

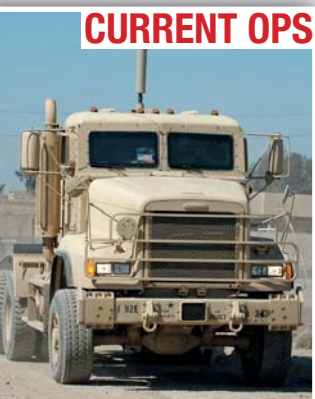
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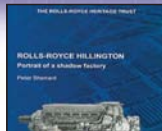
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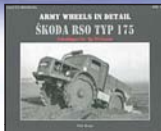
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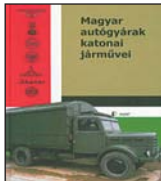
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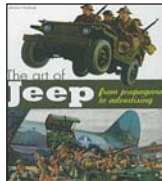
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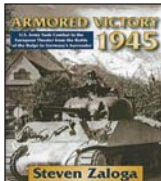
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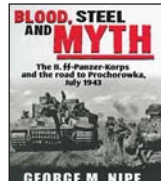
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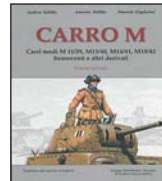
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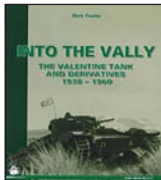
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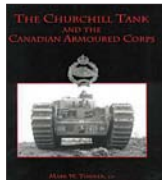
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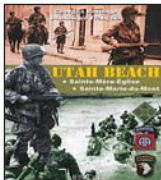
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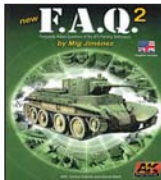
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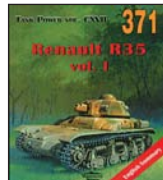
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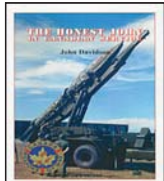
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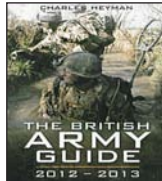
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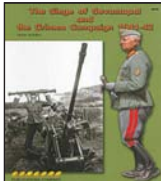
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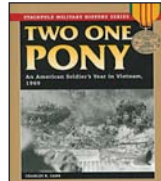
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EDITORIAL



Ian Young

Ian Young
Editor

Welcome to this month's edition of Military Machines International and you'll find another varied collection of articles packed into the 84-pages covering everything from First World War military steam engines to the very latest military vehicles to be showcased at Russia's premier defence equipment exhibition, and it's that variety that you as readers seem to appreciate, or at least that's what you

tell us via your emails and letters. We are of course happy to continue to bring you this blend of subjects you like so much, and once the show season gets under way we'll be covering a number of the many military vehicle shows to be held around the country and indeed the world, another of MMI's features appreciated by readers. In the meantime please enjoy this month's eclectic collection of articles - Ed.



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NEWS and REVIEWS

UP FRONT

Mighty Military Machines of The War & Peace Show

At The War and Peace Show each year you never know what vehicles will turn up. The Vehicle Entry Forms drop incongruously through the letter box, containing exciting details of often rare or unique vehicles that will grace the fields at Beltring during the summer.

Over the years the War and Peace Show has seen the entries change in type, era and value. Until recently vehicles have been predominantly WW2, however with the increasing passage of time and scarcity, these are getting more rare and expensive. Post war, Cold War and more modern conflict vehicles and equipment are appearing – such as the M76 Otter, which has recently appeared on one of those simple Vehicle Entry Forms.

Built in 1957 the Amphibious Cargo Carrier M76 Otter is a US supply vehicle made by Pontiac. Despite not being intended as a combat vehicle, the M76 was extremely useful to Marines in Vietnam as it could quickly ferry ammunition, fuel or troops across rice paddies and rivers. Built with a boat-type bow, the M76 had wide tracks and inflatable road rollers inside the tracks for snow and difficult terrains. Weighing about 1.25 tons, the M76 was controlled by an aircraft style yoke and could carry 3,000lbs of freight or tow over 6,000lbs. Neither armoured nor intended for combat, during Vietnam some were fitted with a Browning .50cal M-2 machine gun. The M76 Otter that will appear at The War and Peace Show in July is the only complete fully operational example in the UK.

Another vehicle from the same stable and equally unusual is the Aquatrack amphibious tracked load carrier. Developed by Glover Webb Ltd, a GKN Defence company, it was first trialled by the Royal Marines in 1991. In true James Bond style, the Aquatrack can very easily move from land to open sea through three-metre high surf with just a flick of a switch activating the variable pitch propellers and de-activating the tracks when fully afloat.

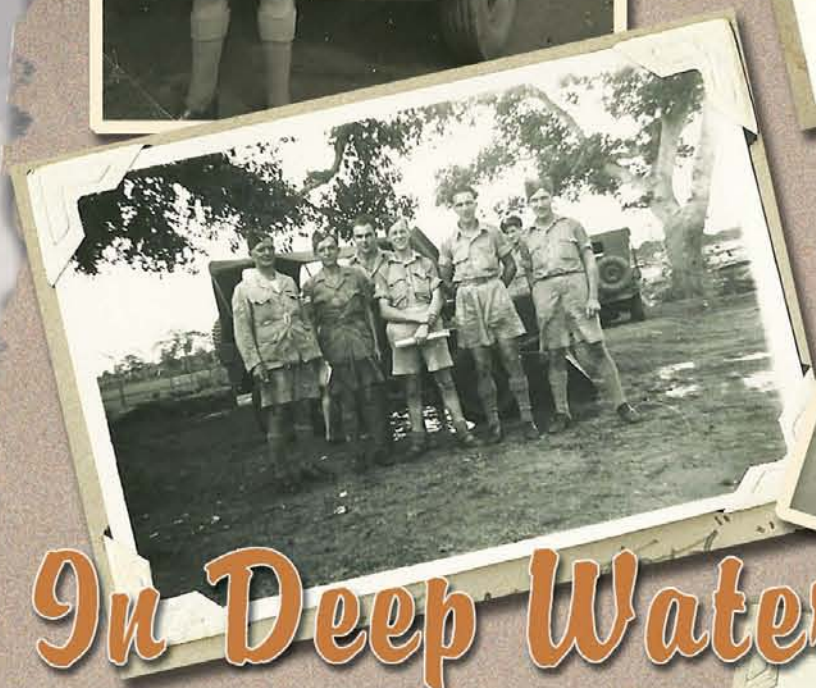
Moving from water to land is just as simple, with simultaneous track and propeller functions. The load capacity is extensive considering its dual purpose and can carry over eight tonnes in weight, a LWB Landrover or 40 seated passengers, while a hydraulic ramp with a raised section prevents swamping at sea. Aquatrack has a 65km sea range and 500km land range and operates on the same running gear as the M113 armoured personnel carrier. With the ability to attach a crane, winch or cupola for light machines guns, its civil and military applications are diverse.

Dive support, logging, spraying detergent for oil spillage or flood casualty rescue were some of the suggestions, although only two were ever sold to the Civil Defense Office of the Department of Defense, Philippines.



The Aquatrack has a nickel-chrome steel hull incorporating five separate watertight compartments and is powered by a 13.3 litre Deutz BF8L513 diesel, 8 valve, air cooled engine, which produces 315BHP at 2300rpm. With a top speed of 40km/h or six knots at sea fully laden, the Aquatrack is the most ambitious vehicle that never made it into full production!

Make sure you don't miss out on seeing these remarkable and rare machines at this year's War & Peace Show, which celebrates its 30th Anniversary in 2012, and make a note in your diary for the military vehicle event of the year, held at the Hop Farm, Paddock Wood in Kent between the 18th and 22nd of July. You can check out the War & Peace website for more details, which you'll find at: www.thewarandpeaceshow.com



In Deep Water

I had a very interesting email arrive the other day, it came from reader Micky Price, who sent in these images of his Grandad taken during deep water testing of Jeeps in India and Micky wanted to share them with other readers and is sure that his Grandad would be proud to know that what he did in war had been published. Well we have and they're here for all to see so I hope that Grandad Sidlow approves. This is what Micky had to say – Ed.

Dear Sir,

I came across these pictures of my Grandad (Squire Sidlow), which shows him pictured with his staff car. The photos are of his days in India around 1943 and the deep water testing they did on their Jeeps. As you can see they drove completely submerged apart from the screens, which stuck out above the water! A friend suggested I send them to you as you have a section on old vehicles in your magazine.

Many thanks - **Micky Price**



M&N Pictures



Are you a fan of British Army vehicles like the CVR(T), Warrior, Challenger 1 + 2, Royal Engineer Chieftains and other armour fielded by the British Army, but only get to see them at events like the War And Peace show? Would prefer to see tanks kicking up the dust, hear the sound of rattling tracks, and witness the thrill of a Field Training Exercise? If so there's now an opportunity to fulfill your desires by joining M&N Pictures.

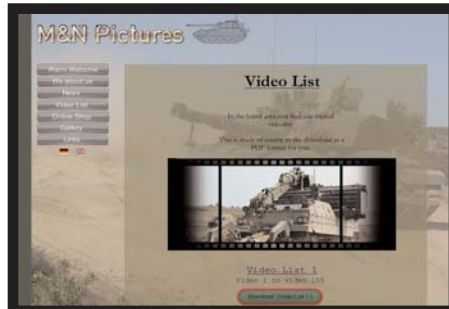
M&N Pictures are popular traders of military videos in Germany and have been established for 15 years, travelling around Europe, from Norway to Switzerland and from France to Poland to capture armour on camera! While their main focus is the British Army, they offer a wide range of excellent material, capturing vehicles and units on camera that no longer exist, in brilliant quality! Events covered include formation reconnaissance in civil areas in Germany, Armoured Air Defence, Royal Signals, Royal Engineers (with an especially large chapter covering the Royal Engineer Chieftains AVRE and AVLB + the new Trojan and Titan), Royal Artillery and overall Armoured Battle Group formations!

They even offer a training film about the Power Pack Repair Facility of 2 Battalion REME in 2006 and were the first ones to get a river crossing of the new Trojan Engineer Tank on an M3 rig at the Drawsko-Pomorski Training Area! The films take you on a journey from your living room to where the action takes place, pump up the volume and enjoy the sound – the only thing missing will be the original smell of British Armour coming out of your TV!

Visiting their homepage you will find an introduction by a short trailer with short scenes from some of the films, after which you can either join or skip the intro and move onto the main page with the control panel on the left hand side. Although the basic language is German, English speakers are catered for as well.

Visit the homepage and you'll find more than 1,200 photographs in the gallery for free, and you can download their video catalogue and order from an expanding choice of videos that currently stands at 140!

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Sandstone Heritage Trust

Photo - Fokko Niesen



Many of the farmers living in this area have a great sense of history and had preserved farming machinery and continued with farming practices, which are more nostalgic than commercially realistic. The farm Hoekfontein was therefore in a way a living museum with Lanz Bulldog and John Deere 720 diesel tractors still in daily use. Notwithstanding the fact that they were simply going about their business, the Willes without

realising it had created an environment that would have delighted any agricultural machinery enthusiast.

The new owners recognized this and decided from the outset that they would do everything they could to maintain the facilities, machinery and even the skills needed to keep the old farm machinery and farming methods operational. The machinery is not obsolete from a practical agricultural standpoint and

The Sandstone Heritage Trust is a private Preservation initiative established on a commercial farm in the Eastern Free State in South Africa. The present owners purchased the farm from the Wille family in 1995 having been in the continuous ownership of the Willes since the 1840's, meaning the farm has only had two owners over a period of 170-years! The arable farmland along the little Caledon River, the official border between South Africa and Lesotho, is rich in agricultural potential. It's a particularly beautiful part of South Africa with sandstone outcrops nestling under the towering Maluti Mountains high above the Drakensburg range. It's an area where farming has quietly continued using traditional methods for centuries.



Photo - Wilfrid Mole

Photo left - Thomas Kautzor
Photo below - David Benn

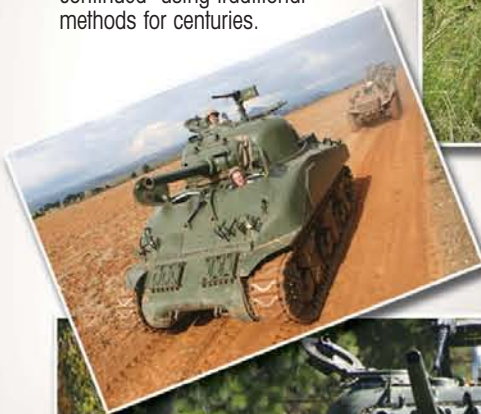


Photo - Gary Barnes



Photo - Fokko Niesen



Photo - Fokko Niesen



Photo - Rod Hering

so to this day the practice of continuing to use old machinery to carry out important functions on the farm is studiously adhered to.

The Midmar Museum, which was a joint venture between the Kwa-Zulu Natal Parks Department and the Heritage section of the National Railways was dissolved by mutual agreement in 1997 and a selection of Narrow Gauge assets and the railway line came on the market. This event would give new direction to the Sandstone heritage program. These assets were put up for auction and after successfully bidding for the items Sandstone was suddenly the owner of enough components to create a small Narrow Gauge railway. It was decided to lay some track and to bring one of the NGG16 Garratts back into steam.

A pivotal point in the heritage program's development was the decision by Sandstone to hold an innovative attempt at the World Record for the maximum number of vintage tractors (pre 1960) working in one field at one time. In order to



Photo - Wilfrid Mole

make it more interesting for spectators a short section of railway line, which had been obtained on the Midmar auction, was built and the Garratt with a few coaches was cobbled together. The event was in fact the first attempt of its kind and it took place amidst great international fanfare. It was awarded with a Guinness Book of Records certificate. 99 tractors participated.

The rest is history and the record was recently broken in Ireland with over 5,000 tractors in one field at one time. South Africa can be truly proud of the fact that they were the innovators with a vintage agricultural event that galvanized interest in people around the world.

The activities of the Sandstone

Heritage Trust in the Military vehicle preservation arena have been expanding steadily, having recently collected two impressive Military recovery vehicles, one being a MACK and the other one being a South African Mine-protected Bulperd.

Each year the Sandstone Heritage Trust holds a 'Steam Gala Weekend', which involves the many preserved steam locomotives, but has increasingly seen the addition of various other vehicles being displayed and demonstrated and the most recent event in late 2011 saw a superb collection of military vehicles getting involved. Visitors to the event saw the likes of a Sherman tank, Jeeps, SADF recovery vehicles, armoured cars, classic and vintage

cars and vehicles and even steam traction engines, running around the estate, all set in the stunning scenery of Eastern Free State in South Africa. It was a remarkable event, and one that steam and indeed military vehicle enthusiasts enjoyed enormously.

We've included a number of photos from the event on these pages, sent courtesy of Wilfrid Mole and Joanne West of the Sandstone Estates, home of the Sandstone Heritage Trust, but you can find out more about the Trust, the collection and the various events by logging on to their extensive website shown below, and they even have DVDs available <http://www.sandstone-estates.com>



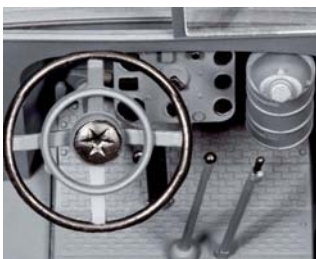
Photo - Aidan McCarthy



Photo - Aidan McCarthy

Revell New Releases

Henschel



Revell have recently released three new plastic kits of military vehicles. The first is a 1/35 scale model of the mighty WW2 German Henschel 33 D1 truck, as featured in full size on pages 52-55 of this issue.

The kit is nicely moulded in sand coloured plastic and comes with a sheet of decals and a 20-page instruction booklet detailing construction and alternative camouflage schemes as well as a brief history of the truck in World War Two. The kit comes under the classification of 'Skill Level 5' in the Revell range, making it one of the more complex kits available, but shouldn't trouble a seasoned modeller.

While the kit is being sold and marketed under the Revell banner, there's evidence on the sprues that point towards this being a re-release of the ICM kit, with the ICM logo moulded on each sprue, however, it's still a well appointed model, with plenty of detail, and of course with numerous variants produced during the war, there's plenty of scope for potential conversions.

The other new releases this month are in the smaller 1/72 scale, the first being a superbly detailed replica of the modern German Bundeswehr TPz1 Fuchs A4. The kit is moulded in dark green plastic and the detail is crisp and precise, building into a very detailed and accurate model of the German Fuchs or 'Fox'. To give an idea just how detailed the model is, the A4 printed instruction booklet is 13-pages long! A small waterslide decal sheet is also included, providing various options for markings, which include the red crosses for an ambulance. All in all this is a cracking little model of a popular subject that also has lots of scope for modifications and conversions.

The final release from Revell this month is also to 1/72 scale, and represents another modern German Bundeswehr vehicle, namely the Leopard 2A5/A5NL main battle tank. Again the kit is moulded in dark green plastic and features crisp detailing. The tracks are provided in two long lengths of moulded tracks that require heating in hot water to



bend them round either end of the wheel runs. I've not had any experience of these types of tracks before so I can't confirm if the system works or not, but it looks a simple enough task to perform. The provision of individual suspension arms also offers those so inclined to modify the suspension to show it traversing rough ground. A number

of optional parts are included depending on the particular variant being built, which includes both German and Dutch Leopards. Once again this is a particularly nice model of the Leopard tank.

