayed imaginatively, like this M29 Amphibious Weasel.

**Below:** M27A1 Trailer, one of a number of exhibits outside the museum building itself, but still under cover.



**Left:** row of Jeeps in the Cargo Carrier pavilion at the museum - a bit of 'Jeep Heaven' for enthusiasts!



**Top left & above:** the 5-ton capacity LARC V (Lighter Amphibious Resupply Cargo) was introduced in the 1950s and served well in the Vietnam conflict.

**Right & below right:** the enormous BARC 3-X Amphibious Resupply Cargo vehicle, this young man, measuring 6 ft 2 inches in height, stands by a wheel of the BARC 3-X for scale - the wheel is still another 2 feet higher than his head!



dozen Humvee configurations were created. Mounting casualties in Humvees from IEDs in Somalia, in 1994, led to the development of up-armoured M1114 HMMWV's, using armour kits to protect against the blasts. A badly damaged HMMWV used in Afghanistan in 2001-02 is displayed, making the visitor wonder how anyone could have survived such a blast. Yet SSG Arnold and his crew survived an explosion that blew the vehicle six feet in the air and twenty feet along the road due to the added protection.

## OUTDOORS

Moving outside, the outdoor exhibitions offer a wide variety of vehicles, including some of the larger vehicles that simply wouldn't fit within the museum! The U.S. Army's seaborne assault doctrine has never shied away from amphibious landings, leading to the development of many amphibious troop and cargo transport vehicles. The outdoor Marine Park, next to the Cargo Vehicle Park, houses several amphibious carriers that span World War II, the Cold War, the Korean War, and in Vietnam. The amphibs include DUKW, a LARC V, a LARC XV, and the huge BARC 3X.

The enormous BARC 3-X displayed is an experimental model built in 1953 by Pacific Car & Foundry of Renton, Washington, and served as a training vessel until 1963. The LARC XV, an odd amphibian that looks like a cross between a commercial fishing vessel and a truck

trailer, with a 45ft by 15ft aluminium hull and 600 horsepower engine, that was used to move cargo from ship to shore by the Army.

## VISITING

It took me several hours to work my way around the museum. Space, and the mandate of this magazine, prohibit me from describing all the vehicles housed at the museum, and although there are no sexy tanks or tracked artillery at the U.S. Army Transport Museum, you'll encounter a marvelous display of transport vehicles that perform the military grunt work, making it well worth a visit from military vehicle enthusiasts from both sides of the Atlantic.

## ACKNOWLEDGEMENTS

The author wishes to thank Marc Sammis, Curator of the U.S. Army Transport Museum, and Vicki Bowker, PA Specialist at Joint Base Langley-Eustis, for their assistance.

### Museum Details

U.S. Army Transport Museum  
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**Above:** close-up of the data plate for the railway proof sleigh.

**M**ost people passing through Larkhill Garrison on Salisbury Plain are probably completely unaware of the monster that lurks behind the security fence. Since 2008, Larkhill has been home to the world's last surviving large calibre artillery piece. An 18-inch howitzer mounted on a railway sleigh weighing 180-tons sits stranded on a short piece of track deep within the military Garrison. The relocation of the Royal Artillery's regimental home from Woolwich to Larkhill in 2008, involved

the movement of a huge amount of regimental artefacts, historical guns and even stone memorials. Amongst all this regimental paraphernalia was one very large railway howitzer - more commonly known as 'The Railway Gun'. The urgency of the move coupled with some infrastructure concerns at Larkhill, led to the Railway Gun being positioned in the only immediately suitable place, beside the sports grounds at the back of the camp out of public view.

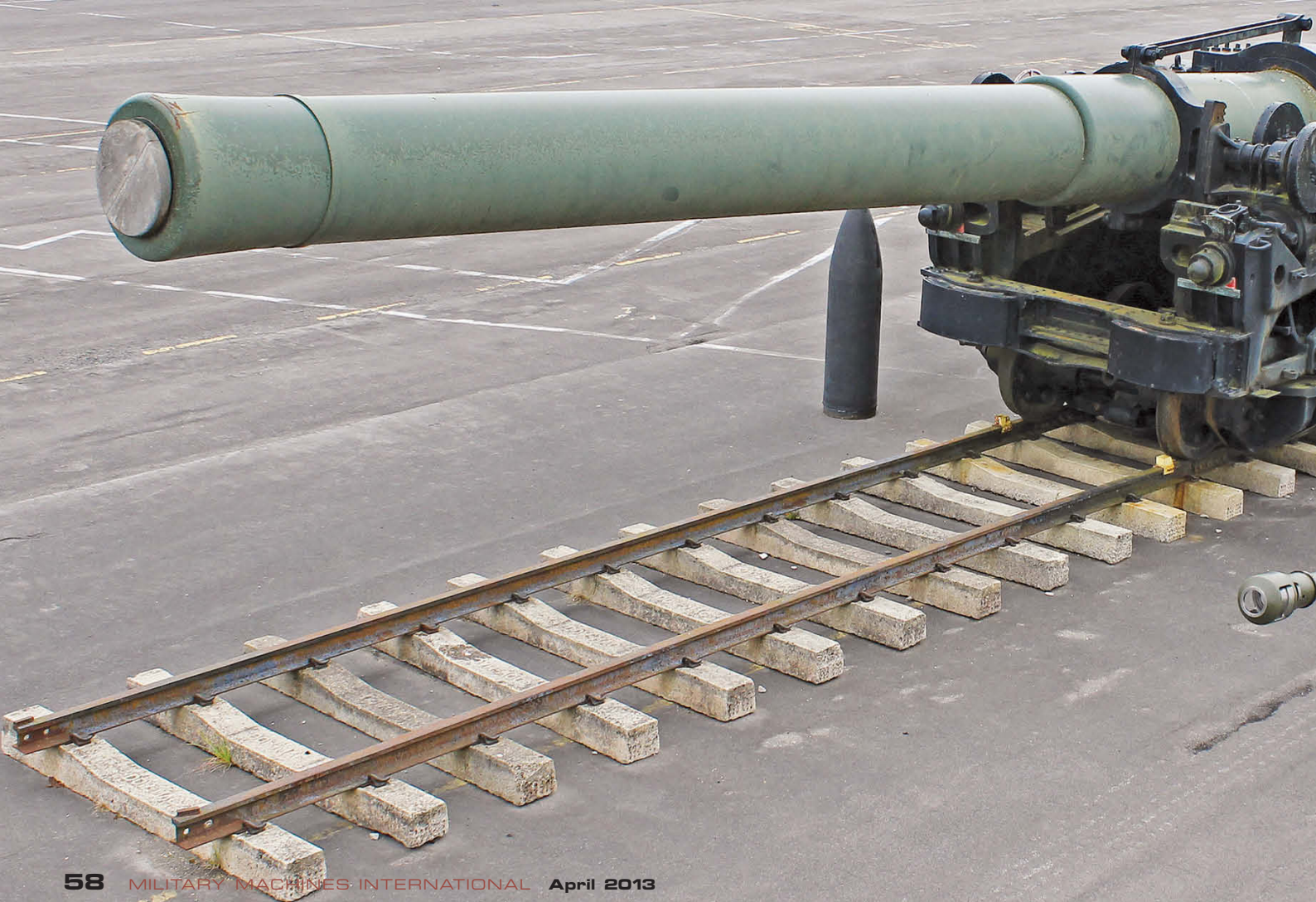
The manufacturer of this enormous breech loading (BL) 18-inch howitzer serial No. L1 was the Elswick Ordnance Company (E.O.C.), who built the barrel between 1917 and

1919. The barrel was completed too late to see action with the British Army in the First World War and was one of five 18-inch barrels (Serial No. L1-L5), which were made as replacement barrels for the 14-inch barrels mounted on the famous 'Boche- Buster' and 'Scene Shifter' Railway Truck Mountings (RTM). Barrel No. L3 had serious rifling problems during manufacture and was lined down to 16-inches, spending the rest of its life trialling 16-inch naval ammunition at Shoeburyness.