Revell model kits are available from all good toy and model retailers. For further information visit: www.revell.eu



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**Shaun Connors
looks at the US
Army's M915 series
of line haul tractor**



The Long





Haul



In January 1977, the US Army's Automotive Material Readiness Command (TARCOM) issued a request for technical proposals for a series of heavy trucks ranging from 22,680 to 34,019 kg GVW. In response to proposals submitted by six truck manufacturers (AM General Corporation, Four Wheel Drive (FWD) Corporation, General Motors Truck and Coach, International Harvester Corporation, Kenworth Truck Corporation and White Autocar Corporation), in June 1977 AM General was awarded a \$252.8 million four-year contract for 5,507 M915 series trucks, the contract including an option (that was not exercised) for a further 5,507 trucks.

The AM General M915 line haul series is based on the Centaur range of trucks as manufactured by the Crane Carrier Company of Tulsa, Oklahoma. The M915 series originally consisted of the M915 6x4 tractor truck, M916 6x6 tractor truck, M917 8x6 dump truck, M918 6x6 bituminous distributor, M919 8x6 concrete mixer, and M920 8x6 tractor truck. In September 1981 AM General was awarded a follow-on contract for 2,511 M915A1 tractor trucks.

Later production versions of the M915 series have been the M915A2, A3 and A5, M916A1, A2 and A3, and the M917A1 and A2, these all produced by Freightliner which is now part of Daimler Trucks North America (DTNA). Between 1988 and early-2012 Freightliner delivered in the region 14,000 M915 series trucks to the US Army, around 11,000 of these under contract (DAEE07-00-D-SO22), this awarded in September 2000.

Opposite top left: AM General-produced M917A0 8x6 dump truck. (Google)

Top centre: in Iraq, a Freightliner-produced M915A2 with an armoured cab and what appears to be a full suite of electronic countermeasures equipment for the ever-present threat of IEDs. (US DoD)

Top right: M916A0 6x6 (with armoured cab) and M870 40-ton lowbed trailer. (US DoD)

Above: something of a rarity; an early AM General-produced M920 8x6 tractor truck (with armoured cab) in Iraq. (Carl Schulze)

Main photo left: in Iraq, an AM General-produced M915 (with armoured cab) and M872 34-ton flatbed trailer laden with a pair of M113 APCs. Note the Crane Carrier logo on the radiator grille and the AM General stamping on the bonnet sides. (Carl Schulze)

M915A5 Tractor Unit

Here we see a pair of M915A5 tractor units with (below) and without (top) A-kit armour fitted.
(Photos - Freightliner (top), BAE Systems (below))



M916A3 tractor truck.
(Carl Schulze)



Initially running until September 2007, three single year extensions were subsequently applied to this contract, the industry anticipated M915 series competitive rebuy on indefinite hold at this stage.

In July 2011, 220 M915A5 series trucks valued at \$44,700,000 were ordered from DTNA under a single source (non-competitive) two-year (plus one-year extension) contract award. Deliveries under this order are expected to conclude during June 2014.

According to the US Army it planned to have divested itself of all M915A0 and A1 models no later FY-2011, these to be replaced with new buy M915A5s. Currently, approximately 40 per cent of the US Army's M915 fleet is beyond its projected 20-year end-of-useful-life (EUL). However, no major M915 recapitalisation (Recap – refurbishment) is currently projected, and future funding projections do not appear to include further M915 series procurements, with current fleet numbers likely to meet the requirements of a US Army that is



Left: in Iraq, a Freightliner-produced M916A2 and M870 40-ton lowbed trailer; note the easily identifiable cab armour package. (Carl Schulze)



Left: at work in the US, M915A2s participating in the 2009 Timber Haul mission which delivers timber to the Oglala Sioux and Crow Creek Reservations for their use primarily as firewood. (US DoD)



currently scheduled to reduce in size by around 80,000 to roughly 490,000 soldiers.

Throughout their production run the M915 series has been based on commercial vehicles with the minimum of militarisation. The layout of all vehicles is similar, and while there were originally three basic chassis, 6x4, 6x6 and 8x6, 8x6 chassis were only produced by AM General.

THE TRUCKS

The M915 6x4 tractor truck is primarily used for the long distance road movement of containers and other bulk loads. It normally tows M871 22.5-ton or M872 34-ton flatbed semi-trailers, although it and other M915 series tractor trucks are often seen coupled to M967 and M969 5,000 gallon and M1062 7,500 gallon bulk fuel tanker semi-trailers.

The original AM General M915 (now designated M915A0) is powered by a Cummins NTC 400 6-cylinder diesel which develops 400 hp, this coupled to a 16F/2R Caterpillar semi-automatic gearbox, this replaced by an

Allison HT754 CR 5F/1R automatic transmission in the M915A1.

The Freightliner-produced M915A2 (introduced September 1988) is powered by a Detroit Diesel DDE 12.7-litre diesel developing 400 hp, this coupled to a Allison HT-740 automatic transmission. The M915A2 (and M916A1) were the US Army's first trucks to be fitted with anti-lock brakes.

The M915A3 (introduced September 2001) is powered by a Series 60 Detroit Diesel DDEC IV 12.7-litre diesel developing 430 hp, this coupled to a 6F/1R Allison Generation IV 4500SP automatic transmission.

M915A4 is the designation applied to upgraded M915A0/A1 trucks. To upgrade an M915A0/A1 to A4 standard the original engine, axles and as many serviceable driveline components as possible were salvaged and then installed in a new production 'Glider kit' A3-spec cab and chassis assembly. Between 1999 and 2008 a total of 1,402 M915A4s were delivered, and each at around 75 per cent the cost of a new truck.

At AUSA (held in Washington DC (Oct 10th-12th)) Freightliner previewed a potential further M915 series upgrade. Using the currently favoured Recap (recapitalization) descriptive, this package, when installed, would upgrade an M915A3 to effectively the current M915A5 standard.

Under the proposed A3 to A5 recapitalization a number of options are available, these all assuming that a Long Term Armor Strategy (LTAS) compliant cab is required. The most extensive of these options would essentially retain only the Detroit Series 60 DDEC engine and Allison Gen IV 4500SP automatic transmission of the base A3 vehicle. However, should a shorter new cab be fitted then the original Meritor RT40-145 double drive rear bogie of the A3 donor vehicle could be retained, and a lighter duty new front axle fitted.

In terms of cost, the aim of the A3 to A5 Recap package is not to break the 75 per cent of new vehicle barrier, as at this point Federal Excise Tax (FET) becomes payable and the overall cost-effectiveness of the

Photo strip left to right: AM General-produced M915 with M969 US gallon fuel tanker trailer (US DoD); Freightliner-produced M915A2 (with armoured cab) and M872 34-ton flatbed trailers; load is a pair of M1117 Guardian ASVs (US DoD); AM General-produced M919 8x6 concrete mixer (Google); early US DoD image of AM-General-produced M915s (US DoD); Freightliner-produced M917A2 dump truck. (Peter Felstead)



A 1989 US DoD image of an M915 tractor and M872 34-ton trailer at Pirmasens, West Germany.

Below: Freightliner is promoting an M915A2/A3 to A5 configuration Recapitalization (Recap). (Shaun Connors)

Bottom left: from the rear, a Philippines Army M916-based wrecker. (Gordon Arthur)

exercise can be called into doubt. There are currently an estimated 3,800 M915A3 tractor trucks in the US Army's inventory that at some stage in the future could benefit from this upgrade.

The first new-build M915A5s were ordered in August 2009, and by late 2011 2,394 vehicles were on contract.

The M915A5 represents a block upgrade from the M915A3 model, major changes being a new Series 60 Detroit Diesel 12.7-litre diesel that develops 500 hp and a new larger cab, this based on the Western Star 4900 commercial pattern cab which is LTAS compliant.

The M916 6x6 tractor truck is primarily the prime mover for engineering and construction equipment on the M870 40-ton low-bed semi-trailer.

The original AM General M916 shares engine and transmission with the M915A0/A1, but having a driven front axle is fitted with an Oshkosh F-U29 single-speed transfer box.

The Freightliner-produced M916A1 (introduced September 1988) and the M916A2 (introduced December 1995) are powered by a Detroit Diesel DDE 12.7-litre diesel developing 400 hp, this coupled to an Allison HT-740 automatic transmission and Oshkosh 55000 two-speed transfer case. The M916A3 (introduced September 2000) is powered by a Series 60 Detroit Diesel DDEC IV 12.7-litre diesel developing 430 hp, this coupled to a 7-speed Allison Generation IV 4700SP automatic transmission and Meritor T-2119 single-speed transfer box.

The original AM General M917 8x6 20-ton dump truck has a 10.7 m³ Fruehauf dump body and shares a driveline with the original M916A0, the additional second axle (also fitted to the M919/M920) is of the lifting pusher type. Freightliner manufactured the 6x6 18-ton M917A1/A2 models, the latest A2 model having an 11.1 m³ Crysteel dump body and sharing driveline components with the M916A3.

The 6x6 M918 mounts a bituminous spreader manufactured by E D Etnyre and Company of Oregon and is used for distributing liquid bitumen for road and airfield construction. The M918, which was only produced in A0 configuration and by AM General, shares driveline components with the M916A0.

The 8x6 M919 mounts a concrete mixer manufactured by the National Concrete Machinery Company of Lancaster, Pennsylvania. It can transport dry concrete ingredients and water, mix the ingredients in various increments and proportions and pour the mixed concrete. The M919 can also be used as a central mix plant, where large amounts of concrete are required at a single location. The M919, which was only produced in A0 configuration and by AM General, shares driveline components with the M916A0.

The 8x6 M920 tractor truck is used to haul semi-trailers and was only produced in A0 configuration and by AM General. The M920 shares driveline components with the M916A0.

Freightliner has developed other M915 series variants. An M915-based load handling system (LHS) rigid truck and trailer combination was proposed to the US Army in 2005, and rigid chassis variants of the M915A3 in flatbed and septic tank variants have been produced for the US military. An M916-based wrecker has been supplied to the Philippines.

Photographs:
Gordon Arthur, Shaun Connors,
Peter Felstead, Freightliner,
Google, Carl Schulze, US DoD



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All Steamed Up

Tim Gosling takes a look at the use of traction engines and steam rollers by the British Army during WW1

Top: a pair of McLaren's hauling massive naval 6-inch guns are parked up behind two of their internal engined successors, the Holt 75 caterpillar tractor.

Below: to make up a shortfall in crew the Royal Engineers took on a number of ships "stokers" from the Royal Navy who they believed would be well trained in shovelling coal into steam engines.

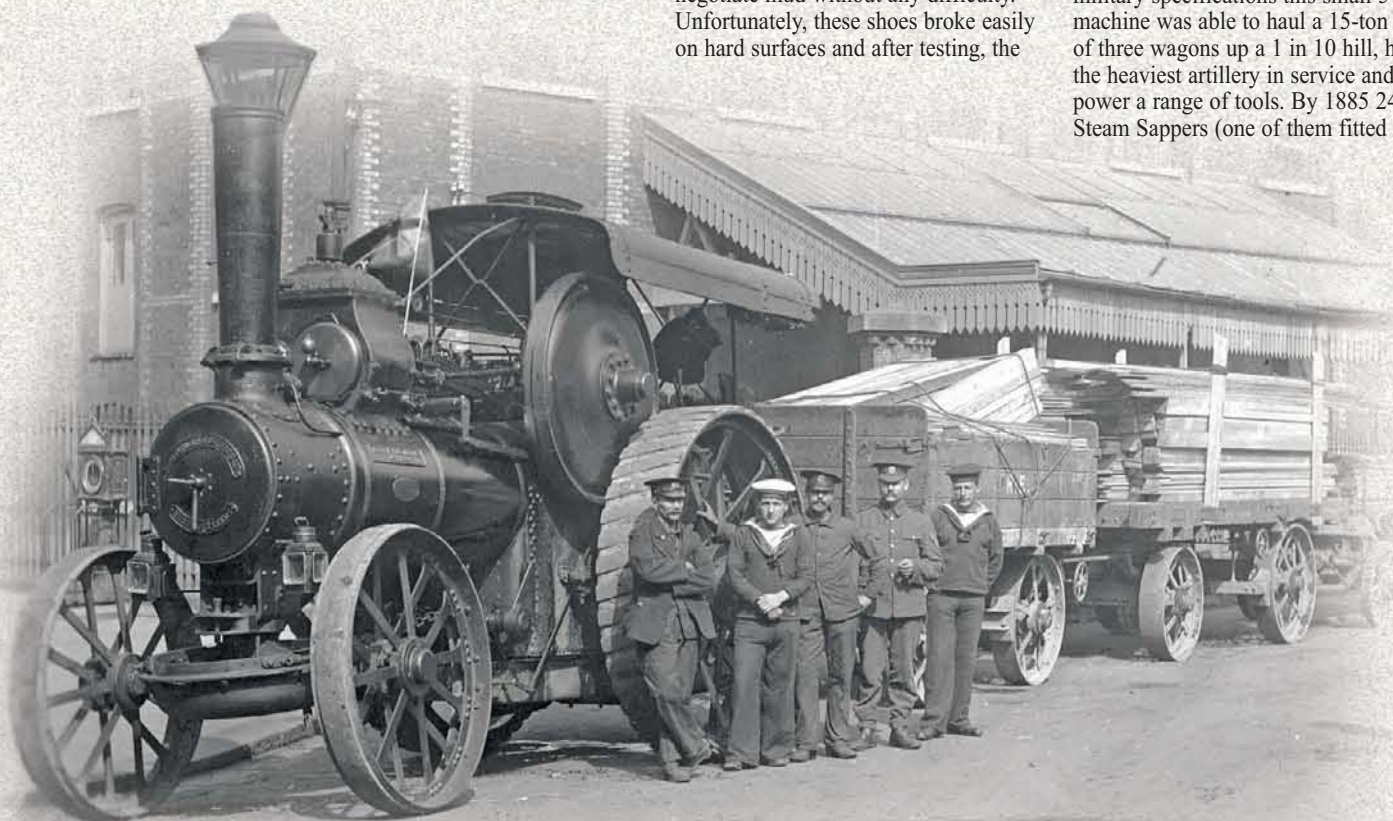
The French military engineer Captain Nicolas-Joseph Cugnot is credited as being the designer of the first self propelled mechanical vehicle. This was a three-wheeled steam lorry designed to carry a load of four-tons at speeds of just over 2 mph. The design did, however, have some inherent faults. Because the front wheel took both the weight of the boiler and the driving mechanism it was very unstable. Nicolas had not considered brakes to be important and in 1771 his

second steam lorry demolished the wall of a French arsenal when it crashed into it. The Cugnot project was eventually abandoned and there was no further development in steam-powered vehicles for nearly 80 years.

In 1857 the British War Department (WD) tested their first two traction engines. Built by James Boydell the most notable feature of these engines was that the wheels were fitted with wooden and iron shoes that reduced the ground pressure and allowed it to negotiate mud without any difficulty. Unfortunately, these shoes broke easily on hard surfaces and after testing, the

WD disposed of both engines the following year. They were not finished with traction engines yet as in the same year they also purchased one manufactured by William Bray. Although it performed well during tests the WD declined to buy any although in 1860 the Admiralty did purchase two for moving heavy loads around shipyards.

In January 1869 the Royal engineers took delivery of an Aveling and Porter "Steam Sapper". Built to military specifications this small 5-ton machine was able to haul a 15-ton train of three wagons up a 1 in 10 hill, haul the heaviest artillery in service and power a range of tools. By 1885 24 Steam Sappers (one of them fitted with





Below: the number 951 on the side dates this Foster built Wellington Tractor to 1908.

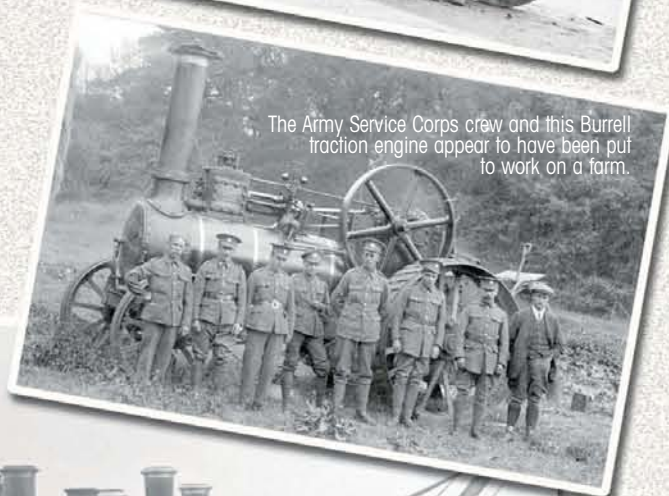
a crane) were in service with the Royal Engineers and Aveling & Porter were also selling them to the French, Italians and Russians.

The Germans had also gained an interest in steam power and in 1869 they took delivery of eight British built Fowler traction engines and used them for hauling ammunition wagons and guns for use against the French in the Franco Prussian War of 1870. Although the Russians also bought some Fowlers in 1874 it was not until 1884 that the British War Department purchased two, very capable Fowler road locomotives. With diminishing opposition from the "horse lobby" the interest in steam traction engines was on the rise. Manoeuvres with hired engines demonstrated their capabilities and funding was made available to

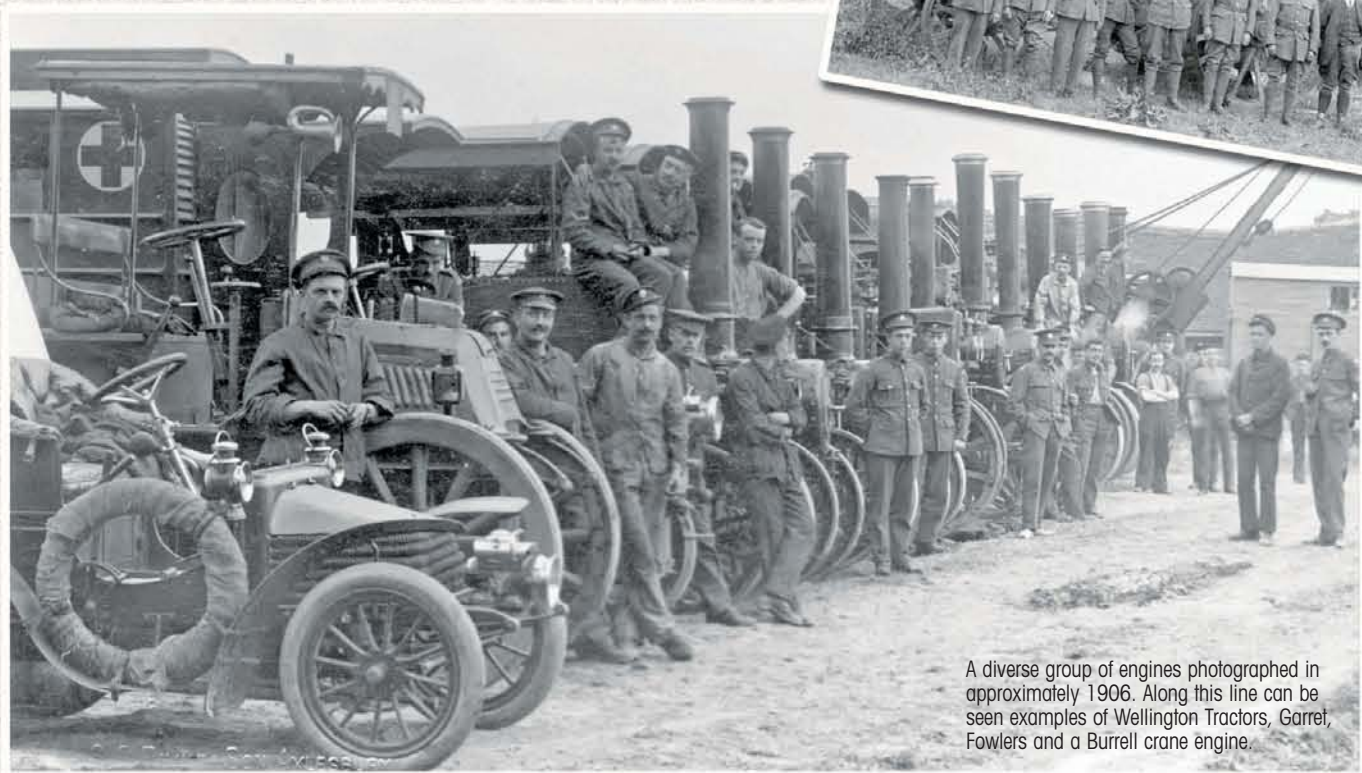
purchase more. This was perfect timing, as they would soon be required in a very distant war.

BOER WAR

The second Boer war started on 12th October 1889, and the War Office appointed to the post of Director of Steam Road Transport a Colonel Templer. Templer quickly scoured the country for available traction engines and, having found eleven departed for Cape Town. A second consignment of nine engines was delayed when the ship they were on ("Denton Grange") ran aground in the Canary Islands. As the engines were unloaded on to another ship it was commented that they had survived several weeks under water much better than the horses



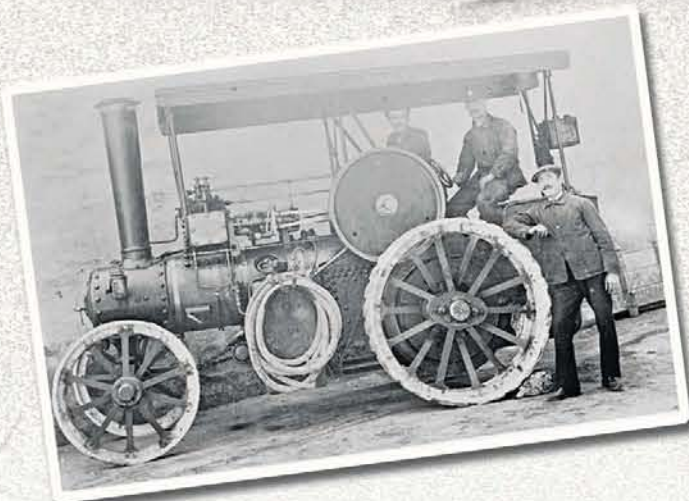
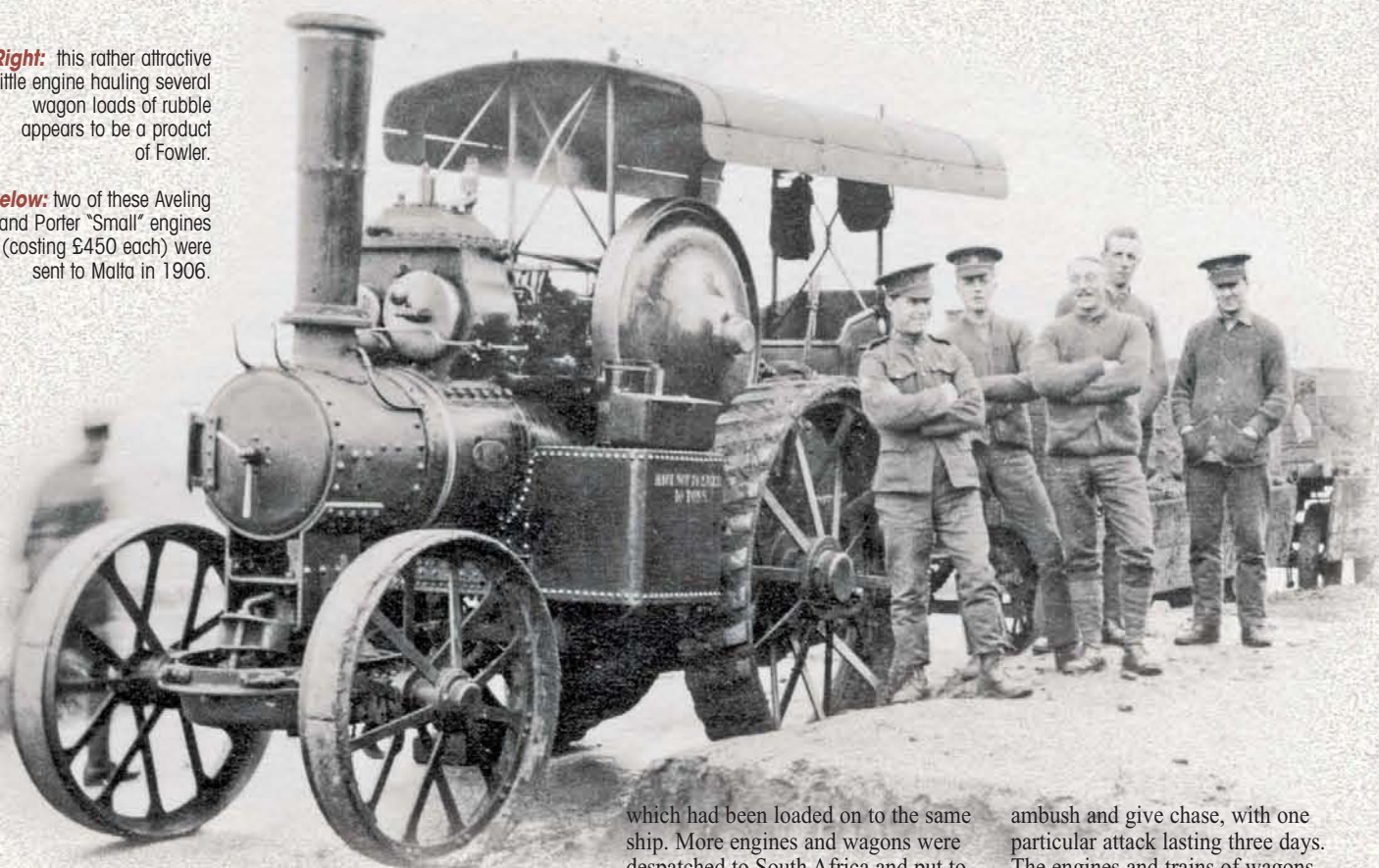
The Army Service Corps crew and this Burrell traction engine appear to have been put to work on a farm.



A diverse group of engines photographed in approximately 1906. Along this line can be seen examples of Wellington Tractors, Garret, Fowlers and a Burrell crane engine.

Right: this rather attractive little engine hauling several wagon loads of rubble appears to be a product of Fowler.

Below: two of these Aveling and Porter "Small" engines (costing £450 each) were sent to Malta in 1906.



which had been loaded on to the same ship. More engines and wagons were despatched to South Africa and put to work hauling guns and trains of wagons. Six fully armoured engines each with a train of three armoured wagons and two 6" guns were ordered with the first arriving in July 1900. The driver's visibility must have been severely restricted and the heat in the enclosed cab unbearable. It is therefore not surprising that the armour was soon removed and the wagons parked and used as blockhouses.

Despite this setback the traction engines performed an excellent job in transporting supplies to and wounded back from remote outposts. As the engines and wagons steamed across the veldt the Boers would often

ambush and give chase, with one particular attack lasting three days. The engines and trains of wagons would outpace the Boers and although suffering casualties no trains were lost. By the end of the war 46 traction engines had been sent to South Africa, 41 of which had been built by Fowler. Some more had been commandeered or purchased locally to give a total of 53. With the end of the war just four were kept by the Royal Engineers, one had been scrapped and the remainder were sold to the Central South African Railway.

STEAM ROLLERS

The Aveling and Porter "Steam Sappers" purchased by the Royal Engineers could be fitted with extra wide wheels to convert them into steam rollers for road building purposes. Such a capability was not widely put to use, however, but the crumbling roads of the Western Front would change this. Operated by the Royal Engineers, newly purchased (or

Below: although ideal for moving the heavy guns (such as this 8-inch howitzer) the 16-ton weight of this Fowler was too much for the improvised wooden road surface.





Left: operated by the Royal Engineers, Fowlers such as this one would be used for hauling wagon loads of supplies.

Below: this Fowler Tiger has just been rebuilt in the army Service Corps workshops at Rouen.



in some cases commandeered) steam rollers were brought to the Western Front for use by road construction companies. By the end of the war there was a variety of rollers serving on the Western Front, including 42 Fowlers, 10 Wallis & Steevens, as well as a number of Marshalls. Not by any means a glamorous role, but crucial never the less. Steam rollers would continue to be used in WW2 for road and airfield building.

In January 1903 the first Army Service Corps mechanical transport unit was formed and the control of all traction engines was transferred to it from the Royal Engineers. These engines were predominantly Fowlers but also included a Burrell, a McLaren,

a Tasker and a Wallis & Steevens. Three years later this fleet had more than doubled in size and now included examples from Fosters and Aveling and Porter. These machines demonstrated their worth in the manoeuvres of 1905 in hauling guns, ammunition and equipment, but by the 1912 manoeuvres it appeared that their role was being taken over by the newly emerging motor lorries. The lorries had the advantage of being faster, could travel further without refuelling and only needed one driver. If it wasn't for the lack of a suitable motor lorries to pull the heavier loads the traction engine would have become redundant altogether.

The first part of the war on the



Above: the Fowler "Lion" really is an enormous engine and makes a fabulous backdrop for this group photo.

Below: the products of Clayton and Shuttleworth were also used in the war effort. This particular example having an exceptionally diverse crew.





“From 1915 the US built Holt caterpillar tractors began to arrive...”



Top: a McLaren hauling massive naval 6-inch guns parked up.

Above: the reason why the McLarens are parked up is that the Holt in the front has thrown a track, which I am sure gave the crew of the traction engine a smile.

Western front was a very static affair. Although the troops still needed supplies of food and ammunition the noise and smoke made by the traction engines would attract the attention of the enemy artillery and they were wisely kept away from the front. They did however excel in two roles, that of towing heavy equipment for the Royal Engineers and hauling the heavy guns of the Royal Garrison Artillery.

The 8-in, 9.2-in, 12-in howitzers and 6-in guns were particularly difficult to move and the larger howitzers were broken down into several more manageable loads. As the guns were usually sited well back

from the front line the steam traction engines were ideal to move them. From 1915 the US built Holt caterpillar tractors began to arrive and take up some of the duties with the Royal Garrison Artillery but they never arrived in such numbers as to replace the traction engines altogether. By the end of the war there were just 65 traction engines serving in France, 66 serving in the UK while 61 others were in workshops awaiting repairs.

ON THE FARM

Being only able to produce just one third of Britain's total food requirements placed an enormous reliance upon the importation of food from Australia, New Zealand and America. In order to reduce the amount of food being imported, the War Department formed agricultural companies, which consisted of soldiers with a farming background to work the land. To assist in the harvests experienced engine drivers of the Army Service Corps would travel from farm to farm to operate the steam engines required to run the threshing machines. These engines were primarily hired from agricultural contractors and could be of quite diverse manufacturers. Although not

often mentioned in the history books these soldiers played a crucial role in preventing the country from starving.

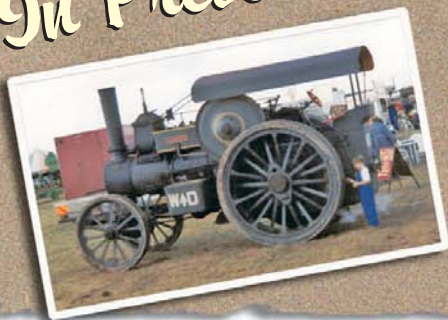
MALTA

The island of Malta was the headquarters of the British Mediterranean fleet and its location made it a vital military base. In 1903 the first traction engine (a Fowler) was sent out there and by 1914 seven traction engines (including at least two Aveling and Porter and two Fowlers) were serving on the islands. Several steam rollers were used in Malta for maintaining the airfields during World War 2, and at least one traction engine was still in use as it was hit by a German bomb at the RASC depot in Valetta in 1942. One of the few vehicles to have served continuously from world war one but then be destroyed in action during WW2.

SURVIVORS

Strangely enough there are several survivors of traction engines and steam rollers from the Great War. When the army disposed of them they found a second lease of life in road making, heavy haulage and as Showman's engines. Sadly, the muddy green colour preferred by the Army Service Corps is not a popular choice with their current owners, so this short stage of their lives is rarely depicted.

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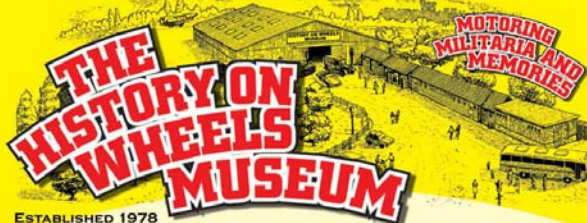
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Brazilian *Off Roader*

Santiago Rivas describes the Agrale Marruá, one of the most successful all-terrain vehicles built in Latin America

The Agrale Marruá is one of the most successful all-terrain vehicles to have been built in Latin America. Simple, versatile and dependable, it quickly won the appreciation of its operators. In the mid eighties, the Brazilian company Engesa S.A. had developed the EE-12 an all-terrain light vehicle, with civilian variants known as the EE-4. Both models were well liked and the EE-12 was soon adopted by the Brazilian Army, which purchased 56 examples, while further examples were sold to armies around the world with Angola,

Jordan and Surinam acquiring 92, 200 and 20 respectively, however, in 1993 the company went into bankruptcy, effectively ending production.

The Engesa engineers that had worked on the project continued to work on the vehicle, and at the end of the nineties local company Columbus and Ceppe took an interest and decided to develop an improved and modernized version with a wider range of variants that would fulfill a request from the Brazilian Army for a half-ton, 4WD general purpose vehicle, designed and built locally. After several

“Simple, versatile and dependable, it quickly won the appreciation



years of development, three prototypes were built at the Sao Paulo War Arsenal and rolled out on February 2003 bearing the name Marruá. One was sent to the Army for trials, competing against the Troller T-4M, a militarized version of the civilian Troller T-4, and the Cross Lander CL-244, a military version of the Romanian designed ARO 244, which is now built at Manaus, Brazil, by the Cross Lander Company.