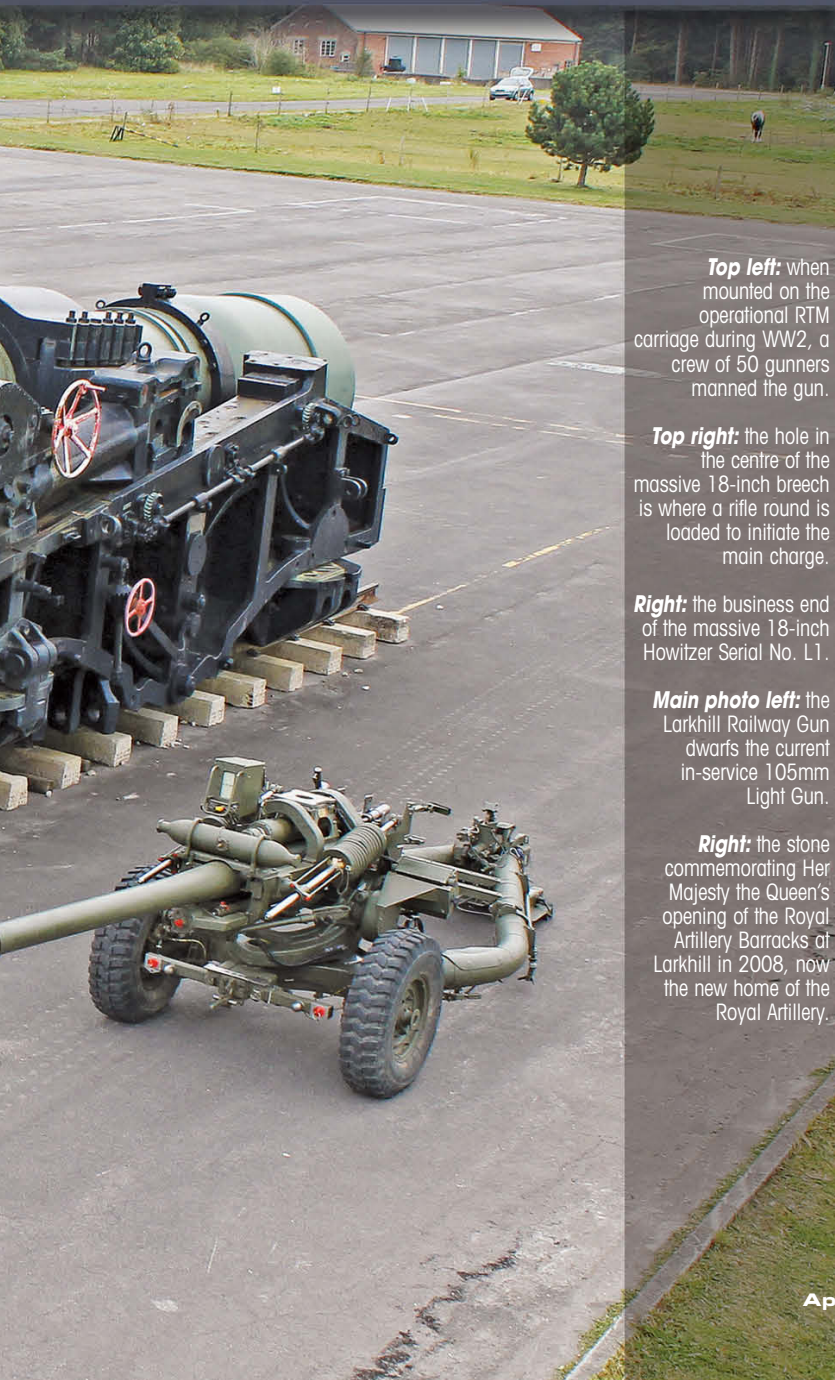
Having missed active service during WW1, the barrels were put in to storage along with the 14-inch guns and their RTMs. In 1921 barrel No. L1

# Rail

**Tim Neate delves into the history a rare surviving example of a rail mounted 18-inch howitzer**



# Gun



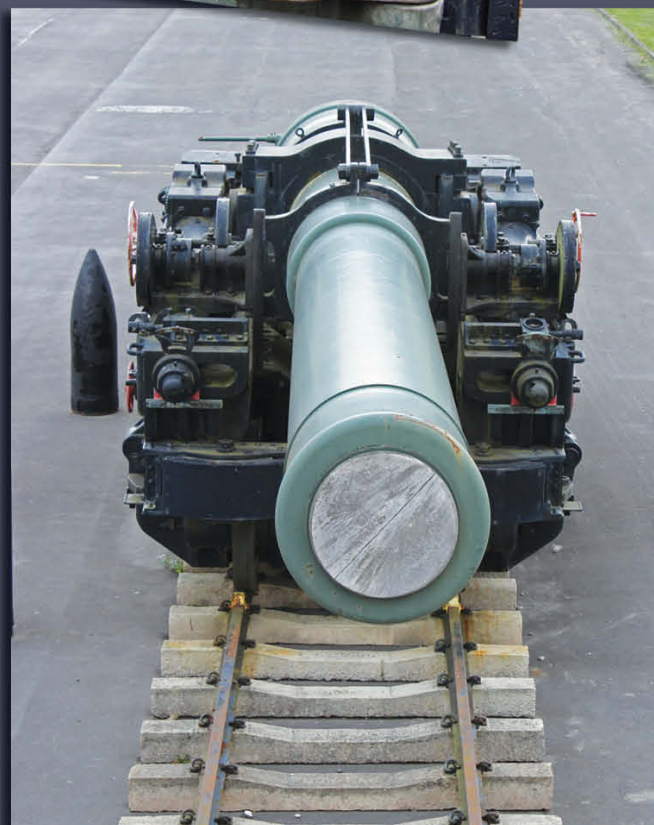
**Top left:** when mounted on the operational RTM carriage during WW2, a crew of 50 gunners manned the gun.

**Top right:** the hole in the centre of the massive 18-inch breech is where a rifle round is loaded to initiate the main charge.

**Right:** the business end of the massive 18-inch Howitzer Serial No. L1.

**Main photo left:** the Larkhill Railway Gun dwarfs the current in-service 105mm Light Gun.

**Right:** the stone commemorating Her Majesty the Queen's opening of the Royal Artillery Barracks at Larkhill in 2008, now the new home of the Royal Artillery.



The 18 inch howitzer had a maximum Range of 24,600 yards, nearly 14 miles!



The mighty 18-inch breech with one of the shells to the side.



## RAILWAY PROOFING SLEIGH

**Below:** the proofing sleigh only has 10 degrees of elevation against the operational railway truck mounting allowing up to 40 degrees elevation. The railway proof sleigh weighs 95 ton without the barrel.

**Bottom:** this view from overhead gives an indication as to how the massive gun barrel is attached to the sleigh.



was mounted on one of the 14-inch RTMs and sent to Shoeburyness for evaluation of the 18-inch barrel accuracy. By 1926 the 14-inch gun was declared obsolete but the RTMs were kept as their design allowed the larger 18-inch barrels to be mounted on the same carriage. One of the stored 18-inch barrels (possible No. L2) was fitted to a RTM and moved to Salisbury Plain for test firing. The gun was fired once from Druid's Lodge near Larkhill and once from sidings at Bulford Camp after which the barrel and railway mounting was returned to storage. In 1940 barrel No. L1 was sent back to Shoeburyness to be used for ballistic tests this time mounted on a smaller proofing sleigh weighing only 95-tons.