Following the interest shown in the Marruá by the Brazilian Army, the constructors, which at the time didn't have the capacity to build the vehicle in large numbers, started to look for investors, and the company Agrale, which builds trucks, buses and tractors in Brazil, decided to bid on the project and in 2003 announced an investment for 4 million dollars on the vehicle, now called Agrale Marruá, with production beginning in February 2004. The tests by the Brazilian Army continued at the Army Test Centre (Centro de Avaliações do Exército,

of its operators."



CAEx), reaching final certification on 27th July 2005 and in the following year the model was pre-selected together with the T-4M, with an initial order of eight units to continue the tests. All of them were of the AM1 Euro II version, with capacity for four equipped soldiers, called VTNE by the Brazilian Army.

The company, with an important presence in all Latin America, immediately started to offer the product for export, succeeding in gaining the interest from the Argentine Navy and the Ecuadorian Army. The first of them tested the vehicle intensively and determined that, despite its very simple design, the Marruá had an amazing sturdiness and stability, and an initial order for 18 examples was ordered in 2008, which were received by the Argentine Marines for operations with the UN peacekeeping force in Haiti. This deployment started in 2009 and continues today, being the first use of the Marruá in theatre.

The Argentine Navy acquired the transport version AM 20 Euro II, with a cargo body capable of taking up to 750 kilos of cargo, and the AM 20 Amb Euro II ambulance version, equipped for intensive care. Orders followed in 2011 for two AM 10, six AM 10 Rec Euro II for reconnaissance and four AM 20. Also, in 2009 the Argentine Air Force purchased several



examples of the ambulance version. According to the Argentine Marines, the Marruá performed very well in Haiti, thanks to the mentioned characteristics and was found to be very simple and cheap to maintain.

While the Argentine Navy was receiving the Marruá, the Brazilian Marines (Fuzileiros Navais), also ordered a small batch for tests, which were different from those delivered to the Army in that they had anti-corrosion paint and modified brakes for improved operation in the sand. The Brazilian Navy purchased the four-man AM 1MB, based on the AM 1 Euro II

Top: AM 31 VTNE showing its capacity to carry up to twelve soldiers in the rear.

Above: AM 11 Rec Euro III, with smoke launchers and the mount for a machine gun, here shown with a FAL rifle.

Top left: Marruá ambulance variant belonging to the Argentine Marines.

Below: Marruá AM 2 pictured here during a high-speed water crossing.





“The Marruá is being offered in many different variants according to the needs of the end user...”

Top left: the Cross Lander CL-244, which ultimately led to the development of the more modern Marruá 4x4.

Above left: Engesa EE-12.

Top right: Marruá AM 1 pictured here on display at a defence equipment show.

Above right: a Marruá AM 100 on display, clearly showing the longer wheelbase.

Below from left to right: details of the front lights and protection on the AM 1; shovel stored on the right front wing of the AM 1; the axe is carried on the left side of the rear body on an AM 1; rear right three-quarter view of the AM 1.

and also asked for the development of a five-man version, known as the AM 2 MB and based on the AM 2 Euro II.

By the end of 2007 the Brazilian Army finished the tests of the vehicle and declared it operational, with a large order quickly following and currently more than 200 are in service. In 2008 the Ecuadorian Army ordered 18 examples of the AM 10 Rec Euro II for reconnaissance roles, with a mounting for a machine gun, capable of turning through 360° and with a cargo capacity of 750 kilos.

The last export order for the Marruá occurred in 2011, when the Argentine Army purchased the AM 10 and the AM 20 for combat intelligence units and ambulance versions, while the Paraguayan Army Presidential Escort Regiment was equipped with a small batch of AM 10.

MARRUÁ VARIANTS

The Marruá is being offered in many different variants according to the needs of the end user, with the AM 1 Euro II being the basic model, with capacity for four occupants or 500 kilos of load (plus 500 kilos towed) and a canvas or hard roof. This version was improved with the AM 2 Euro III, with a new MWM Sprint model 4.07 TCE Euro III diesel engine, instead of the TCA version.

The second version is the AM 10 Euro II, with longer chassis (also called AM L) and with capacity for five occupants or 750 kilos of load (plus 500 kilos towed), which was also improved with the AM 11 Euro III. From this version the AM 10 Rec Euro II was developed, which was improved with the AM 11 Rec Euro III, both variants being used for

reconnaissance. They are usually armed with 7.62mm MAG or 12.7mm Browning machine guns, but can also be equipped with anti-tank missiles, and a version carrying a recoilless 106mm gun was developed but not built.

Using the same chassis as the AM 10, but with a two seat cab and a separate cargo area behind and either a canvas covered or hard roof, the AM 20 Euro II was built, from which evolved the AM 21 Euro III. The ambulance versions AM 20 Amb Euro II and AM 21 Amb Euro III only differ in the construction of the rear body, which is totally enclosed and equipped for intensive care or the transport of wounded personnel. Another similar development is the AM 20 VCC Euro II or the AM 21 VCC Euro III, with a rear box type body designed to serve



Marruá Variants



Left: view looking at the interior of the ambulance version of the Marruá AM 20. The stretchers are seen either side of the interior, with a seat in the centre for the attendant.

Below: the Marruá AM 20 Amb, ambulance variant is fitted with a well equipped rigid type body.

Below centre: interior view of the cabin on the AM 1, compare this with the photo shown bottom right that features the interior of the Marruá, a much more modern interior altogether.



Right: AM 31 VTNE is put through its paces in rugged cross-country terrain.

Far right: the military Marruá production line.

Below left: AM 1AM 10 of the Argentine Army seen here towing a military ATV.

Below right top: Marruá AM 20 VCC, fitted with a command post rigid body.

Below right centre: Marruá AM 20 with rigid roof cabin, of the Argentine Marines.

Bottom: one of the AM 10 delivered to the Argentine Army in September 2011.



as command and control post, with communications and other equipment installed.

In May 2011 Agrale introduced the AM 31 VTNE of 1.5-tons with 4WD, developed to fulfill the needs for a vehicle with 1500 kilos of cargo capacity and with the ability to tow 1500 kilos.

Agrale also went on to develop civilian versions, which were successful among private customers and various security forces and government agencies in Brazil. The first is the AM 100 Euro II and Euro III, a pick up with hard roof, with capacity for 1-ton of load and with a version with enclosed cargo box. Another version is the AM 2000 CD Euro II and Euro III, with a longer chassis, four-man cabin and a smaller cargo body, but with a total cargo capacity of 2-tons.

SPECIFICATIONS

The Marruá is an extremely versatile 4x4 with the capacity to operate in all kind of terrain. It is capable of climbing with up to 60% inclines or to travelling on terrain with up to 30% of lateral inclination. It is also capable of wading up to 60cm without any prior preparation.

The new Euro III models have the MWM Sprint model 4.07 TCE Euro III four-cylinder diesel engine of 2.8-litres capacity, while the Euro II use the TCA version, of 132 CV. The maximum speed on all variants is 128 km/h with a range of 1,000km for the AM 1 and AM 2, 800km for the AM 10, 11 and 100 and 700km for the AM 20, 21 and 200.

The short chassis versions have a length of 3.9 m, while the AM 10, 11 and 100 are 4.56 m long and the others are 5.21 m. All versions are 1.74 m wide, except for the longer wheelbase variants, which are 2.16 m or 2.31 m.

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Independence Day

Franz Tinio-Lopez reports from a 4th of July parade held in California

Joe Garbarino's WW2 U.S. Military Vehicle Museum is to be found in San Rafael, northern California, and the museum is unique in that it brings out the vehicles from the collection to participate in US Independence Day parades on the 4th of July each year. Just across the Golden Gate Bridge from San Francisco are the different communities of Marin County and on this occasion the city of Novato had 40 wheeled vehicles and 10 tanks from Joe's collection participating in the 4th of July parade.

Other cities invite the Garbarino vehicles to be in their parade so they can use them in their promotions, but Joe has to balance the availability of drivers, vehicles, tanks, fuel, heavy road transport and parade schedules before selecting which event to attend. For 2011, the towns of Larkspur and Corte Madera were able to feel the rumble of tank treads even if they were light and few.

It is Garbarino's way of sharing his collection with the community and demonstrating his appreciation to the veterans who served in different wars. He invites veterans to ride the vehicles in the parade, and some are still able to drive them! Joe Shiro, a native of Marin County, whose family like many with Japanese ancestry on the west coast were put in detention camps, joined the US Army's Nisei 442 Regiment who's motto was "Go For Broke". Shiro had a 1941 slat grille Willys MB dedicated for him to drive in the parades.

Several friends have taken up Joe's invitation to drive his collection in the parade, as the numbers of WW2 veterans who are able to drive the vehicles are getting fewer. One of them who makes the yearly visit is Olivier Mirabel-Chambaud from France. He is the son of Jean-Marie Mirabel-Chambaud who had his own collection of military trucks in Southern France. Joe purchased his father's 1944 Willys MB on the condition that Olivier would come and drive the Jeep on July 4th.





As a child growing up in WW2 he would see the returning soldiers, airmen, sailors and Marines at the San Francisco Embarcadero waterfront. His family had the contract to collect the garbage in the area and they would recycle the uniforms and gear that the returning troops wore and were ordered to exchange for new ones. He made friends with many Military Policemen who guarded gates at the port when he went with his relatives to pick up their loads every day, which could be the reason why many of his vehicles have sirens attached just like those fitted to MP's Jeeps.

Robert "Bob" Penn was a US Navy veteran helping out at a friend's auto restoration business after he retired. They did work on some Joe's vehicles, and Bob would later supervise the maintenance of Joe's collection as it grew. "Joe Garbarino started his collection with one Jeep, which he sold to Terrance F. O'Connor of Classic Military Automotive in Santa Rosa, California and later bought it back after it was restored," Penn recounted.

"Joe got bitten by the bug and we would go all over to look at vehicle collections that were being sold," Penn continued. Some vehicles came from the collection of Jacob "Yap" de Groot who was a good friend of Garbarino and Penn. De Groot owned the George C. Marshal Transportation Museum in Zwijndrecht, Netherlands before he

Top left: 1942 M3 Half Track made by Diamond T Motor Car Company according to the data plate information.

Above: this M22 Airborne Light Tank "Locust" could be transported by General Aircraft Hamilcar glider and was manufactured in the USA. 260 were shipped to Britain under the Lend-Lease Act, however, only eight ever saw action with British airborne forces in Operation Varsity in March 1945. The Garbarino crew replaced the steel tracks and drive sprocket with those from a M5 light tank, as the rubber track pads would not tear up the pavement.

Main photo left: & below: to cure overheating of the Cadillac engines while at idle and low speed during a parade in this 1941 M5A1 Stuart Light Tank, Bob Penn used a modern solution and attached aftermarket electric fan blowers to the radiators that sit over the engines. This ensured a constant flow of outside air through the radiators and into the engine compartment.





Top right: Diamond T Model 968A Truck, Cargo, 4-ton, 6x6 (G509) seen here during the parade.

Group above: from top to bottom we have a 1941 Willys MB driven by WW2 veteran Joe Shiro of the 442nd Regimental Combat Team who's moto was "Go for Broke"; a 1941 Bantam BRC 40, 4x4 1/4-ton; and one of the Jeeps that General Patton may have used during the war, which came from the collection of the Belgian WW2 Victory Museum.

Right: WC56 Dodge Command Car, 3/4-ton, 4x4, w/o winch (G-502). This Command car with a '4 Star placard' is driven by Joe Garbarino himself in the parade.



passed away in 2011. "We even had axis vehicles at one time from the Belgian WW2 Victory Museum. Joe traded them off, but we have the Italian ones because of Joe's family heritage.

The Patton Jeep came from there, but I had to do a lot of work on it. When we cleaned it off, I was able to get a sample of the gloss green paint off the body that we used when we restored the jeep," Bob pointed out.

Some tanks were recovered from military bombing ranges, steel recycling plants. "We had to weld over the shell holes and fill in the cuts that were made to demilitarize the tanks before they were sent out for disposal," Bob Penn said. "That the Garbarino's have been in the recycling business for more than 50 years provides some leads from people who know about Joe's interest to preserve history," he added.

The Garbarino museum was featured on the TV show "Tank Overhaul" (season 2, episode 3). Mechanic Ed Nave has since retired, Paul Schaumleffel who also works for

the Garbarino's Marin Sanitary Service, now has the job of getting the 64 plus vehicles ready for the next year's parade. The father and son team, Christian and Carlos Garcia still work in the "restoration shop", when they are not working on the truck bodies of the Marin Sanitary Service company. The pace of work picks up at the Museum, as it gets closer to July.

THE PARADE

The day before the parade, Joe's friend Gary Ghilotti's and other heavy equipment transport trailers fill the upper parking area in the yard, to ferry the tanks to parade starting points. The wheeled vehicles are staged in the order they will run in the parade and on the morning of the 4th Joe's friends and volunteers gather at the staging lot to be briefed about the route to the parade. When Joe Garbarino gives the word to move out all vehicles start up and drive off in convoy. The tractor trailers with the tanks usually leave ahead, while the 1954 Dodge





M35 2.5-ton 6X6 truck with an extended cargo bed used to carry the Pearl Harbor Survivors of Marin County in the parade.



The unfortunate honor of being towed in the parade came to the M24 Chaffee which stalled and could not be restarted.

maintenance truck and the 6x6 wrecker take the tail end just in case there are any breakdowns.

The parade staging/start area is the last chance to get on a vehicle and find a seat. The skill of the tank drivers has to be appreciated, they have people hanging on the outside, some pedestrians and spectators crossing in front of the vehicle, stopping, starting and turning to avoid curbs and other objects that will be damaged by the tracks and weight of the tank. It's a case of following the tank in front, with the only guide being the rider on a BSA motorcycle who moves up and down the convoy as it travels at

walking pace down the parade route.

The 4th of July is an opportunity for Americans to express the celebration of independence in their own way. Summer visitors to the area can look up the parade schedule on the websites of the cities of Marin County, California to find out where the tanks will be appearing and while Joe Garbarino's Museum is a private collection, visits can be requested and veterans are always welcome. The sign at the door reads: "These vehicles are being preserved in honor of the United States Veterans who served in harms way, and the heroes who never made it home."



Diamond T Model 820 M20 12-ton Truck 6x6.



Top left: 1941 BSA M20 belonging to Ed Meagor of San Rafael, it is one of 50 motorcycles he owns.

Below: the driver of the M1A1 Ward La France wrecker did a great job towing the M24.

Below centre: post-war Lancia TL51 truck.

Bottom right: Dodge WC 25 1/2-ton, 4x4, radio or reconnaissance radio body, w/o winch.



BRONNITSKY

Jim Kinnear & Alexander Koshavtsev report from Russia's Premier Closed Military Exhibition

A truly eclectic mix of military vehicles was displayed at the 2011 Bronnitsy show, a significant number of which were displayed by the BAZ plant in Bryansk, which was for a number of years renamed BZKT, but has now reverted to its original name. BAZ demonstrated several vehicles in its "Voshina-1" series, consisting of a range of all-terrain vehicles in 6x6, 8x8 and 10x10 configurations, with "pick n mix" modular cab combinations, and partial or full armouring options available on all cab types. The series first appeared more than a decade ago but has only in the last couple of years been produced in small numbers for military service.

BAZ has apparently now completed around 200 of the "new" BAZ-6909/6910 "Voshina-1" series. The standard width of the series was originally set at 2.75m for compatibility with military equipment mounted on earlier generation KRAZ vehicles; however in February 2011 the decision was made to increase the vehicle width to 3.1m for some vehicles, to minimize the





Top left: the KamAZ-6350 8x8 is the largest of the "Mustang" series, powered by a KamAZ-740.50-360 engine developing 360hp giving the large vehicle a 10,000kg all-terrain load capacity.

Top centre: a Ural-4320-43 was displayed at Bronnitsy with specialised radar-absorbing camouflage.

Top right: the KZKT-74281-012 KET-TM evacuation and technical support vehicle can evacuate vehicles in weight classes of 36-52 tonnes depending on the particular ground conditions.

Left: the BAZ-6909-22 8x8 chassis is used as a TEL vehicle for the S-400 SAM system and was prominently displayed at the show.

Far left bottom: the 8x8 Ural-532341-1010 is an APC with an armoured cab and separate troop compartment maximizing protection against mines & IEDs. More on the armoured vehicles at Bronnitsy next month.



Top right: large all-terrain vehicles such as the KamAZ-63501 are increasingly being used to mount heavy equipment previously mounted exclusively on tracked vehicles.

Right: the 6x6 KamAZ-5350 is powered by a KamAZ 740.30-260 engine. It can transport 6000kg and tow up to 8000kg.

Above left: the KamAZ-4350 4x4, is the base model in the "Mustang" series of all-terrain vehicles from Kamaz.

Right: a KamAZ-53501 6x6 water tanker vehicle seen on display at Bronnitsy 2011.

Far right: the KamAZ-6350 artillery tractor has an armoured cab and module for the 6-man gun crew. Powered by a KamAZ-740.50 diesel engine, the vehicle can travel at 95km/h on the road with a range of 1000km.

Right: the KamAZ-63501 ML-10 multilift vehicle can load or offload an 11,000kg cargo body or container in 60 seconds. The load system is designated LDS-79271.