## FALL OF FRANCE

With the fall of France in 1940, the invasion of Britain became a real concern to the government and Armed Forces. Strengthening coastal defences became a top priority with several large calibre guns being mounted in fixed emplacements along the south coast. These fixed gun emplacements were not ideal and were vulnerable to capture or destruction during any invasion. What was needed was a more mobile weapon that could withdraw as operations developed. Winston Churchill contacted and recalled Major Cleeve RA, who was the only serving officer with Railway Gun experience and tasked him with making ready all Railway Guns from storage and training their detachments for operations on the south coast.

'Boche-Buster' was found at Ruddington in 1940 and was fitted with one of the 18-inch barrels (No. L4) from storage. 50 Men from 11th Super Heavy Battery crewed the gun with a further 30 men making up the Battery's war time establishment. The Elham Valley railway in Kent was made ready for 'Boche-Buster' with four brick magazines built near the Bishop Park tunnel where the gun would be housed. The gun was test

fired from Kingston Spur in February 1941 with all rounds successfully landing in the English Channel. A further two test firings were made from near World's Wonder bridge and Lickpot bridge.

Thankfully the howitzer was never fired in anger, which was probably for the best, as it barely had enough range to defend the Kent coast. In 1943 Boche-Buster made the journey back to Salisbury Plain for firing trials but by the end of the year all the Railway Guns had been withdrawn from the Kent railways and gun crews dispersed. In 1944 barrel No. L5 was mounted on 'Scene-Shifters' in preparation for action in France, but its deployment was halted due to the rapid advance of troops in Europe.

The Railway Guns were finally cut up for scrap in the early 1960s, except for No. L1, which was still at Shoeburyness firing 1,000lb bombs to test their bunker busting capability. The last recorded firing was in November 1959 but full retirement of the howitzer and railway sleigh finally came about in 1991, when the gun was put on public display outside the Rotunda at Woolwich in South East London.

Although there are as many as 12 Railway Guns around the world, the Larkhill Gun is the largest calibre artillery piece surviving anywhere in the world. This very special artillery piece needs to be restored to its former glory and positioned where its colossal presence can be experienced by all. The Larkhill Garrison Management Team, led by Lieutenant Colonel John Le Feuvre MBE RA who is also the Garrison's Deputy Garrison Commander, would like to make the Railway Gun more accessible to the public by moving it to a position where it can be viewed by as many people as possible. This is a big undertaking and with limited funds in the current economic climate, the project will be challenging for all concerned. Lieutenant Colonel John Le Feuvre would welcome any offers of assistance or expertise from individuals, organisations or commercial companies in conserving or relocating the Larkhill Railway Gun, especially as we approach the centenary of World War 1.

If you can help please contact Lieutenant Colonel John Le Feuvre at:  
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# MOTORS OF WAR

**Jim Kinnear  
reports from the  
second Russian  
“Motors of War”  
show in Moscow**

**T**he second Russian “Motors of War” show was held at the settlement of Nefedovo, near the exclusive Moscow suburb of Nakhabino in western Moscow between 21st and 24th June 2012. The dates were chosen in commemoration of the German invasion of the Soviet Union on 22nd June 1941, while the site chosen was the location of one of

the decisive battles in the defence of Moscow in the early winter of the same year. In late November – early December 1941, the advancing German 10th Tank Division engaged the Soviet 9th Guards Rifle Division under the command of General A.P. Beloborodov in a pitched battle near Nefedovo, only 33km - an hour’s travel by Panzer - from the Kremlin, the command centre

The French Renault UE artillery tractor on the march during the show.





French Renault UE artillery tractor (foreground) and Kettenkrad, unusually fitted with "wintertketten" winter tracks.



of the Soviet Union. The Soviet 9th Guards Rifle Division was supported in its defence by a small number of tanks, and the engagement included one of the now famous incidents whereby a single KV heavy tank held off and destroyed several enemy tanks. The KV in this case was commanded by Lieutenant P.D.Gudz, and destroyed 10 of the 18 tanks that successively attempted to engage it.

The battle as with many in the region that early winter of 1941 resulted in defeat for the invading Axis forces and as such the site was deliberately chosen as the location for the Motors of War 2012 Show.

## THE SHOW

The show itself was an eclectic mix of Russian and foreign wheeled and tracked military vehicles, with participation from private collectors and organisations including the Central Museum of the Great Patriotic War and the Technical Museum at Ivanovskoe,

with some vehicles travelling to the show from as far as Volgograd and Samara. Among the assembled collection of highly restored and in some cases particularly rare military vehicles was another of the slowly increasing number of "reborn" vehicles, previously extinct but with examples recently restored from the chassis upward. Such vehicles include the ZiS-6 seen last year and gradually taking shape, and this year the appearance at the Motors of War show of a fully restored GAZ-61-416 wheeled light artillery tractor. The vehicle, restored in workshops belonging to Nikolai Khripunov in Samara was rebuilt from an abandoned chassis. It was only after the chassis had been recovered and examined that it became clear that it was that of a rare GAZ-61-416 artillery tractor rather than the more commonly used standard GAZ-61 all wheel drive command vehicle. The vehicle, which represents the only surviving example of its type, is significantly larger than would



**Top right:** a rarity – a Kubelwagen on Czech Tatra 57 chassis, with a Steyr-40 in the background.

**Above centre:** a French Lorraine artillery tractor, a vehicle rarely seen in Europe let alone Russia.

**Above & left:** the Ha-Go parked in an evening line-up. The tank is a real rarity, being fully restored and operational and, brought from the Kuril Islands near Japan.



**Group top right:** two generations of American military vehicle - Dodge WC1/12 and WC57; the Dodge WD21 panel van was built for commercial use and for the Canadian army; the show was in June, but this scene shows what Axis forces faced to their cost in the Autumn of 1941.

**Top left:** a Russian military vehicle line-up, GAZ-61-416, GAZ-67 and GAZ-MM, all very rare vehicles anywhere else but in Russia.

**Right:** Vyacheslav Lehn demonstrating the skilled use of Repair Tool No.1 in combination with Repair Tool No2!

**Below:** here we see the Russian GAZ-61-416 wheeled light artillery tractor complete with crew on tour during the show.

appear from contemporary photographs, as witnessed by the vehicle parked next to GAZ-MM 1.5-tonne truck.

Perhaps the most unique exhibit at the show was a fully restored and operational Japanese "Ha-Go" light tank. The vehicle was rebuilt from the remains of several destroyed and abandoned examples located in the

Kuril Islands off Russia's Pacific coast. The tank displayed at the show was in the early autumn of 1945 located with the Japanese 11th Tank Regiment when it was destroyed on the Island of Shumshu, one of the now disputed Kuril Islands located in the Russian Far East, north-east of Japan and east of Russian Sakhalin Island, much of which was in Japanese hands until 1945.

The tank (actually rebuilt from several wrecks) was recovered from the Kuril island region several years ago, during an expedition, which included support from the Central Museum of the Great Patriotic War and private recovery enterprises. The expedition recovered several tens of tonnes of "scrap" metal belonging to various Japanese armoured vehicles. The "Ha-Go" as demonstrated was restored to its current running condition from the remains of several separate tanks by Vadim Elistratov, with some of the wheels and tracks built from scratch using recovered parts as the prototypes, with power being provided by a GAZ-41 engine from a BRDM-2 armoured car, Japanese engines from WW2 not being exactly readily available these days.

There were quite a few rare foreign vehicles on display at the show, with a number of Jeeps and Dodge command vehicles, common in the US and Europe but less so in Russia. Intriguingly, however there were several rare vehicles, including a Dodge 1-ton WD21 panel van; believed to have been used only by the Canadian Army, arriving in Europe in time for the Normandy Landings and the opening of what the Soviets referred to as the "Second Front". French Renault UE and Lorraine

tracked artillery tractors belonging to the Technical Museum at Ivanovskoe near Moscow were joined by an eclectic mix of vehicles, including two German Kettenkrads - one standard and the other with wide "winterketten" tracks, as used on the Eastern Front.

A day of remembrance in the village of Nefedovo, held on the 22nd and commemorating those killed in the war which began on that day in 1941, was attended by military vehicles and crews from the show, who paid their respects at a ceremony attended by war veterans, the military and local school children. A plinth mounted T-55 stands today as a memorial to the armoured engagement which occurred there in the early winter of 1941.

The event was professionally organised and incorporated some elements which have become common at shows such as the Beltring "War and Peace" show, including an evening wartime waltz dancing competition, but still with some events with a Russian twist, including off-roading "Russian style" (each competitor's co-driver had to hold a cup of water and the team that returned with the most water intact won), paintball using military vehicles as transport, and pyrotechnics provided by a professional pyrotechnics company, the results of which were a tad closer to realism than might be accepted within the health and safety culture of the UK!

The second "Motors of War" competition was pronounced a success by all in attendance, and will doubtless, as hoped for by the organisers, grow to become the "Russian Beltring" in years to come.

Words: Jim Kinnear  
Photographs: Andrey Aksenov

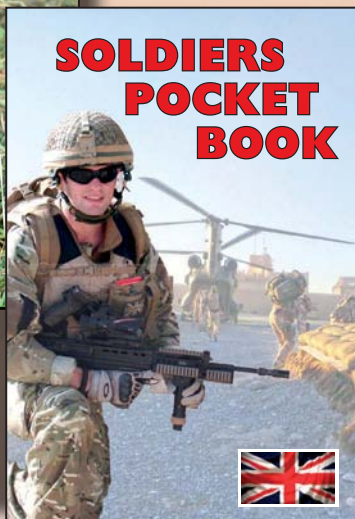


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# COMBAT CAMERA

**This month Shaun Connors gathers together a collection of official images depicting tanks**

**T**his month Shaun Connors (in his own words...) melds a bit of Combat Camera with a bit of Info The Archives, your agreement with the latter description likely driven by your own personal opinion of precisely what constitutes an 'archive' image... Combat Camera features a selection of images captured by service photographers around the world on exercise, disaster relief/humanitarian operations, and operational deployment.

Where possible and where available the original captions, as originally presented, will be used, with any required supplementary text filling in any equipment identification blanks that may exist, this added as a follow on caption or inserted into the main caption in [square brackets].

This month's selection of images are all US DoD copyright.





**Background photo:** a British Challenger 1 main battle tank moves along with other Allied armor during Operation Desert Storm (PHC Holmes (US DoD))

**1.** a British Army Challenger 1 Main Battle Tank (MBT), the command tank of the 1st Queen's Dragoon Guards (The Welsh Cavalry), with IFOR markings drives forward on the loading ramp of the VLADIMIR VASLYAEV, a Russian Commercial RO-RO Container (Gearless) ship, onto the dock at the harbor in Split, Croatia, during Operation Joint Endeavor. Operation Joint Endeavor is a peacekeeping effort by a multinational Implementation Force (IFOR), comprised of NATO and non-NATO military forces, deployed to Bosnia in support of the Dayton Peace Accords. (SGT Brian Gavin (US DoD))

**2.** This interesting 2005 image of a British Army Scimitar CVR(T) in the former Yugoslavia was sadly lacked any captioning. Any information on the front-mounted ram/blade would be welcomed...

**3.** several Royal Army (British) vehicles, many with IFOR markings, are parked in a staging area. In the foreground are an AWD Bedford TM 6-6 (6x6) 14000 KG Truck, carrying a Land Rover Defender 90 (4x4) Light Vehicle and a Scottorn Military L (510/760kg) Cargo Trailer, and a GKN Defence (Defense) FV432 Armoured (Armored) Personnel Carrier (APC). In the background are Alvis Scorpion Combat Vehicles Reconnaissance, Chieftain Main Battle Tanks, and other armored vehicles. The British are in Croatia to participate in Operation Joint Endeavor, which is a peacekeeping effort by a multinational Implementation Force (IFOR), comprised of NATO and non-NATO military forces, deployed to Bosnia in support of the Dayton Peace Accords. (SGT Brian Gavin (US DoD))



4. A Danish Leopard 1 MBT and a US M60 tank during Operation Northern Wedding '82.

5. A Federal German Army Leopard 1 main battle tank of the 1st Platoon, 4th Company, 153rd Panzers, is parked in a field during the Confident Enterprise phase of REFORGER/AUTUMN FORGE '83. (CMSGT Don Sutherland USAF (US DoD))

6. Soldiers with C. Company 2/6 Infantry, 1st Armored Division drive a couple Bradley Fighting Vehicles at Camp Virginia, Kuwait on March 27, 2003. The soldiers are deployed to Kuwait in support of Operation Iraqi Freedom. Operation Iraqi Freedom is the multinational coalition effort .to liberate the Iraqi people, eliminate Iraq's weapons of mass destruction and end the regime of Saddam Hussein. (US Army photo by SSG Michelle Labriel) (Released)



7. A US Army (USA) M1A1 Abrams MBT (Main Battle Tank), and personnel from A Company (CO), Task Force 1st Battalion, 35th Armor Regiment (1-35 Armor), 2nd Brigade Combat Team (BCT), 1st Armored Division (AD), patrol through Baghdad, Iraq, during Operation IRAQI FREEDOM.



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# Into the Archives Special

The West German Border were Land Rovers –



**Above:** here we have a preserved example of the 86-inch model Tempo Land Rover, but finished in Bundeswehr (Army) colours.

**Below:** the 86-inch models are easily distinguished by bonnet-mounted spare wheel, which was moved from the rear, but the tall, one-piece doors of Tempo also make them stand out from other Land Rover types.



The Federal Republic of Germany was forbidden from having a standing army for ten years after the end of World War II, but by the end of the 1940s it was clear that somebody needed to keep an eye on the Inner German Border with Soviet-occupied East Germany. The solution was to set up a paramilitary police force, and that was established in late 1951 as the Bundesgrenzschutz (BGS or Federal Border Guard).

This new force needed vehicles, and although some of the heavy trucks then being built in West Germany fitted the bill, the post-1945 restrictions on German industry meant nothing was available to fill the role of light patrol vehicle. In actual fact what it needed was an all-wheel drive vehicle, because much of the border ran through the countryside, and whilst on patrol it would need to carry up to six BGS troops plus radio equipment.

Trials were held in Bavaria in early 1952 between two vehicles. One was a Land Rover supplied by the British; the other was a Mercedes-Benz Unimog, still in its early stages as a farmer's truck and not best suited to the job of patrol vehicle. The Land Rover was deemed the winner – but with a proviso. If the BGS bought Land Rovers, they would want locally made Bosch electrical equipment and they would want a body configuration that conformed to German police standards.

## TEMPO-WERK

Land Rovers were not sold in Germany at the time, so a new deal had to be done. It was struck with Tempo-Werk, based in Hamburg's Harburg district, and it saw Land Rover providing chassis with bulkheads and Tempo fitting required electrical equipment and building the special bodies. Tempo, of

# er Guard's first patrol vehicles but not as we know them, says James Taylor



course, had built off-road vehicles in the 1930s although in the early 1950s it was making only light farm and market trucks. In practice, Tempo boss Oskar Vidal farmed out construction of the bodies to his brother, whose company (Herbert Vidal & Sohn) was also based in Hamburg.

The original requirement had called for up to 250 vehicles, and records suggest that 247 were actually delivered over the next three years. A large batch of 189 Land Rovers was shipped to Hamburg between January and March 1953; these were to the then-current specification with 2-litre engine and 80-inch wheelbase.