Below right: rear view of the lift and recovery equipment on the Ural-5323-21 based KET-L that was on show at Bronnitsy.



centre of gravity for heavy-duty military applications. The new 8x8 BAZ-6910 chassis is for-instance intended to replace the Soviet era MAZ-543 series and rival the current Byelorussian MZKT-7930 series for mounting the huge range of specialised weapons systems currently mounted on these Byelorussian built chassis.

The KamAZ plant demonstrated its well-known range of all-terrain vehicles in 4x4, 6x6 and 8x8 classes, with standard cargo vehicles and specialised variants on display, together with the KamaZ-43269 "Vistrel" wheeled patrol vehicle. One of the largest KamAZ vehicles on display was the "Pantzyr-S1" system, mounted on a KamAZ-6560 chassis, with ZF automatic transmission and the luxury of air conditioning. According to statistics from the Bronnitsy show, the Pantzyr-S1 system has been exported to Algeria (38), Morocco (50), Oman (12), Syria (36) and UAE (16), with some of these systems built on German MAN

chassis. The Russian Army meantime has ten systems in service on long-term evaluation. KamAZ also demonstrated the 6x6 KamAZ-65226 tractor and ChMZAP-9990-073-02 tank-transporter semi-trailer combination, which, powered by an imported 544hp Deutz diesel engine, can transport a 40-tonne load at 60km/hour to a range of 1000km.

KamAZ announced to the press at the Bronnitsy exhibition a somewhat ambitious project to by 2013 also develop vehicles to replace the current MZKT (formerly MAZ) multi-axle tractor vehicles used in all manner of military applications by the Russian Army. As the Russian press noted sardonically, the MZKT plant, now located in independent Belarus and the de-facto producer of such vehicles since the 1960s to the present day, has the undisputed monopoly in experience of building such vehicles with their highly specialized transmissions and running gear; whereas KamAZ has no such prior experience.

"The KamAZ plant demonstrate



INDIGENOUS DESIGN

The drive to develop Russian indigenous multi-axle designs, currently led by KZKT and BAZ is largely political in that relations between Russia and Belarus have been somewhat fraught of late, but the technical challenge is not inconsequential regardless of how much state money is allocated to the project. Projected KamAZ replacements for MZKT vehicles are an 8-axle, 16x16 chassis with 85-tonne load capacity for ICBMs, a 6-axle, 12x12 chassis with 50-tonne load capacity (for MRBMs and theatre level rockets), a 4-axle 8x8 tractor truck for towing semi-trailers with a train load capacity of 90-165-tonnes and a 4-axle 8x8 ballast tractor for trailers of up to 75-tonnes capacity.

Although the ubiquitous designs from BAZ dominated the Bronnitsy show, all the other Russian military vehicle manufacturers large and small were represented in varying degrees. KZKT, the Kurgan wheeled tractor plant, which builds modernized variants of large all-terrain vehicles with parentage common to MAZ, demonstrated the KZKT-74281-012 based KET-TM heavy evacuation tractor, which, powered by a YaMZ built V-12 diesel engine, can evacuate vehicles in its own weight class (36-tonnes) in rough terrain or up to 52-tonnes on made roads.

In years gone by, ZiL vehicles such as the 4x2 ZiL-130 and 6x6 ZiL-131 were ubiquitous in Soviet Army and Warsaw Pact service, but ZiL fell out of favour with the Russian Army in the post-Soviet era; with the development

of more powerful vehicles across all vehicle classes by Ural and KamAZ squeezing ZiL out of military vehicle niches it had dominated for decades. ZiL is however now making a military vehicle comeback with its smaller ZiL-4327 4x4 all-terrain vehicle series, all powered by an MMZ D245.9 E3 diesel engine developing 132hp. The base vehicle in the series is the ZiL-43272N, with a 3000kg all-terrain load capacity, a maximum speed of 90km/h and a range of 1000km. The steel cargo-bodied ZiL-43273 can transport a load of 3370kg with similar performance, while the longer wheelbase ZiL-43274N has a seven seat cab and 1000kg all-terrain capacity.

Below are some of the new and recent vehicles demonstrated at the Bronnitsy show in 2011, representing a considerable and long overdue modernization of the Russian Federation's military vehicle fleet.



Above: the KamAZ-6560 is used as the chassis for the "Pantzyr-S1" SPADS.

BAZ-6306U

The BAZ-6306 ballast tractor is a descendant of the rarely seen BAZ-6953 wheeled artillery tractor. The vehicle can transport an 11 to 15-tonne load across any terrain or tow a trailer with 50-tonne load on hard road surfaces at a maximum speed of 70km/h. Power is provided by a YaMZ-849 diesel engine developing 500hp. The vehicle is air transportable in the An-124, An-22 and IL-76 aircraft.

BAZ-6402-015

The BAZ-6402-015 6x6 semi-trailer tractor truck has an all-terrain towing capacity of 28-tonnes, or 29.5-tonnes on hard surfaced roads. Roles include tractor vehicle for the trailer mounted 5P85TM TEL and trailer-mounted 5T58 TZM reload vehicle for the S-300 and S-400 SAM systems, the

and its well-known range of all-terrain vehicles..."



Far left: a KamAZ-5350 6x6 long-range communications vehicle.



Left: ZiL-43273 is a longer wheelbase version of the ZiL-43272N with a load capacity of 3700kg and similar performance.



Left: the short wheelbase 4x4 ZiL-43272N has an all-terrain load capacity of 3000kg, a road speed of 90km/h and a range of 1000km.



Top right: the 5T58 TZM reload vehicle for the S-400 SAM system is towed by the BAZ-6402 6x6 tractor truck.

Above left: the BAZ-6306U 8x8 ballast tractor replaces the earlier and rarely observed BAZ-6953.

Far right: the REM-KS evacuation and repair vehicle is based on the BAZ-6910 8x8 chassis.

Below: the BAZ-69096 10x10 chassis has been developed for next-generation heavy military equipment including the "Triumfator-M" (S-500) SAM systems and its associated radar and support equipment.

Bottom left: the BAZ-6403.01 8x8 tractor truck with three-axle tank transporter trailer.

latter transporting four missiles in their fibreglass containers. As with all vehicles in the series, the 16.3-tonne BAZ-6402-015 is powered by a YaMZ-849 diesel engine, developing 470hp. The vehicle has a maximum road speed of 80km/h, a range of 1000km and can ford to 1.7m.

BAZ-6403.01

The 8x8 BAZ-6403.01 tractor truck, with a vehicle weight of 19.8 tonnes, is used with semi-trailers with a capacity of up to 80 tonnes. Powered by the same YaMZ-849 diesel engine as the BAZ-6402-015, but developing 500hp, the vehicle is planned for use as a tank-transporter and with semi-trailer mounted equipment for the next generation "Triumfator-M" (S-500) SAM, including the 91N6A (M) mast mounted long-range radar and its associated 40V6MT mast, a sizeable piece of equipment in its own right, previously towed by MAZ-537 tractors. The BAZ-6403.01 is 3.1m in width rather than the 2.75m of the standard vehicles.



BAZ-69092-22

The 8x8 BAZ-69092-22 is described as a "special purpose chassis". The high mobility all-terrain vehicle is powered by the same YaMZ-849 engine developing 500hp as used on the BAZ-6403.01 tractor truck, giving the vehicle a load capacity of 22-tonnes combined with a speed of 70km/h and a range of 1000km. The vehicle also has a ground clearance of 0.485m and 1.7m wading capability. As demonstrated at Bronnitsy the vehicle was configured as the 5P90S TEL vehicle for the S-400 SAM system, mounting four S-400 launch tubes on the rear of the chassis itself rather than the missiles being mounted on a towed semi-trailer as with earlier versions of the system. This configuration goes back to that employed on the earlier 5P85S (S-300) SAM mounted on the MAZ-543 series chassis.

Other envisaged applications for the BAZ-69092-22 chassis are for mounting the 96K6 "Pantzyr-S1" SPADS system, the 55Zh6M radar and the 9T243M TZM (transporter-reload) system for the BUK-M3 SAM; and the 76T6 radar for the next generation "Triumfator-M" (S-500) SAM system.

BAZ-69096

The 10x10 BAZ-69096 specialized wheeled chassis is a new venture for BAZ into the larger multiple axle chassis previously the exclusive domain of MAZ. The BAZ-69096 is configured with two forward axle pairs with the rear three axles grouped

together. The 21-tonne vehicle, again powered by a YaMZ-849 diesel engine developing 500hp, can transport a load of 33-tonnes across any terrain, climb a 30° slope when laden and ford to a depth of 1.7m. The vehicle is intended to replace MAZ vehicles in a number of current and planned roles, including as the 77P6 TEL vehicle for the next-generation "Triumfator-M" (S-500) SAM system, mounting four launch tubes, and as the 77T6 TZM transloader vehicle for the same system. Other envisaged roles for the BAZ-69096 include as the mounting for other heavy equipment such as the very large 96L6, 96L6-1 and 96L6-TsP radars for the S-300, S-400 and next-generation Triumfator-M (S-500) SAM systems.

BAZ-6910

The 8x8 BAZ-6910 is used to mount general purpose and specialized military equipment, including the K6910/K6909 box body used for command vehicles, and the 1L269 and 9S116-1 radar systems. The REM-KS evacuation and repair vehicle is mounted on the BAZ-6910-21 chassis. With a centrally mounted repair module workshop and an IM95-1220 8-tonne manipulator crane, the 29-tonne REM-KS and its three man crew is used to evacuate and repair vehicles to a maximum combat weight of 23-30 tonnes.

Next month in our second report we will be taking a look at some of the various new armoured vehicles to be displayed at Bronnitsy in 2011.



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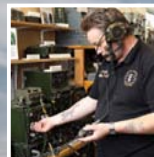
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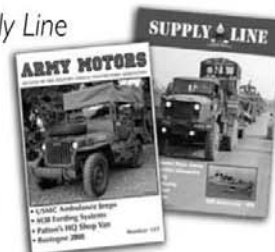
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The

M1044 HMMWV

The American High Mobility Multi-Purpose Wheeled Vehicle or HMMWV, is perhaps better known as the Hummer or Humvee has been in use with the U.S. Army, U.S. Marine Corps and many other countries around the world since the mid 80's. In that time many different variants have been produced, including armoured variants for use in troubledspots such as Iraq and Afghanistan. The vehicle shown here is a privately owned example belonging to Gordon Talbot and was converted from an M1038 to the M1044 up-armoured weapons carrier variant, as used by United States Marines in Iraq, with numerous additions to suit the hostile environment.



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British HUSKY

**Carl Schulze profiles the
British Army's Husky Tactical
Support Vehicle – Medium**

Main photo above: a column of Husky TSV-M of 42 Commando Royal Marines photographed in Helmand Province in 2011. The first and last vehicles are either Utility Variant or Command Variant versions, while the centre vehicle is a Heavy Weapons Variant.

The war in Afghanistan has seen insurgents fighting a bloody guerrilla war against the troops of the International Security Assistance Force (ISAF) and the Afghan National Security Forces (ANSF). In addition to small arms and shoulder launched anti-tank weapons, such as the RPG-7, the insurgents' weapon of choice is the Improvised Explosive Device. IEDs are responsible for more than 50% of the casualties of the coalition forces and in order to provide the British troops deployed to Afghanistan with protected vehicles suitable for conducting Counter Insurgency Operations in the harsh environment of Helmand Province, the Ministry of

Defence procured a comprehensive range of Protected Mobility Vehicles under the Urgent Operational Requirement (UOR) programme. One of them is the Husky Tactical Support Vehicle – Medium.

According to an official document by the Ministry of Defence Protected Mobility Vehicles are vehicles designed for a specific task that by their design allow the movement of personnel and loads on roads and tracks as well as off-road while providing protection against prevalent threats. While not fighting vehicles as such, Protected Mobility Vehicles are designed to operate in the direct fire zone and usually feature armament as

well as means for self-defence such as a smoke grenade discharger systems and IED counter measure systems.

Protected Mobility Vehicles are employed for combat, combat support, combat service support and administrative tasks and are divided into the following three mission related subgroups. Protected Patrol Vehicles (PPVs) are primarily used for patrolling and feature an armament with limited offensive capability and can be employed to conduct fix, strike and exploit operations. By their weight/protection level PPVs are divided into three categories: Light, Medium and Heavy. The PPV range includes the Land Rover Snatch



Vixen+, Ridgback, Mastiff 1, Mastiff 2, Mastiff 3 and the Foxhound.

Fire Support Vehicles (FSVs) are employed to provide direct or indirect fire support to dismounted operations. Due to their mobility they are also well suited for offensive tasks and can be employed to conduct find, fix, strike and exploit operations. Another role of FSVs is to provide force protection, for example to combat logistic patrols. The FSV range includes the Land Rover WMIK R+, Jackal 1 and Jackal 2.

Tactical Support Vehicle (TSVs) are employed on formation, unit and sub-unit level for logistic support purposes. Their armament is mostly of defensive means and they can only transport a



Front view of a Husky TSV-M photographed during operations in Afghanistan.

Top right: various types of units use the Husky TSV-M in Afghanistan, this Husky TSV-M belongs to The Royal Gurkha Rifles.

Above centre: the Husky is 6,588mm long, 2,910mm wide (over mirrors) and 2,900mm high (top of wire cutter).

Above: fielding the Husky TSV-M closed a capability gap and also replaced the Pinzgauer TUM(HD) and Pinzgauer-based Vector LPPV in the Afghanistan theatre of operations with a much better protected vehicle.

Right: the picture shows a Husky TSV-M and a Mastiff 2 PPV operated by A (Amboor) Company of the 2nd Battalion, The Royal Gurkha Rifles. The Husky TSV-M has a road-range of about 950km.

Below: this Husky TSV-M is operated by an Operational Mentor & Liaison Team of the 9th/12th Royal Lancers.

Bottom: the electronic equipment installed in the Husky TSV-M variants includes tactical satellite communication, HF and VHF radios and counter IED ECM and EECM systems. This Husky TSV-M belongs to a patrol consisting of Jackal 2 Fire Support Vehicles.



modified to British needs, while the survivability package for the vehicle was designed by Plasan Sasa Ltd.

On the 6th of April 2009 Navistar Defense LLC announced that it had been issued a contract by the Ministry of Defence for the production of 262 Husky TSV-M, as the vehicle was called by then. The Husky TSV-M was presented for the first time at the DVD in Millbrook on the 24th of June 2009 and by September 2009 the first vehicles were being delivered to the British Army and were deployed to Afghanistan later that same year.

On the 7th of September 2010 Navistar Defense LLC announced that it had received a second order for Husky TSV-M, this time the MoD ordered 89 vehicles. The delivery of the vehicles started in October 2010

“... Husky TSV-M can cover a range of up to 950km ...”



very limited number of troops. TSVs are mainly employed by patrols as logistic ‘motherships’ in order to enhance endurance by carrying additional water, food and ammunition but can also fulfil other tasks. Like the PPVs the TSVs are divided into the three categories Light, Medium and Heavy, categorisation is done by protection level.

The TSV range of vehicles includes the Coyote Tactical Support Vehicle-Light (TSV-L), the Husky Tactical Support Vehicle-Medium (TSV-M) and the Wolfhound Tactical Support Vehicle-Heavy (TSV-H).

TSV REQUIREMENT

In 2008 the Defence Equipment & Support Organisation of the MoD conducted a Theatre Equipment and Capability Review aimed to identify any shortcomings within the British forces deployed to southern Afghanistan. Among other findings this resulted in the identification of a requirement for a range of Tactical Support Vehicles needed to allow units equipped with Protected Patrol Vehicles to carry out operations for a longer period of time, away from their bases and without needing to be resupplied for example by helicopters or other means.

By October 2008 the Ministry of Defence announced that it would buy some 400 vehicles under the recently established Tactical Support Vehicle programme. 350 Million GBP was earmarked for the project. In the following months Navistar Defense LLC was selected to provide the TSV-M, for this purpose the company had offered a vehicle based on the International MXT MV 4x4, specially

and was completed by mid-2011. Production of the Husky TSV-M was conducted at the West Point, Mississippi assembly plant of Navistar Defense LLC in the U.S.A. From here the vehicles were shipped to the UK where final integration work was conducted by Dyteca Limited at the company’s plant in Malvern in Worcestershire the vehicles, where they were fitted with British communication systems, a Protected Weapon Station and IED counter measure systems.

Husky TSV-M

The Husky TSV-M is an agile 4x4 protected all terrain vehicle that was procured in order to replace the Pinzgauer based Vector Light Protected Patrol Vehicle (LPPV) and to fill a capability gap for a medium tactical support vehicle. With its two fuel tanks (155 and 43.5 litres) filled the Husky TSV-M can cover a range of up to 950km. It has a turning circle of 16.5m, can climb steps of 200mm height, negotiate gradients of up to 60%, traverse slopes with an angle of up to 30% and ford water obstacles up to 1,066mm deep. According to the manufacturer the vehicle can reach a top speed of 113km/h.

The Husky TSV-M is 6.588mm long, 2910mm wide (over mirrors) and 2,900mm high (top of wire cutter). The exact weight of the vehicle is classified, but the vehicle has a payload of 1,300kg.