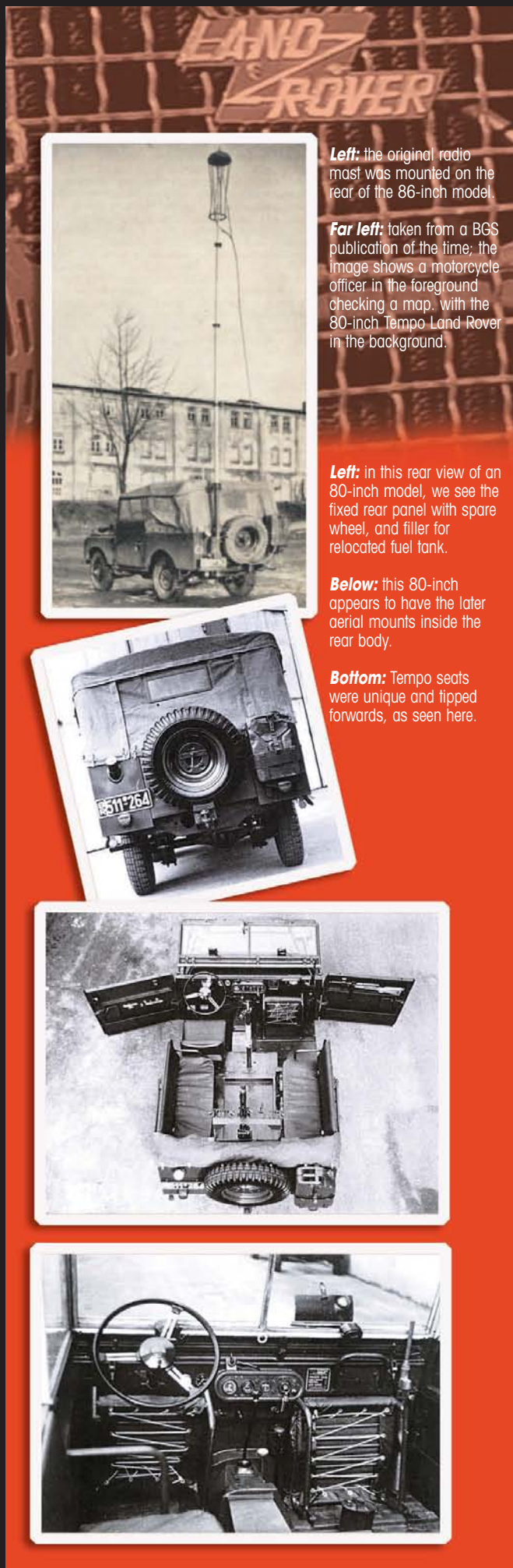
Land Rover went over to an 86-inch wheelbase from autumn 1953, and so the next deliveries were of these – 12 in the 1954 season and 46 more in the 1955 season. There are arguments

about these figures, which come from Land Rover's despatch books. As Tempo seem to have taken on civilian Land Rover sales in Germany at the same time, it is possible that some of these chassis never made it into BGS service.

The bodies fitted in Hamburg were quite remarkable. Made of steel rather than the aluminium alloy favoured by Land Rover, they had tall sides and were configured to carry two men up front and a further four on inward-facing benches in the back. The front wings were modified to incorporate tool lockers, and on the bonnet was a large locker where the removable door tops could be stowed. When a radio was fitted, a huge mast was mounted on the tail of the vehicle; when not in use, it was presumably stowed inside in sections.



This preserved 80-inch model attended the War & Peace Show in 2012.



**Left:** the original radio mast was mounted on the rear of the 86-inch model.

**Far left:** taken from a BGS publication of the time; the image shows a motorcycle officer in the foreground checking a map, with the 80-inch Tempo Land Rover in the background.

**Left:** in this rear view of an 80-inch model, we see the fixed rear panel with spare wheel, and filler for relocated fuel tank.

**Below:** this 80-inch appears to have the later aerial mounts inside the rear body.

**Bottom:** Tempo seats were unique and tipped forwards, as seen here.



**Above:** on the 86-inch models the spare wheel was moved to the bonnet.

**Below:** later Series II or IIA models may have had bodies from earlier vehicles. Rivets round rear wheel arch an instant recognition feature.

**Bottom left:** the Series II dash was very similar to the 86-inch in style.

## CHANGES

There were some changes for the 86-inch models. The spare wheel moved from the tail panel to the bonnet, so displacing the door-top locker, which was not directly replaced. There was also a different and more compact radio aerial, this time mounted in the back body between the seats. Otherwise, the bodies were much the same as before.

From 1956, West Germany was again permitted a standing army, and it was not long before some of the BGS Land Rovers were transferred to the military. In the process, they lost their semi-gloss Border Green paint and most seem to have been repainted in the grey favoured by the new West German Army. Nevertheless, the BGS remained an independent organisation, and within a few years found it needed some replacements for its long-serving Land Rovers.

Exactly when this happened is not clear, but it was certainly later than April 1958. That was when Land Rover introduced its new wide-track Series II models, and those that the BGS bought were on that chassis, now with an 88-inch wheelbase. In fact there is some reason to suspect they might have been post-1961 Series IIA types. There were very few of them, but they were equipped with the same style of body as the earlier models. It may be that the BGS removed the bodies from older vehicles and put them on to the new



chassis – nobody seems to know. One way or another, one of these later vehicles was shipped across to Land Rover at Solihull for inspection during 1964. How new it then was, we can only guess. What is clear is that the rear wheel arches seem to have been modified, probably to cope with the wider tracks of the Series II and IIA models.

The Tempo Land Rovers began to leave BGS service in the later 1960s, and their replacements were more Land Rovers, beginning with a batch of the rare "bugeye" Series IIA 88-inch models at the end of 1968. (The name came from headlamps relocated on the wings to meet new European

**Below:** the Tempo design featured a pair of useful lockers mounted in front wings.

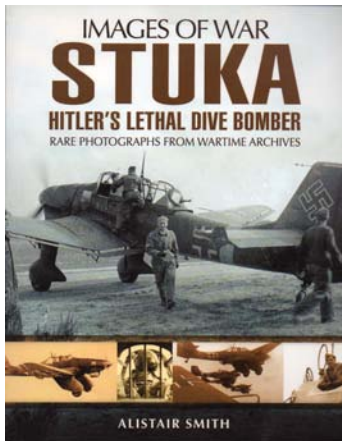
**Bottom:** many, but not all vehicles were fitted with a front mounted capstan winch.



regulations; only later did the proper production style with recessed headlamps come into being.) They were essentially to factory standard, though.

Today, the Tempos are rare beasts, and only a handful are known to have been preserved in original condition. As for the Series IIs (or IIAs) with the Tempo body, not a single survivor is known. Or maybe you know better? In which case why not let us know via the usual editorial channels.

Photos: Federal German Archives, Mike Rivett, Houben Family, Land Rover, James Taylor



## Hitler's most feared Terror Weapon?

Another new title from the Pen & Sword 'Images of War' series is this book looking at what is probably the most recognisable aircraft of World War Two after the Spitfire, namely the German Stuka dive bomber. Unfortunately, in the case of this particular title, you don't necessarily get what you're expecting inside the book from looking at the title. If you were expecting a book packed with wartime images of the Stuka itself you will probably be disappointed because much of the book is filled with images of the air and ground crews rather than the aircraft, and those images that do

show the aircraft are nothing special. Admittedly the stories of the crews and pilots are of interest and there will be those who appreciate the historical material within the 128-page book, but the title doesn't really convey the lack of actual aircraft images, which by my count number just 24, some of which aren't of the Stuka, so if in doubt take a look before you buy to be sure you're getting what you want of this book. Some of the images may well be rare, but aircraft enthusiasts may be disappointed with the amount of aircraft images actually shown.