The Husky TSV-M is powered by an International Maxxforce VT365 D6.0L V8 turbocharged, inter-cooled four-stroke diesel engine with electronic controlled direct injection. The engine develops a maximum



Left: the Husky TSV-M features a fully independent air-sprung suspension system with built-in ride height control that allows the driver to adjust the ground clearance of the vehicle. Four settings are available. Here a Husky TSV-M is towing another Husky TSV-M. The ride height control of the first vehicle is set for off-road driving giving it 417mm ground clearance, while the rear vehicle is set for loading and unloading with only 140mm of ground clearance.

Below: the range of TSVs consists of the Coyote Tactical Support Vehicle-Light, the Husky Tactical Support Vehicle-Medium and the Wolfhound Tactical Support Vehicle-Heavy. This Husky TSV-M is followed by a Coyote Tactical Support Vehicle-Light.

power of 340hp at 3,000rpm. The engine is connected to an Allison 2500SP five speed automatic transmission and a Cushman/Meritor 471 high/low ratio transfer case.

The Husky TSV-M features a fully independent air-sprung suspension system that incorporates active shock absorbers. A built-in ride height control allows the driver to adjust the ground clearance to the terrain the vehicle is travelling on. Settings include one for road moves (318mm), off-road driving (417mm) and extreme terrain (470mm). For easier loading and unloading of the vehicle the ground clearance can be dropped to 140mm. The mobility of the vehicle is further enhanced by a Central Tyre Inflation System manufactured by Dana Limited that features terrain settings. The four 20-inch alloy wheels of the Husky TSV-M are manufactured by Hutchinson and fitted with Michelin 395/85R20 XZL tyres and Hutchinson run flat inserts.



Right: the Husky TSV-M can reach a top speed of 113km/h. This Husky TSV-M is operated by J Company, 42 Commando Royal Marines.

Far right: the Husky TSV-M can ford water obstacles up to 1,066mm deep. In February 2011 this vehicle was operated by the 2nd Royal Tank Regiment.



Right: the large one-piece bonnet can be hinged forward in order to allow access to the Maxxforce VT365 D6.0L V8 turbocharged, inter-cooled diesel engine for maintenance and repair work.

Below: the cab of the Husky TSV-M offers protection from small arms fire and splinters as well as from the effects of mine and IED detonations under and in close vicinity of the vehicle.

Bottom left: rear view of a Husky TSV-M Heavy Weapons Variant. The cargo bed can be accessed through a large tailgate. On top of the rear wings are external storage racks that can be folded out in order to store additional fuel and water canisters.



“The Husky TSV-M features a rugged frame rail system and a four-door crew cab that offers seating for four soldiers.”

CREW CAB

The Husky TSV-M features a rugged frame rail system and a four-door crew cab that offers seating for four soldiers. Access is granted by four air-assisted doors with battle locks, the pneumatic system includes a hold open feature. The front doors open to the front while the rear doors open to the rear which achieves a maximum of protection and makes it much harder for an enemy to engage troops seated inside the vehicle while the doors are open. Steps on the left and right side of the crew cab allow for easier entry/exit of the vehicle. Inside the cab the driver sits to the front left and the vehicle commander to the front right. Mine protected seats with four-point belts are available for all members of the crew.

A large hatch in the roof grants access to the ring mount. When operating the machine gun installed in the Protected Weapon Station the gunner stands on a platform between the two rear seats. Detailed information on the level of armour protection of the vehicle is obviously classified, but the cab features a V-shaped bottom and offers its crew 360° protection from small arms fire, splinters of mortar and artillery rounds as well as from the effects of mine and IED detonations under and in close vicinity of the vehicle.

The windscreen and the windows in the doors are made from ballistic protected glass. The open cargo bed is situated behind the crew cab and can

be accessed from the rear of the vehicle via a large tailgate. It allows the transport of bulky equipment and supplies. On top of the rear wings external storage racks are situated that can be folded out to allow additional fuel and water canisters to be stored.

The electrical system of the vehicle operates with 24 volts. In order to reduce troop fatigue and to provide better cooling for the electronic systems the Husky TSV-M features an air conditioning system. Also fitted are a Boiling Vessel (BV) and a 25l Squad Bag for water. The rear of the chassis features a NATO towing hitch together with the necessary trailer electrical connections so that the vehicle can tow a trailer. Front and rear towing hooks with shackles allow an easy recovery of the vehicle.

A wire cutter is installed at the front left of the crew cab. The Husky TSV-M is fitted with counter IED ECM and EECM systems. For operations at night and low visibility the vehicles feature a Driver's Vision Enhancer (DVE) system manufactured by DRS Technologies. The display and control modules are installed under the roof in front of the driver's and commander's seat and can be folded down for use.

VARIANTS

The Husky TSV-M is in service in three different variants, namely the Utility Variant, the Command Variant and the Heavy Weapons Variant.



Left & far left: the Protected Weapon Stations fitted to the Utility Variant and the Command Variant of the Husky TSV-M feature perimeter protection as well as a gun shield.



While technically mostly identical the variants differ by certain mission related equipment that is fitted. The basic version is the Utility Variant that features a crew of three consisting of the vehicle commander, the driver and the gunner. An additional passenger can be transported on a fourth seat. The vehicle is fitted with the Protected Weapon Station in which a 7.62mm x 51 L7A2 GPMG machine gun can be installed.

The Command Variant also features the same Protected Weapon Station with 7.62mm x 51 L7A2 GPMG machine gun. Its crew numbers four

Therefore designated Husky TSV-M drivers have to attend a special driver's course at the Defence School of Transport (DST) at Leconfield or be instructed on unit level by a DST qualified Husky TSV-M instructor. A category C driving license is required to be qualified as a Husky TSV-M driver.

In addition to their role as support vehicles Husky TSV-Ms are used for mobile patrols, convoy protection, transport for mortar teams and so on, and when asked for their opinion, the soldiers operating the vehicle sang its praise and gave it a thumbs up.



ame rail system and a four-door crew

troops and includes the vehicle commander, the driver and two radio operators of which one doubles as gunner. In contrast to the other two variants the Command Variant features enhanced communication equipment and a direct current charging unit.

Like the Utility Variant the Heavy Weapons Variant features a crew of three consisting of the vehicle commander, the driver and the gunner. Again a fourth seat is available to transport an additional passenger. The Heavy Weapons Variant is fitted with a larger version of the Protected Weapon Station that can be fitted with a 7.62mm x 51 L7A2 GPMG machine gun or a 12.7mm x 99 L111A1 Heavy Machine Gun (HMG) or a 40mm L134A1 Grenade Machine Gun (GMG).

While some media sources claim that there is also an ambulance version of the Husky TSV-M, the author could find no mention of such a vehicle in the official documents and press releases of the MoD and Navistar Defense LLC he studied, neither did he see one while being out and about with British forces in Afghanistan in 2010 and 2011.

Husky TSV-M are used in Afghanistan by various units. The main users are infantry assets as well as units of the Royal Logistic Corps, the Royal Engineers and the Royal Artillery. While driving the Husky TSV-M is quite easy, the vehicle nevertheless is what in British Army terms is known as a complex platform.



Above: this vehicle belongs to a Police Advisory Team provided by the 2nd Battalion, The Royal Gurkha Rifles. In Afghanistan Husky TSV-M are used among other tasks as protected mobility vehicles to conduct routine resupply moves, for mobile patrols, for convoy protection and as transport for mortar teams.

Left: on formation, unit and sub-unit level the Husky TSV is used for logistic support purposes when due to ground restrictions the Wolfhound TSV-Heavy is unsuitable, for example in a confined urban environment.



Left: compared to the Utility Variant and the Command Variant the Heavy Weapons Variant of the Husky TSV-M features a larger version of the Protected Weapon Station that can be fitted with a 7.62mm GPMG machine gun or a 12.7mm HMG or a 40mm L134A1 Grenade Machine Gun (GMG).



Heavyweight Henschel

**The World War Two German
Henschel 33 G 1 truck goes
under the spotlight**

The Henschel 33 series trucks were a three-axle 3-tonne medium 6x4 truck used extensively by the German Reichswehr and latterly the Wehrmacht, fighting on all fighting fronts throughout the Second World War. The manufacturer, Henschel & Sohn of Kassel was an established heavy industry manufacturer specializing in the manufacture of locomotives in pre-war Germany who branched out to begin manufacturing trucks in 1928. In the lead up to the outbreak of war in 1939, Henschel began to produce trucks for the military, with the type 33 truck being built in relatively large numbers and by the end of production had resulted in a total of around 10,000 vehicles being produced.

As a series the Henschel 33 truck was built in a number of variants across five different series between 1928 and 1942, with the Henschel 33



G 1 shown here probably the best-known version, which was produced between 1933 and 1941, however, at the height of the war the demand for the trucks was to become too great for Henschel's manufacturing facilities to cope with and in order to aid the production a total of 3,800 license-built copies were produced by Magirus.

While the original trucks were powered by a 100 hp petrol engine, later variants, including the 33 G 1 vehicle featured here, used a diesel engine, which was introduced in 1937, while the addition of a 'Diesel' badge to the front grille alerted people to the fact that it was powered by a 9123cc diesel engine rather than a petrol engine. The engine was coupled to a five-speed manual gearbox.

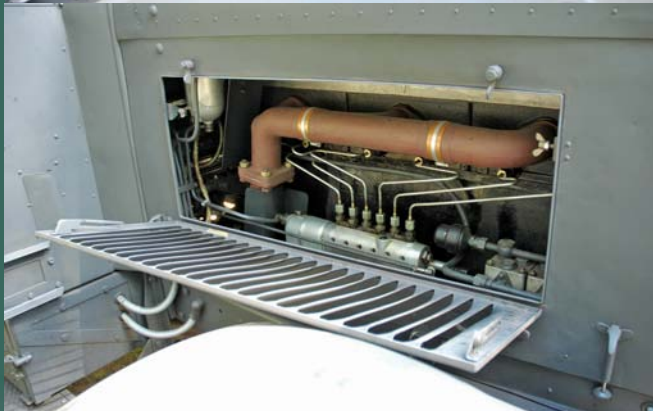
These sturdy trucks were classified as all-terrain trucks, despite not having a powered front axle, but were more than capable of coping with all but the



The Henschel 33 G1 has purposeful line, typical of the early wartime German trucks.

Main photo: the Millitracks event held in Overloon last year saw the newly restored Henschel 33 G1 making its first public outing, providing me with the perfect opportunity to take a closer look at this rare wartime truck.





Top left: the distinctive radiator grille of the Henschel bears the name badge and the word 'Diesel' to differentiate between earlier petrol-engined variants.

Top right: the pre-war design of the Henschel shows in the style of the cab interior layout, especially the very old fashioned looking steering wheel.

Right: view of the driver's side of the cab area showing the windscreen arrangement with lift up panels and the hood bows stored on the bulkhead.

Below: view of the front cab hood on the Henschel. It is seen here folded back against the backboard of the rear load bed in the stowed position.



Above: left hand side (centre) and right hand (above) of the engine viewed through the open engine covers.

Right: view of the front axle and underside of the vehicle.





most harsh of terrain, and in the event of the vehicle becoming stuck, most were fitted with a PTO-driven winch behind the cab, which could be paid out to the front or rear and used to extract the vehicle if it became stuck. If the vehicle was likely to be used in difficult terrain for longer periods it was possible to fit the rear sets of wheels with tracks to improve traction.

The suspension system utilized leaf springs all round, with a single spring across the front axle and a pair of inverted springs running longitudinally either side at the rear.

The vehicle featured single wheels at the front, and a pair of twin wheel axles at the rear and the Simplex 'artillery-style' spoked wheels were shod with 7.25-20 tyres. The braking system used on the Henschel 33 was an air-actuated pneumatic type by Knorr, which operated on the rear wheels only.

Although the standard soft top canvas back cargo/troop type truck was built in the largest numbers, a variety of more specialized types were also produced throughout the war, including a personnel decontamination vehicle (Kfz.92), the similar clothing decontamination vehicle (Kfz.93), water tank vehicle (Kfz.94), barrage balloon winch vehicle and a fire fighting vehicle.

The Henschel featured here participated in the Militracks 2011 event staged at the Overloon Museum in the Netherlands, with the meticulously restored vehicle belonging to German collector Karl Nefzer, who demonstrated the truck to the crowds throughout the duration of the show that provided me with the opportunity to take a closer look at this immaculately restored rare German World War Two truck.

Several other preserved examples survive in museum collections around the world, but I have no doubt that there are other survivors just waiting to be discovered.



Top: like many larger wartime German trucks and vehicles, the Henschel features a number of stowage lockers, here we see some of them tucked away below the right hand side of the cab.

Above right: rear three-quarter of the Henschel as it leaves for another run around off-road course during the Militracks event, providing a good view of the canvas in place over the rear body.

Column top left: assorted views of the Henschel showing the vehicle jack and jacking block on the footplate below the cab (top), the rear tailgate with the 'Henschel' name pressed into the rear crossmember (centre), and the Simplex spoked wheels, front left hand wheel shown.

Left: front three-quarter view of the magnificent Henschel 33 G1 that turned up at Militracks last year.





BULLETIN BOARD

Shaun Connors looks at South Africa's Project Vistula, a truck-replacing programme originally launched in June 2004, which could make progress again later this year...



voluntarily withdrawn from the competition during the evaluation phase, although it is believed this decision was Terex and not TATRA driven, and that the TATRA product performed very well during the trials it undertook.

Following the successful conclusion of trials the project report and the recommendation were submitted to the Defence Secretariat by ARMSCOR in November 2005. It is understood the report prompted a number of questions from the Secretariat, which led to an independent audit of the evaluation, that audit confirming the report and the recommendation. As of late August 2006 there had been no official comment on the status of the project,

although it was known the original bids had expired on June 31st 2006 and that two separate bid extensions were subsequently requested. The first of these was until 30th July, the second until the end of September 2006.

At the time it was speculated that an official statement, or even award, regarding Project Vistula was to be timed for Africa Aerospace & Defence 2006 (20-24th September), however, this did not happen.

In October 2007 it was disclosed that ARMSCOR had declined to select a preferred bidder for Project Vistula and had written to bidders saying that it intended to 'initiate a new RfO process in due course'.

In June 2004 the South African armaments acquisition agency, ARMSCOR, issued a request for offers (RfO) for the South African Army's new tactical logistics vehicle fleet under Project Vistula. At this early stage Vistula was expected to deliver some 800 (8x8) 14-tonne and (6x6) 9-tonne trucks with armoured, mine-protected cabs.

It is understood the initial RfO was issued to 22 companies in the Czech Republic, Finland, France, Germany, India, Italy, South Africa, Sweden, Ukraine and the US, and that six manufacturers were subsequently selected to submit vehicles for trials. Chassis-cabs supplied by DaimlerChrysler (Mercedes-Benz), IVECO, KAMAZ, MAN (now RMMV), Northbenz and Terex-TATRA commenced trials at the Gerotek test centre early 2005, these to be completed by the end of June 2005, the project study report by the end of the following month.

It is also understood that the then DaimlerChrysler teamed with Land Mobility Technologies (LMT) for their

Actros-based bid, while the IVECO bid of ASTRA range trucks was primed by the then BAE Systems Land Systems South Africa. MAN, offering HX range trucks (modified from UK spec with a fully automatic transmission), is also understood to have had an arrangement with the then BAE Systems Land Systems South Africa, this specific to the MAN/KMW Integrated Armoured Cab (IAC). Terex-TATRA offered TATRA T 815-7 series trucks, KAMAZ offered derivatives of its cab-over-engine range of trucks, while Northbenz (of China) offered what is essentially a Chinese copy of an earlier generation Mercedes-Benz truck now produced in China.

There remains considerable media speculation as to precisely how individual vehicles performed during trials, with some sources suggesting that all six vehicles were successful in meeting the criteria to pass the technical trials. However, it is generally acknowledged that only three vehicles were fully evaluated, these being the Daimler, IVECO and MAN offerings. Terex-TATRA are understood to have





It would be January 2009 before reports again surfaced suggesting that Vistula was due to be relaunched, and during September 2009 ARMSCOR was confirmed to be close to re-launching the project. It was disclosed in September 2009 that a new RfO had been expected sometime around May 2009, with project intentions being that a preferred bidder may be announced by the end of the year, with (following contract award) deliveries under various orders running from 2012 to 2017. The intended May RfO slipped for governmental reasons to late-July, or possibly early August, and it was then suggested that the new RfO would be issued mid- to late-November.

In January 2010 sources suggested that a revised Vistula RfO was due to be released in February 2010, however, at the time of writing (March 2012) Project Vistula has yet to reappear. The South African military continues to struggle on with an increasingly unreliable, difficult and expensive to maintain SAMIL fleet, and the latest suggestions are that an announcement of sorts relating to a replacement procurement may be made mid-2012, but nothing official (an RfO for example) is expected until 2013. It is anticipated that when relaunched the revitalised project will continue to call for the 2010-touted figures of approximately 2,000 (4x4), 400 (6x6) and 2,600 (8x8) trucks.

Highlighting how numbers fluctuate as programmes evolve, when first announced back in 2004 Vistula was to deliver 800 (8x8) 14-tonne and (6x6) 9-tonne vehicles, these to replace the SAMIL 100 10-tonne (6x6) fleet, and possibly the mine-protected cab SAMIL 50 (Kwevoel-50) fleet). By late-2005 quoted numbers had increased to 579 (6x6) and 733 (8x8) tactical trucks, a later announced revision being for 946 (6x6) and 796 (8x8) trucks (over 1,000 of which were to be fitted with a DROPS/PLS hooklift system). By 2009 the overall requirement had expanded to include replacement of the SAMIL 50 5-tonne (4x4) fleet, and numbers required increased accordingly to



approximately 1,600 (4x4), 1,200 (6x6) and 2,200 (8x8) trucks, the 1,600 (4x4) requirement reducing from an initial 1,800.

The SAMIL 20 2-tonne (4x4) fleet was, at this stage, to be replaced under a separate program for which funds were hoped to be secured at the same time as funds for Vistula. This will no longer happen, and the replacement of the SAMIL 20 fleet has effectively been absorbed into the revised Vistula program.

When finally selected it is anticipated the new trucks will be acquired as off-the-shelf designs to be built locally, with specialised bodies to be developed and built as required. A high proportion of the (8x8) and a lesser number of (6x6) trucks will be fitted with locally developed armoured and mine-protected cabs, and some are highly likely to incorporate protected containers for specific roles. The (6x6) truck is limited in terms of front axle capacity, hence the larger number of (8x8) trucks. The (4x4) trucks are intended mainly for rear-area work and will probably not feature armoured cabs.

Around 15,500 SAMILs were originally delivered between the mid-1970s and 1992, and current fleets number approximately just under 3,000 SAMIL 100s, just over 5,000 SAMIL 50s and approximately 3,500 SAMIL 20s. By the end of production in 1992, no fewer

than 16,864 SAMIL, SAKOM and SAMAG vehicles had been built by the now defunct Truckmakers and delivered to the SANDF.

It is probable that following the Vistula award a further batch of around 350 trucks will be ordered for specialist roles. These will have commonality with the Vistula platform and will replace current bridgelayer (MAN (8x8)), gun tractor (SAMIL (6x6)), HET (MAN (6x6)), Valkiri MARS (SAMIL (6x6)), and small numbers of some other specialist designs.

The next major vehicle project of the SANDF will be Project Sapula. Sapula calls for a new generation of mine-protected armoured personnel carriers (APCs) that are intended to use the basic mechanical components of the new truck family. The RFP for Sapula will only be issued after the Vistula selection has been finalised. The Sapula vehicles (mostly (4x4), a few (6x6)) will replace the current Casspir and Mamba armoured personnel carriers, the Mfezi armoured ambulance, the Okapi command vehicle and a number of other vehicle types, for a total of up to approximately 4,000 vehicles. A number of different vehicle configurations will be developed, including personnel carriers, mortar variants, ambulances, and command variants.





Into the Archives

Les Freathy takes a look at a variety of heavy vehicles from around the world

Below: the Scammell/Leyland S 24 tractor was trialled by the British Army but not accepted into service. Some export orders were to be enjoyed in both tractor and recovery roles and this image shows one badged as Leyland coupled to a Dyson twin axle trailer during trials.



This month's archive feature takes a look at some of the many heavy vehicles used by various military forces from around the world in the past few decades. Included here is a selection of vehicles designed to perform a variety of tasks ranging from recovery and transportation to engineering transport and while some may be familiar to you, some may not. In some cases the vehicles shown here are still in active service, albeit in limited numbers, but by now must be nearing the end of their service life, no doubt destined for a second life in the hands of civilian owners or to be consigned to the scrapheap. As usual I have included what details I have regarding the featured vehicles, but if you have any additional information you can let the editor know via the usual channels.



Here we see a couple of late 1950s heavies. The one, a Scammell Pioneer recovery, is a WW2 refurbished vehicle of which a large number were still in service throughout the 1950s, with some still hanging on in the mid 1960s, working alongside the later Explorer models. In this image we see it retrieving an AEC Militant mounting a Neal lattice jib crane. (photo courtesy REME)

Right: by the mid 1990s the Scammell Crusaders were beginning to feel their age and a replacement tractor and trailer came in the form of the Seddon Atkinson Strato 380c 6x4 tractor coupled to a Trailmaster 44-tonne triple axle trailer.

Bottom right: the Australian Army have for many years employed various trucks built and supplied by International. The S Line tractor was one built and supplied in the 1990s and this model with sleeper cab belonged to 86 TPT Squadron and was seen at Holsworthly.



Above: the late 1980s saw the introduction of a project to evaluate vehicles for the Canadian Army. The heavy logistic vehicle wheeled class (HLVW) was entered by four companies MAN in partnership with General Motors diesel division from London Ontario, Oshkosh-Bombardier, Scania in partnership with Kenworth and Steyr UTDC. Steyr UTDC won the contract for the delivery of 1200 trucks in eight different variants including the SWB tractor as seen here. (photo Ed Storey)



INTO THE ARCHIVES: **REGULAR**



Left: during the early 1980s the Belgian Army took delivery of 65 MAN 6x6 type 22.301 DFAS tractors coupled with DAF YTS 10050 transporter trailers. The tractors were powered by a 4-stroke V8 injection diesel engine and were equipped with a huge Haggglunds winch capable of a 20,000kg pull from a maximum distance of 60m.



Above: during 1975 the U.S. Army issued a requirement for a new heavy equipment transporter to replace the ageing M123 tractors and trailers. September 1976 saw the Oshkosh company awarded the contract to supply 774 vehicles designated the M911 and based on the company's civilian type F2365 model, around 1,700 were eventually built and a small number still serve in reserve units and with foreign forces.

Below: as a result of the need to transport the then new M1A1 Abrams MBT, Oshkosh produced six prototype heavy transporters XM1070. Following successful trials a contract was awarded for the production of 1,044 vehicles now designated M1070 in conjunction with multi-axle M1000 trailers built by Southwest Mobile Systems Corporation under a separate contract.

Below & bottom: during the years since WW2, the British Army have employed a number of different dump trucks ranging from 3 to 15-ton. The Haulmatic 15-ton truck was one of this range ordered by the MoD during the early 1980s for issue to Royal Engineers construction companies. The Haulmatic served well into the 1990s and would often be seen on the road towing a twin axle tilt bed trailer loaded with construction equipment.



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Witham's MOD TENDR



Top: amongst the items in the sale was another Bombardier Lynx Ski-Doo, these tracks pads off an AS-90 SPH, and these CVR(T) commander's cupolas. Anyone know what the markings are for?

Left & below: the Chinese-built YW701 Command Post Vehicle had been moved out into the open, providing me with a better opportunity to take some photos of the rusty but complete interior.





Amongst the tracked armoured vehicle in the February Tender Sale was a pair of FV432 APCs (below) and an FV434 Fitters Vehicle.



TENDER SALE

We report on the latest ex-MoD vehicles to go under the hammer at Withams

Following my impromptu visit to Witham Specialist Vehicles last month (as reported in the April issue), I drove up to the Lincolnshire dealer's headquarters for a second time to check out the vehicles on offer in the latest MoD Tender Sale. As mentioned in that previous report, some of the vehicles I came across were indeed destined for this sale, however, for the sale proper some of them had been relocated in the expansive yard, providing me with a better view of some of them, so my apologies in advance for repeating some of the images in this report, but they do offer a better view of these vehicles.

As seems to be the norm for these sales, there was a comprehensive collection of Land Rovers, RB-44 trucks and larger 4-tonne trucks listed, which included another batch of the armoured Snatch Land Rovers and a small number of Wolf XD Land Rovers. Unfortunately there are now so many vehicles in the yard many of them were packed so closely I simply couldn't get any decent photos of them. While the majority of the RB-44s in the sale were of the standard soft top cargo variety in varying conditions, there were a few fitted with a demountable shelter body in the rear, which offered the possibility of being turned into a reasonably compact mobile home, making them ideal for camping at shows.

Of the rest of the trucks in the sale there was a single example of a Bucher Duro 6x6 truck, as used by EOD units



Vehicle Spares



Left: the sale included a considerable number of spare parts for a wide variety of vehicles, including this Centurion tank reconditioned gearbox assembly.



Below: there was also a number of recon engines included in the February Tender Sale. Here we see one of the Rolls Royce Perkins diesel engine.

MILITARY LAND ROVERS



Above: one of the Tomcar/Springer prototypes had been brought out for the sale, providing me with a better view of the vehicle.

Below: of the medium sized trucks in the sale was this tidy (and useful) Reynolds Boughton RB44 with a comms body, and an ex-EOD Bucher Duro 6x6 truck still wearing 'Felix' stickers on the doors.

in Iraq and Afghanistan and still wearing modified 'Felix' logos on the doors with Felix wearing an Arab style headdress! A couple of rows along was another group of Foden Heavy Recovery Vehicles, and close by was a pair of Foden DROPS trucks and some of the slightly smaller Leyland DAF DROPS trucks.

Elsewhere I found a pair of FV432 APCs and a little further up the yard sat an FV434 fitters vehicle, plus the Chinese YW701 Command Post vehicle mentioned last month. On this occasion this unusual vehicle it had been pulled out from its original resting place so I could get a better view of it, including the interior of the rear compartment, which despite being quite rusty, looked to be fairly complete. Close by was one of the Springer/Tomcar prototypes I also photographed during my previous visit, albeit in a better position for

photos and a little further up were a pair of Supacat ATMPs.

The Centurion ARV Mk2 that I first saw during my previous visit had been penned in by other vehicles so it was a good job I photographed it when I did, and the Centurion AVRE also mentioned and photographed last month hadn't moved (probably because it wasn't listed in the sale) and unfortunately was still in the wrong place to get a decent photo.

After moving indoors to see what was on offer on the parts front I found a collections of Honda CRF 100F motorcycles that had apparently been used by one of the Army's motorcycle display teams. I also found a number of reconditioned engines, which included a number of Jaguar J60 engines from the CVR(T) AFV family and couple of the much larger Rolls Royce/Perkins 350 diesel engines. A large stillage of brand new track pads

MILITARY TRUCKS



Left & far left: there was another batch of the armoured Snatch Land Rovers up from grabs in the latest sale, as well a number of Wolf Land Rovers too. Elsewhere were a pair of Snatch-type VIP Composite Armoured Vehicles (below left) that had recently arrived at the yard and were being advertised on Witham's website for £17,500! A number of the updated and reconditioned Tithonus Land Rovers (Below right) were also to be found around the Colsterworth site.



was also up for grabs, which at first I thought may have belonged to a Challenger 2, being smaller blocks with a notch out of the one end but closer inspection and a quick rifle through my reference books when I returned home revealed that they were in fact from an AS90 self-propelled gun.

A little further up the line was a pallet of CVR(T) commander's cupolas, and while I'm quite familiar with them on the vehicle, I was intrigued by the line and arrow markings on the tops of some of them. I presume they must have something to do with the orientation of the cupola, either during installation of the cupola or for showing the direction of the commander's optics, but to be honest I'm not sure what the markings were for so I would be interested to hear from anyone who can tell me what they were for.

Witham Specialist Vehicles is a busy place and there's always a constant flow of vehicles arriving and leaving the site, so whenever I visit it's often a case of grabbing a photo when I see something because next time it may well have gone. Amongst the new arrivals in the yard this time round was a group of Supacat MPV Tempest armoured vehicles. Elsewhere I found a very tidy example of a Foden heavy wrecker that was just begging to be photographed, and there was also a pair of armoured Land Rovers that stood out from the well-worn Snatches around the site. According to the WSV website they were CAV 100 VIP armoured Land Rovers, which although similar, differed from the Snatch Land Rovers in that they were fitted with armoured glass windows in the sides of the rear body, had a winch bumper fitted, and were powered by a 300 TDi diesel engine rather than the

V8 petrol engine of the standard Army vehicle. But before you rush out and order one, the list price at the time of writing was a hefty £17,500 plus the dreaded, which no doubt reflects the excellent condition of the vehicles and the fact that they might appeal to security companies in need of an armoured vehicle for duties in trouble hotspots.

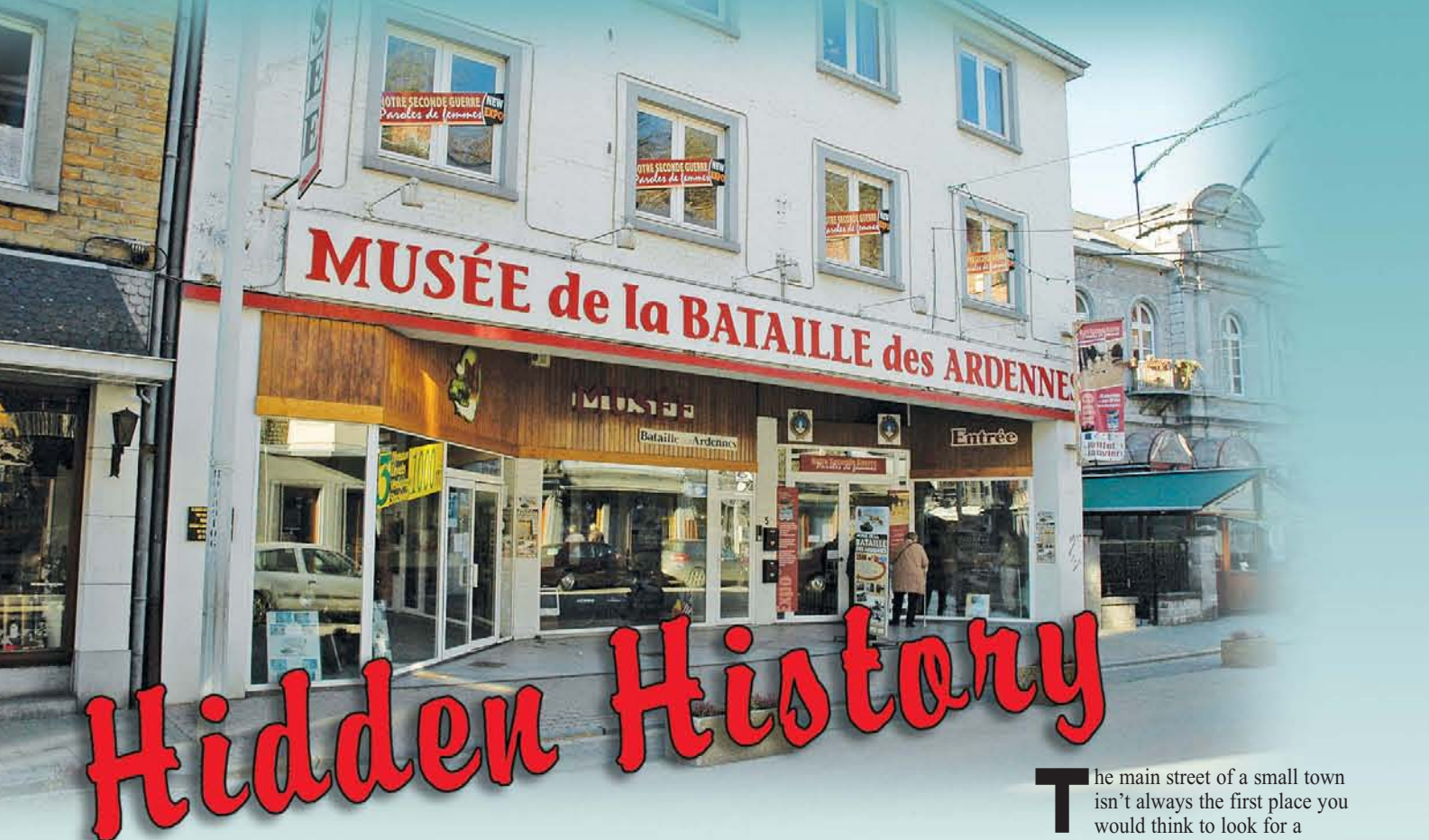
All in all the tender saw another interesting collection of vehicles being offered for sale and no doubt it provided a few bargains for those bidding on the items in the tender. At the time of writing no firm date had been set for the next sale other than it being announced as being some time in April, but whenever it may be we'll be there to report on the sale. In the meantime you can check out the latest news and arrivals on the Witham Specialist Vehicles' website, which you can find at: www.mod-sales.com

Below: the catalogue included a number of Foden heavy recovery trucks, but even during my time at Withams, fresh stock was arriving all the time. This was a particularly tidy example I spotted in the yard.



Foden Heavy Wreckers





Above: the museum's frontage is certainly impressive when seen in isolation, but when viewed within the confines of the street, it can easily be overlooked and mistaken for just another retail premises.

The Belgian town of La Roche has a fabulous military museum, but if you didn't know it was there you might easily miss it!

The main street of a small town isn't always the first place you would think to look for a military museum, especially one containing a collection of wartime vehicles and artefacts, but the town of La Roche in the Belgian Ardennes region is home to a fabulous museum where any military enthusiast could quite happily spend several hours enjoying the collection.