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## Desert Fox and his Desert Warriors

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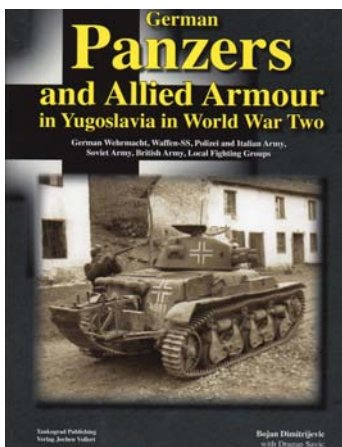
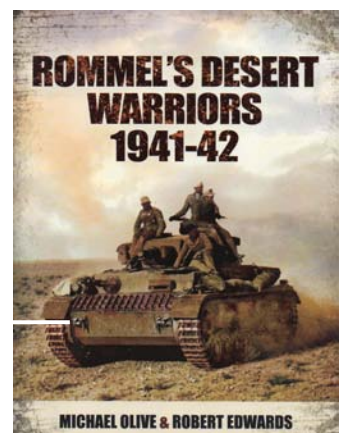
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Featuring a collection of rare photographs, many of which are previously unpublished, this book documents the Afrika Korps in Libya and Tunisia during the hard fought North African campaign of the Second World War. With the exception of a brief introduction the vast majority of this 208-page book is filled with archive black and white images, with some colour photos contained within a short section depicting the uniforms, weapons and equipment of the troops involved in the Afrika Korps, which includes both the

Wehrmacht and Italian Army. Like the previous book it's only fair to point out that not all of the images depict vehicles, but the percentage of tanks and vehicles (including some captured and knocked out British tanks) is far greater and will therefore have a much greater appeal to those readers interested in the military vehicle aspect of the Afrika korps. It's a well put together book packed with hundreds of good quality photographs that offer a well rounded view of the subject. At £19.99 it's reasonable value for money



## A fascinating and seldom discussed subject

The Tankograd team have done it again with this terrific book that looks at German Panzers and Allied Armour in Yugoslavia during WW2. The subject is seldom covered and rarely in depth, but this 200-page hardback book is absolutely crammed with 358 superb black and white wartime images from rare and previously seen archives. Of the vehicles featured within the book there are far too many to mention individually, but needless to say there are tanks, trucks, half-tracks and armoured cars of all sizes and shapes to be found between the covers which, as the title suggests, includes a huge number of

captured allied vehicles in use with the Germans. The text and informative captions are provided in English and together with the more readily recognised military vehicles, readers will find some of the more unusual vehicles and rarities to have served on the battlefield in Yugoslavia. Given the size of this book and the huge amount of photos and information packed between the pages the retail price of £34.99 is very reasonable, especially when you consider the specialist nature of the subject. If the subject matter appeals then you need to take a look at this very special book from Tankograd.

**Title:** German Panzers and Allied Armour in Yugoslavia

**By:** Bojan Dimitrijevic

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## Armoured Cars of the German Army & Freikorps

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**ISBN:** 97839636519334

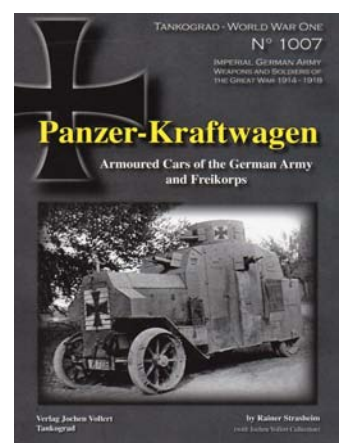
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The second new title from Tankograd this month is this book looking at the armoured cars of the German Army and Freikorps during the Great War period. The 96-page softback book is the seventh release in the Tankograd World War One series, and is packed with over 150 black and white archive images depicting the many different types of armoured car to have been developed during that period, armoured cars that are in many cases are just that - armoured - cars! I've always held a personal fascination for the subject, which is largely down to my intrigue at

the rudimentary design of these curious armoured vehicles, few of which survive today. Studying the images in the book it's incredible to see how far the design of armoured cars progressed in the few years between the wars, and shows them to be a far cry from the hi-tech armoured cars of today. It's a cracking book with English text and captions that is highly informative and is bound to excite those with an interest in early German armoured cars. The book is available in the UK via the UK distributors for Tankograd Publications, Bookworld Wholesale Ltd.



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# MISSION BRIEFING

## DATES FOR YOUR DIARY

### MARCH 2013

**Monday 11 to Sunday 17 March 2013:** **34th Annual Corowa Swim-in & Military Vehicle Gathering:** held in Corowa, NSW, Australia. 2013 is the 'Year of the Trailed Equipment and Armoured Vehicle. For further details or to book in for the event contact Jan Thomson, 9/1 Millett Road, Mosman, NSW, 2088 [kveinc@optusnet.com.au](mailto:kveinc@optusnet.com.au)

**Sunday 24 March 2013:** **Malvern Militaria Fair:** large, indoor militaria event held at the Three Counties Showground, Wye Hall, Malvern, Worcs, WR13 6NW. Contact Amanda: Tel: 01743 762266 [www.militaryconvention.com](http://www.militaryconvention.com)

**Sunday 30 March 2013:** **Tiger Day:** held at the Tank Museum, Bovington, Dorset, BH20 6JG. See Tiger 131 perform in the arena as it celebrates the 70th anniversary of the capture of Tiger 131. Normal admission and opening hours apply. For further details check out the website at: [www.tankmuseum.org](http://www.tankmuseum.org)

### APRIL 2013

**Saturday 6 April 2013:** **Shoreham Airport Aerojumble:** aviation and military collectors fair, held at Shoreham Airport, A27, Shoreham, West Sussex, doors open 10.30am. For more details contact: Tel: 01424 753356 Mob: 07710 154606 [sndz338@aol.com](mailto:sndz338@aol.com)

**Sunday 28 April 2013:** **Northern Military Expo:** popular indoor show held at the Newark Country Show Ground, Notts, 2 minutes off the A1M (NG24 2NY). For further details contact: Tel: 01302 739000 [www.northernmilitaryexpo.co.uk](http://www.northernmilitaryexpo.co.uk)

**Sunday 28 April 2013:** **Aviation, Airline, Military & Model Collectors Fair:** held at Gatwick Airport, K2 Centre, Crawley, W. Sussex. Open 10.30am. For details contact: [tom@singfield.freerve.co.uk](mailto:tom@singfield.freerve.co.uk)

### May 2013

**Saturday 4 to Sunday 12 May 2013:** **Stars of Sandstone Festival:** held at the Sandstone Heritage Trust, Eastern Free State, South Africa. Annual open festival featuring the many military vehicles, agricultural equipment, vintage cars and narrow gauge steam railway. The Sandstone Heritage Trust works closely with South Africa's Armour Museum and boasts an impressive collection of equipment from a Sherman tank to modern day South African Defence Force armour. For more information and to book for the event contact Geoff Cooke at: [geoff@geoffs-trains.com](mailto:geoff@geoffs-trains.com) or see the websites at: [www.geoffs-trains.com](http://www.geoffs-trains.com) [www.sandstone-estates.com](http://www.sandstone-estates.com)

**Saturday 4 to Monday 6 May 2013:** **Llandudno Transport Festival:** held at Bodafon Fields, Llandudno, North Wales, LL30 1BW. 1000+ exhibits to include Lorries, Buses, Tractors, Motorbikes, Cars, Trade Stands and more. Transport cavalcades around the town etc. For further details contact: [info@llantransfest.co.uk](mailto:info@llantransfest.co.uk) [www.llantransfest.co.uk](http://www.llantransfest.co.uk)

**Sunday 5 May 2013:** **Cobbaton Clearout:** militaria market, held at Cobbaton Combat Collection, Chittlehampton, N. Devon, EX37 9RZ. For details contact: Tel: 01769 540740 [info@cobbatoncombat.co.uk](mailto:info@cobbatoncombat.co.uk) [www.cobbatoncombat.co.uk](http://www.cobbatoncombat.co.uk)



### MAY 2013

**Saturday 11 Sunday 12 May 2013:** **Newark & Nottinghamshire County Show:** held at Newark Showground, Newark-on-Trent, Notts, NG24 2NY. Plenty to see and do for all the family. Seeking RAF vehicles for display that would have been involved with the Dambusters. For details call Colin Holwell: Tel: 01780 751291 Mob: 07977 142011

**Saturday 18 Sunday 19 May 2013:** **Militracks 2013:** held at the Overloon Museum, Museumpark 1, 5825 AM Overloon, Netherlands. A unique opportunity to see a display of rare wartime Wehrmacht military vehicles being put through their paces on the purpose-built, mile long off-road course surrounding the world-famous museum. Tickets to ride on the different vehicles are also available, and 100+ militaria stalls will be in the area surrounding the museum. For further details contact the organisers on: Tel: +31 478 641 250 [info@militracks.nl](mailto:info@militracks.nl)

**Saturday 25 to Monday 27 May 2013:** **Overlord 2013:** held at The Lawns, Forest Road, Denmead, Waterlooville, Hampshire, PO7 6TZ. Over 300 vehicles in both static displays and in motion around the tree lined arena. Nearly 500 re-enactors encamped in their own living history field, and a daily battle re-enactment in the arena. 100 traders selling militaria, clothing, weapons and vehicle spares, and quality food and drinks available from our selected vendors and the beer tent. For further details check out the website at: [www.solentoverlord.co.uk](http://www.solentoverlord.co.uk)

### JUNE 2013

**Saturday 1 Sunday 2 June 2013:** **Muckleburgh Military Display Weekend:** held at the Muckleburgh Military Collection, Weybourne, Norfolk, NR25 7EH. Featuring military displays, vehicle displays, vehicle parade, military vehicle rides, RAF & Army displays, tank drives, shop and stalls, model vehicles and much more. Special guest – Dad's Army 'Jones's Van'. For details call: Tel: 01263 588608 [events@muckleburgh.co.uk](mailto:events@muckleburgh.co.uk) [www.muckleburgh.co.uk](http://www.muckleburgh.co.uk)

**Saturday 8 Sunday 9 June 2013:** **Wicksteed at War:** held at Wicksteed Park, Kettering, Northants, NN15 6NJ. Incorporating the MVT National Show and featuring military vehicles, exhibitors stands and trade stalls, military dioramas and much more. For more details contact: John Denny (Re-enactors) Tel: 07713 636760 Tim Hawkes (Vehicles & Trade) Tel: 01536 799395 [www.wicksteedpark.co.uk](http://www.wicksteedpark.co.uk)

**Saturday 15 Sunday 16 June 2013:** **Dunsfold Collection Open Weekend:** held at the Springbok Estate, GU6 8EX. See one of the finest collections of Land Rovers in the world. For details contact: Tel: 01483 200567 [openweekend@dunsfold.co.uk](mailto:openweekend@dunsfold.co.uk) [www.dunsfoldcollection.co.uk](http://www.dunsfoldcollection.co.uk)

**Saturday 22 Sunday 23 June 2013:** **Wartime in the Vale:** held at Ashdown WW2 Camp, Ashdown Farm, Badsey, nr Evesham, Worcs, WR11 7EL. Military vehicles, arena events, militaria stalls, re-enactors and classics. For further details contact Paul on: Tel: 0779 1591528 [www.ashdowncamp.webs.com](http://www.ashdowncamp.webs.com)

**Saturday 29 Sunday 30 June 2013:** **Tankfest 2013:** held at the Tank Museum, Bovington, Dorset, BH20 6JG. Experience the world's best display of historic moving armour. Lots to see and do for the family with trade stands and living history displays plus the world famous Tank Museum, home to the finest collection of tanks. For further details check out the website at: [www.tankmuseum.org](http://www.tankmuseum.org)

## JULY 2013

### Friday 5 to Sunday 7 July

**2013: The Yorkshire Wartime Experience show:** now one of the largest battle re-enactment/military shows in the North of England. Held in 30 acres of land to the south west of Leeds with easy access to the M62 motorway (Junction 26) just off the A58 Hunsworth Lane, Hunsworth, Bradford, BD4 9RN. For details contact Stuart on: Tel: 07748604461  
[www.ywe-event.info](http://www.ywe-event.info)

### Saturday 6 Sunday 7 July

**2013: Capel Surrey Vintage Military Vehicle Show:** held at Aldhurst Farm, Temple Lane, Capel, Surrey, RH5 5HJ. The East Surrey and West Kent Area MVT Capel show. In aid of Help for Heroes, including Military Vehicles, Re-enactor Groups, stall Holders and Traders. For information and entry forms contact Area Sec John Hotston: Tel: 07445 962945  
[adenjohn@virgin.media.com](mailto:adenjohn@virgin.media.com) or Phil Harris on: Tel: 01293 871727  
[langdon34@yahoo.co.uk](mailto:langdon34@yahoo.co.uk)

### Saturday 6 Sunday 7 July

**2013: Lympne Aero Classic:** celebrating the history of Lympne Airfield from 1916-1980s. Held at Lympne Village Hall and playing fields. For details call John Simpson: Tel: 01303 265078  
[johnsimpson43@btinternet.com](mailto:johnsimpson43@btinternet.com)

### New Venue...New Venue...

### Wednesday 17 to Sunday 21 July 2013: The War & Peace Revival:

held at RAF Westenhanger, Folkestone Racecourse, near Hythe in Kent. The world's largest military vehicle show that attracts thousands of military vehicles, re-enactors and living history displays and now at a brand new venue. For details call: Tel: 01304 813337  
[www.thewarandpeacerevival.co.uk](http://www.thewarandpeacerevival.co.uk)

### Friday 26 to Sunday 28

**July 2013: Festival of the Forties:** held at the Plough Event Site, Milk & Water Drover, Peterborough, PE7 3DR. Military vehicles and civilian vehicles, battle re-enactments, living history groups, 1940's performers, 40's vintage village and stalls. For details contact: Tel: 01733 204353  
[www.1940fest.org](http://www.1940fest.org)

## AUGUST 2013

### Friday 2 to Sunday 4

**August 2013: Military and Flying Machines Show:** held at Damyns Hall Aerodrome, Aveley Road, Essex, RM14 2TN. 300 plus military vehicles, 60 living history displays and a thousand plus re-enactors, full flying display, arena events and mock battle. For details see website: [www.militaryandflyingmachines.org.uk](http://www.militaryandflyingmachines.org.uk)

### Saturday 3 Sunday 4

**August 2013: Woodhall Spa 40's Festival:** held at Jubilee Park, Stixwold Road and Woodhall Spa village hall. Lincolnshire, LN10 6QH. For details contact Stuart on: Tel: 01526 353215  
[www.woodhall-spa-40s-festival.com](http://www.woodhall-spa-40s-festival.com)

### Saturday 17 Sunday 18

**August 2013: Cobbaton Combat VJ Weekend:** military vehicle show, stalls, living history, and all held at held at Cobbaton Combat Collection, home to a great collection of military vehicles and military artefacts. The museum is in Chittlehampton, N. Devon, EX37 9RZ. For further details contact: Tel: 01769 540740  
[info@cobbatoncombat.co.uk](mailto:info@cobbatoncombat.co.uk)  
[www.cobbatoncombat.co.uk](http://www.cobbatoncombat.co.uk)



## AUGUST 2013

### Saturday 17 Sunday 18

**August 2013: Wings & Wheels:** the South West Airfield Heritage Trust Wings & Wheels show held at Dunkeswell Airfield, nr Honiton, Devon. Meet cast members from H.B.O's Band of Brothers, plus military vehicles, re-enactors, planes, and much more. For further details contact Dave Bunney on: Tel: 01404 890174

### Saturday 17 Sunday 18 August 2013:

**Lacock at War, Codename Bolero:** Military Vehicle & Re-Enactment Show. Lacock Village near Chippenham SN15 2LQ. Contact, John Wardle on: Tel: 01373 300384  
[westwiltsmvt@yahoo.co.uk](mailto:westwiltsmvt@yahoo.co.uk)  
[www.westwiltsmvt.co.uk](http://www.westwiltsmvt.co.uk)

### Saturday 24 to Monday

**26 August 2013: Military Odyssey 2013:** held at the Kent County Showground, Detling, Kent, ME14 3JF. Now the world's largest multi-period history event, the closest you'll get to history short of a time machine! For further details contact the organisers at: Tel: 01268 772448  
[info@military-odyssey.com](mailto:info@military-odyssey.com)  
[www.military-odyssey.com](http://www.military-odyssey.com)

## AUGUST 2013

### Saturday 24 to Monday

**26 August 2013: Tanks, Trucks & Firepower:** organised by the Alvis Fighting Vehicle Society and the Birmingham & West Midlands Area Military Vehicle Trust. The showground is situated just 1 mile from Dunchurch in Warwickshire on the A426 Southam Rd and 5 miles from Rugby. Easy access from the A45 and M45. Show features static military vehicle and living history displays, arena driving. For further details check out the website at: [www.tankstrucksandfirepower.com](http://www.tankstrucksandfirepower.com)

### Saturday 24 to Monday

**26 August 2013: Cornwall Area MVT Show:** held at Mount Edgcumbe Country Park, Cremyll, Cornwall. Exhibitors are invited to bring military vehicles (of any era), military or living history displays. Free entry and camping for exhibitors. For entries call Gwen Jenkins: Tel: 01872 561653  
[gwenjen@talktalk.net](mailto:gwenjen@talktalk.net)

### Saturday 24 to Monday

**26 August 2013: Rauceby War Years Weekend 2013:** The Mid Lincs MVT is holding their 5th War Years Weekend. We are a non-profit making event so any monies raised after expenses will go to the charities, Air Ambulance, Royal British Legion and Marie Curie Cancer Care. For further details call: Tel: 01529 488354  
[www.raucebywarweekend.co.uk](http://www.raucebywarweekend.co.uk)

## SEPTEMBER 2013

### Saturday 31 August Sunday 1 September

**2013: 70th Anniversary of the Assault Training Center,** held in Woolacombe, North Devon, living history displays, beach invasion re-enactment, vehicle run on beach, wreath laying. [www.assaulttrainingcenter.com](http://www.assaulttrainingcenter.com)

### Sunday 1 September

**2013: Jeep & Cheerful day:** a Free day out for anyone with a Military Jeep, or Military Vehicle, held at the South Yorkshire Aircraft Museum 'AeroVenture' at the former site of RAF Doncaster. For more information contact Mark Askew on: Tel: 01302 739000  
[info@jeepworld.co.uk](mailto:info@jeepworld.co.uk)  
[www.jeepworld.co.uk](http://www.jeepworld.co.uk)

# MISSION BRIEFING

## DATES FOR YOUR DIARY

### SEPTEMBER 2013

#### Friday 6 to Sunday 8

**September 2013: The Victory Show:** the largest WWII experience extravaganza in the UK, held at Foxlands Farm, Cosby, Leicestershire, LE9 1SG. Featuring military vehicles, tanks and artillery, living history displays, airshow, vintage tractors and farm machinery, trade stands and more. For further details (General) contact Steve Pepper on: Tel: 07711430472 [Sjpepper229@btinternet.com](mailto:Sjpepper229@btinternet.com) For Vehicles/Re-enactors contact Dave Pratt on: Tel: 07954 620728 [thevictoryshowreenactors@yahoo.co.uk](mailto:thevictoryshowreenactors@yahoo.co.uk) [www.thevictoryshow.co.uk](http://www.thevictoryshow.co.uk)

#### Saturday 7 September

**2013: Peopleton Autumn Show:** held at Peopleton Village Playing Fields, Peopleton, Worcs. Featuring a variety of Classic Cars, Military Vehicles, stalls and entertainment. The event is open 12.00 noon till 6.00pm. For further details about the show call John Sargeant: Tel: 01905 840155 [sarg-37@tiscali.co.uk](mailto:sarg-37@tiscali.co.uk)

#### Sunday 29 September

**2013: Stoneleigh Mini Militaria 2013:** Blackdown Buildings, The Exhibition Centre, Stoneleigh Park, Coventry, Warks. CV8 2LZ. For details contact Amanda on: Tel: 01743 762266 [amanda@jeeparts.co.uk](mailto:amanda@jeeparts.co.uk) [www.militaryconvention.com](http://www.militaryconvention.com)



### SEPTEMBER 2013

#### Saturday 28 Sunday 29

**September 2013: Railway At War:** Recreating the 1940s experience of life on the Home Front during WW2. Held by the Northampton & Lamport Railway, Pitsford and Brampton Station, Pitsford Road, Chapel Brampton, Northampton, NN6 8BA. Featuring civilian and military vehicles, 1940s music and entertainment, trade stalls, re-enactors and living history displays. For details contact: Colin Haddon Tel: 01604458521 (Vehicles) Tel: 07756 200213 (General) [info@railwayatwar.org.uk](mailto:info@railwayatwar.org.uk)

### OCTOBER 2013

#### Saturday 5 Sunday 6

**October 2013: Holme 1940's Weekend:** held in association with Holmewood Hall and Holme Village. Located near Peterborough, PE7 3PA. Tank rides, vintage vehicles, vintage ploughing, stalls and displays, re-enactors welcome. For further details call: Tel: 07887 817031 [chriscardell@googlemail.com](mailto:chriscardell@googlemail.com) [www.holmewoodhall.co.uk](http://www.holmewoodhall.co.uk)

#### Sunday 6 October 2013:

**Hack Green Secret Nuclear Bunker Rally:** French Lane, Nantwich, Cheshire, CW5 8BL. For details call Rod on: Tel: 01270 623353 [coldwar@hackgreen.co.uk](mailto:coldwar@hackgreen.co.uk)



### OCTOBER 2013

#### Friday 11 to Sunday 13

**October 2013: Wartime Weekend:** held in Pickering, N.Yorks with steam trains, trade stands and re-enactors. For further details about the show visit the website at: [www.nrmr.co.uk](http://www.nrmr.co.uk) details about the trading area at: [www.jeepworld.co.uk/pickeringwartimeweekend.htm](http://www.jeepworld.co.uk/pickeringwartimeweekend.htm)

### NOVEMBER 2013

#### Sunday 3 November

**2013: Northern Military Expo:** popular indoor show held at the Newark Country Show Ground, Notts, 2 minutes off the A1M (NG24 2NY). For details contact Mark Askew on: Tel: 01302 739000 or check out the website at: [www.northernmilitaryexpo.co.uk](http://www.northernmilitaryexpo.co.uk)

#### Sunday 17 November

**2013: Malvern Militaria Fair:** large, indoor militaria event held at the Three Counties Showground, Wye Hall, Malvern, Worcs, WR13 6NW. For details contact Amanda at: Tel: 01743 762266 [amanda@jeeparts.co.uk](mailto:amanda@jeeparts.co.uk) [www.militaryconvention.com](http://www.militaryconvention.com)

### DECEMBER 2013

#### Sunday 15 December

**2013: Bromsgrove, Militaria, Medal & Arms Collectors Fair:** held at the Spadesbourne Suite, The Council House, Burcot Lane, Bromsgrove, Worcs, B60 1AA. Free parking, admission to the event is £2.50 from 9.00am to 2.00pm, accompanied children (under 13) free. For further information and dealers booking forms contact the organiser James Brown at: Tel: 07980 608211 [fairs@RZMilitaria.com](mailto:fairs@RZMilitaria.com) [www.RZMilitaria.com](http://www.RZMilitaria.com)

**Are you a show organiser? Don't delay, and email your show & event details direct to the Editor at:**

[ian.young@keypublishing.com](mailto:ian.young@keypublishing.com)

**or if you prefer you can post them to the Editorial Office - details can be found on page 3**

If travelling long distances to events we would advise people to check for cancellations before leaving home, MMI cannot be held responsible for any errors, omissions or cancellations. Submissions for Mission Briefing should be sent at least two months prior to the event and we would also ask that event organisers notify us of any changes as soon as possible.

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