The 'Musée de la Bataille des Ardennes' may have an unassuming frontage on Rue Châmont, one of the main roads in the town of La Roche, and with a casual glance it could easily



One of the first vehicles to greet visitors to the museum is this Kettenkrad, marked up to represent a famous wartime photo taken in La Roche.



be mistaken for just another shop thanks to the shop-like glass frontage, and yet nothing could be further from the truth. The museum has the best part of 1,500 square metres of display area spread across three levels, with a selection of vehicles displayed amongst an incredibly varied collection of military memorabilia, weapons and artefacts.

La Roche as a town found itself caught up in the middle of the battle for the Ardennes region during the closing stages of World War Two, and as a result suffered a phenomenal amount of damage before being liberated by the Allies in January 1945. The extent of the damage is depicted in various displays within the museum and helps to explain the townspeople's interest in the war, after they found themselves on the frontline.

EXHIBITS

For what is a relatively small museum the collection includes twenty vehicles of various types, from a Kettenkrad parked in the entrance hall, to a Jeep and Kubelwagen displayed in imaginative dioramas to an M16 Multiple Gun Motor Carriage half-track, and even an M29 Weasel. In addition there are numerous motorcycles and motorcycle combinations, mainly of German origin and a selection of towed artillery too, the biggest of which is a 40mm Bofors MkIII anti-aircraft gun.

The vast majority of the smaller items are displayed behind glass, with some of the vehicles and larger pieces



There are a great many motorcycles within the collection, most of which are of wartime German origin. Here we see a 1939 Zundapp DB-200-W.



Top left: another motorcycle, this time a 1934 BMW R-4. Once again it has been displayed within a large glass cabinet with the menacing image of a Panther tank portrayed behind.

Left: the largest and heaviest vehicle on display is this American M16 GMC.

Bottom left: another of the larger vehicles at the museum is this German Kubelwagen. Many of the exhibits have been displayed in diorama type settings behind floor to ceiling glass cabinets.

Bottom right: a 1940 Zundapp KS750-W motorcycle combination displayed within the entrance foyer of the museum. The remainder of the exhibits are arranged over three floors with good access for the less mobile.





Top left: American M29 Weasel attractively displayed within a diorama setting.

Above left: there are many, many cabinets containing a stunning collection of weapons from the war, many of them very rare. Here we see a varied collection of German machine guns.

Right: two more cabinets containing a varied collection of rifles, sub machine guns and a selection of pistols. The lower cabinet contains an assortment of American weapons of the period.

Far right top: nicely preserved and displayed example of the classic German wartime motorcycle combination. More than twenty vehicles are contained within the museum collection.

Bottom right: of the larger weapons on display, this German 3.7cm Pak 35/36, L/45 is particularly well displayed within its own cabinet complete with crew and diorama setting.



presented in full-length floor-to-ceiling glass fronted cabinets containing dioramas that incorporate various mannequins dressed in appropriate uniforms. In actual fact there are over 120 mannequins to be found around the museum, some displayed within the vehicles as drivers and crew, while others are displayed in their own right.

There's an impressive collection of firearms too, with many glass cabinets displaying around 100 pistols, rifles and machine guns, while others are genuine wartime relics displayed as dug up in unrestored condition. Other cabinets contain a varied collection of related items such as helmets, badges, medals, daggers, radio equipment, medical equipment and there's even an example of the Enigma decoding machine on display!

VISITING

If you're visiting the Ardennes region this museum really ought to be on your list of places to visit. Opening times do vary considerably depending on the time of the year so it's worth checking with the museum before planning a visit. At the time of writing the opening hours were listed as being open every weekend during school holidays, open daily from April to December between 10.00am and 6.00pm (except for Mondays and Tuesdays) last admission 5.15pm. Closed on weekdays during January, February, March plus New Year's Day, Christmas Day and Carnival Sunday.

Groups and guided tours can be arranged all-year round (minimum of 20 people) and group concessions for more six people or more and special rates for school groups. The upper





Top left: there's a bit of a bias towards German vehicles, weapons and equipment, but there is an example of the ubiquitous American wartime Jeep.

Left: many of the displays relate to American and German units, but not all and here we see some British Paras memorabilia.

Top right: another American vehicle displayed in the museum is this Harley Davidson motorcycle.

Right: although most exhibits are fully restored, there are some cabinets displaying battlefield finds.

Below: an American 'Quad' machine gun is displayed on one of the upper levels of the museum.



levels are reached by large stairways, but there is a lift available for those unable to cope with the stairs. There's also a shop area at the front of the museum selling a variety of merchandise, including books and models and there is parking close to the museum in the town centre.

The museum itself is a great place to visit, but there are also a number of other places to visit in and around the town of La Roche as well as the Ardennes area, which includes a number of tank and war memorials, so it's perfectly feasible to make any visit to the region a proper military history-themed trip.

Contact Details

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MILITARIA 2012

MMI visited the annual Militaria show held at Stoneleigh in Warwickshire

Below: in recent years the show has attracted more and more full-size dioramas, some of which are quite elaborate.

This is the field hospital display put on by the First Allied Airborne Association.

The Exhibition Centre at Stoneleigh Park on the outskirts of Coventry has been home to the annual Militaria Show for some years now and the event continues to be well supported by those military enthusiasts and collectors eager to kick off their show season and to catch up with friends and acquaintances at the same time. The show is as much a social gathering as an opportunity to pick up items for the forthcoming year,

and the venue has changed dramatically since the early years of the show. Gone are the cold and draughty cowsheds, with the new Exhibition Centre offering a light and spacious venue with several indoor café areas that seemed to enjoy plenty of trade throughout the day.

The organization of the event has also improved dramatically and while it was once quite normal to be queuing outside for long periods to get in,

which at this time of the year often involved inclement weather, the systems in place now see visitors gaining access to the Exhibition Centre in just a few minutes even when arriving an hour or so after the show opened as I did.

For those who haven't attended the event before, the venue is well signposted and easy to find off the surrounding arterial roads and there's plenty of parking around the huge site, although it can involve a bit of trek to the exhibition halls, which is something you may want to bear in mind if contemplating the purchase of heavy or bulky items! Once inside the reception area adjacent to the main cafeteria/food hall, you enter the main hall, which contains a large selection of traders selling all manner of items from buttons, badges and uniforms to vehicle parts, accessories and much, much more.

In previous years some of the vehicle and club displays have been outdoors and needless to say the





Above & top left: this Harley motorcycle and Jeep were part of a very elaborate display that must have taken hours if not days to set up!



Left: elsewhere there were a number of motorcycles on display, including this rather nice BSA.



Far left: amongst the larger vehicles on display was this American M16 multiple gun motor carriage...

Left: ...and close by was this Series I Land Rover.

Below: the Alvis Fighting Vehicle Society brought along this CVR(T) Scimitar.

British weather hasn't always been kind to them, but for the last couple of years those displays have thankfully been moved indoors and in the main hall this year were several club displays that featured a variety of vehicles. The First Allied Airborne Association was the first of these displays to greet visitors on entering the main hall, with a GMC truck, Jeep and Dodge Ambulance arranged within a large field hospital-type diorama display area featuring various tents, accessories and personnel, all of which created a very authentic feel to the display and no doubt was appreciated all the more by those involved for being indoors!

In prime position adjacent to the main entrance in the first of the halls was the War & Peace stand, and with the War & Peace Show being the world's largest military vehicle show it was perhaps only appropriate that it was a pretty big stand! As well as taking bookings for the show there was also a selection of merchandise and DVDs on sale too plus some giveaways. The one end of the stand incorporated a freshly restored Jeep, which was in fact the prize for this year's Jeep raffle where people are invited to take a chance at winning this fabulous (and expensive) prize for just £1. Needless to say in the fifteen years the organizers have been running the



Jeeps can be displayed in many guises and this example was a little out of the ordinary.



The War & Peace Show had a stand at the event, and even had a Jeep on the stand that you could win by taking part in the annual Jeep Raffle.



Above & right: ...as did Armortek, manufacturers of these stunning all-metal radio controlled tanks.

Far right top: the Austin Champ Owners Club also had a stand at the show.

Right: there's always a market for canvas products and John & Mary Worthing have been offering that service for many years now.

Bottom right: another of the many dealers selling Jeep spares at the show was Jeffrey Engineering.



War & Peace Jeep Raffle there hasn't been any shortage of takers and there have been some very happy winners too! A little further along the hall was the Austin Champ Owners Club, and as usual they had brought along a couple of vehicles and various display boards describing their activities and showing some of the vehicles belonging to the club members. The Champ celebrates its 60th Anniversary in 2012 and is obviously a popular vehicle because I struggled to find a time when there weren't hordes of people on the stand so I could get a clear photo of the display, so apologies for the Champ in the photo being obscured by people.

Another of the larger displays in this first hall belonged to the Birmingham branch of the Military Vehicle Trust, sharing the space with the Alvis Fighting Vehicle Club who were promoting their Tanks, Trucks & Firepower Show in late August. The latter had brought along a CVR(T) Scimitar to display, but it wasn't just any Scimitar, it was a diesel-powered Scimitar fitted with stand-off appliqué armour. The MVT had also brought along a very nice example of an American WW2 M16 GMC half-track, together with a Series I Land Rover and several fine examples of wartime motorcycles.

Across the way, manufacturer of 1/6 scale all-metal tanks, Armortek, were also at the show and they had brought along an unpainted example of their stunning Henschel King Tiger and the equally superb T-34/76, both of which quite rightly attracted a lot of attention, not least because of the superb quality of the engineering. With engineering this good it almost seems a shame to cover it up with paint, which is probably why they were displayed in bare metal in the first place! Moving into the second of the two main display halls and as usual the area adjacent to the one wall was dedicated to a variety of living


history and re-enactment groups and the 1940's entertainment. Of interest to vehicle enthusiasts were a Jeep and Harley Davidson motorcycle set within a beautifully detailed ruined house diorama, incredible stuff and all created just for one day!

The vehicle displays in the halls were undoubtedly of great interest, but there were also a few vehicles to be found on some of the trade stands too. I didn't spend a great deal of money whilst at the show, in fact I probably spent more time talking to people than I did looking for items, however, I did find some bargains and managed to catch up with a great many of my friends, and that's the beauty of this event, it's a great social gathering that gets the show season started and as such is an event not to be missed if you're serious about your hobby.



The popularity of the Jeep means there are lots of people dealing in parts, including Universal Jeep Supplies.






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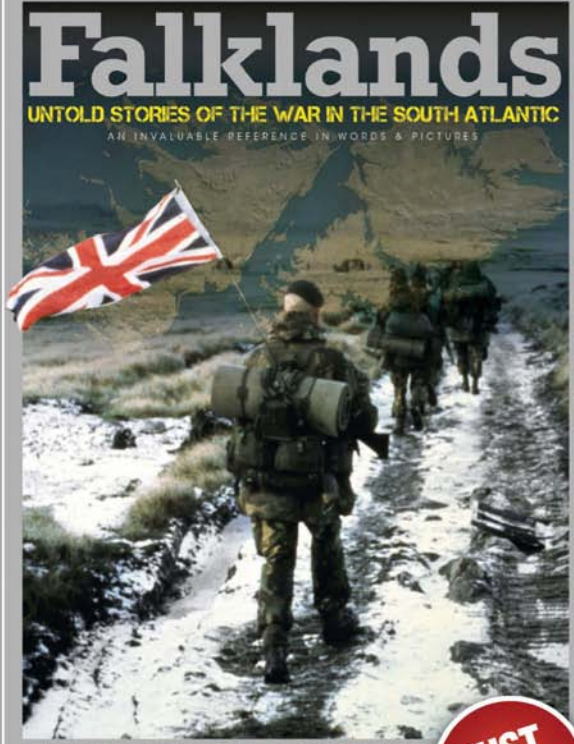
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Government Surplus Sales:

Witham Specialist Vehicles: Regular auctions of ex-military vehicles, equipment and spares. Contact Witham Specialist Vehicles, Honeyput Lane, Colsterworth, Lincs for details of the latest sales or visit: www.mod-sales.com

MARCH 2012

Sunday 11 March 2012:

Militaria & Medal Fair: held at Stratford Leisure Centre, Bridgetfoot, Stratford on Avon, Warks, CV37 6YY. Doors open 10.30am till 2.30pm. For further details contact: Tel: 01753 534777

Tuesday 13 March 2012:

Dispersal sale: Orwell, Hertfordshire, to include various tractors, cultivation implements, trailers and spares. For details call: Tel: 01223 213777 or visit www.cheffins.co.uk/vintage/

Sunday 18 March 2012:

S.M.V.G Military Swap Meet: Institute Hall, Bridge of Earn, Perthshire, (2 mins off Jct 9, M90). For table bookings e-mail: secretary@scottishmvg.org or Tel: 07704 187739

Sunday 25 March 2012: Hack Green Secret Nuclear Bunker Rally:

French Lane, Nantwich, Cheshire, CW5 8BL. Call Rod on: Tel: 01270 623353 www.hackgreen.co.uk

Sunday 25 March 2012:

Malvern Militaria Fair: Three Counties Showground, Wye Hall, Malvern, Worcester, WR13 6NW. For details contact Amanda on: Tel: 01743 762266

Saturday 31 March 2012:

Heritage Transport Show and Auction: organized by the Kent County Agricultural Society. For further details contact: Tel: 01622 630975 www.kentshowground.co.uk

APRIL 2012

Sunday 1 April 2012: Newbury 4x4 and Vintage Spares Day:

Newbury Showground, Chieveley, Berkshire, RG18 9QZ. Call Mark Woodward for more details. Tel: 016974 51882 www.4x4sparesday.co.uk

Sunday 1 April 2012:

Northern Military Expo: Newark Country Show Ground, Notts, NG24 2NY. For further details call Tel: 01302 739000 www.northernmilitaryexpo.co.uk

Saturday 14 Sunday 15 April 2012: The Forties Family Experience Weekend:

held at Bushey Hall Drive, Bushey, Herts, WD23 2ES. For details contact Jayne Dilkes on: Tel: 01923 233841 www.lincolnsfields.co.uk

Sunday 22 April 2012:

Militaria & Medal Fair: held at Yate Leisure Centre, Kennedy Way, Yate, nr Chipping Sodbury, Bristol, BS37 4DQ. For further details call: Tel: 01753 534777

Sunday 22 April 2012: Military WW2 Vehicle Road Run:

in aid of Help For Heroes. Meet at Tesco Baldock at 9.00am, road run starts at 11.00am. Call Mr G. Baker on: Tel: 01462 630214 Mob: 07963 607143



APRIL 2012

Saturday 28 April 2012:

Cambridge Vintage Sale: held at Sutton, Nr. Ely, Cambs. Sale of vintage and classic tractors, classic commercials, etc. For details call: Tel: 01223 213777 or visit www.cheffins.co.uk/vintage/

Sunday 29 April 2012:

Militaria & Medal Fair: held at The Princes Hall, Princes Way, Aldershot, Hampshire, GU11 1NX. For further details contact: Tel: 01753 534777

Saturday 5 Sunday 6

MAY 2012

Monday 7 May 2012:

Llandudno Transport Festival: held at Bodafon Fields, Llandudno, North Wales, LL30 1BW. For info call: Tel/Fax: 01492 545053 (to 6pm) www.llantransfest.co.uk

Sunday 6 May 2012:

Cobbaton Clearout: Cobbaton Combat Collection, Chittlehampton, Umberleigh, N.Devon, EX37 9RZ. For details contact Tim Isaac on: Tel: 01769 540740 www.cobbatoncombat.co.uk

Monday 7 May: Preston Arms Fair:

held at Mercure Dunkenhall Hotel, Blackburn Road, Clayton Le Moors, Lancashire, BB5 5JP, Accrington. For further details call: Tel: 01254 263260 info@prestonarmsfair.co.uk www.prestonarmsfair.co.uk

Friday 11 Saturday 12

Parachute Regiment Reunion: held at Hardwick Hall. Saturday public day, Sunday main day. For further details call Eric Harris on: Tel: 07904 388890

MAY 2012

Saturday 19 May 2012: The 1940s Relived:

held at Brooklands Museum, Brooklands Road, Weybridge, Surrey KT13 0ON. For details see: www.brooklandsmuseum.com

Saturday 19 Sunday 20 May 2012: 1940's Weekend:

held at Halfpenny Green Airport, Bobbington, Stourbridge, W. Midlands DY7 5DY. Traders contact Steve Roberts: Tel: 01733 246440 or airmiller@hotmail.com Re-enactors contact Mark Anthony Craig on: Tel: 0774 607 3914 or northernforties@gmail.com www.northernforties.org.uk

Saturday 19 Sunday 20 May 2012: Bunker Bash 2012:

held at the Kelvedon Hatch Secret Nuclear Bunker, A128 Ongar Road, Brentwood, Essex, CM15 0LA. Tel: 07971052195 bunkerbash@hotmail.co.uk www.bunkerbash.co.uk

Saturday 19 Sunday 20 May 2012: Quinton 1940's Weekend:

Buckinghamshire Railway Centre, Quinton Road Station, Quinton, Aylesbury, HP224BY. For details: Tel: 01296655720 Trade contact: gm@bucksrailcentre.org

Saturday 19 Sunday 20 May 2012: Militracks 2012:

Held at Liberty Park, Overloon, The Netherlands, Museumpark 1, 5825AM. Contact Museum Director Erik van den Dungen for details: info@militracks.nl www.militracks.nl

Saturday 19 Sunday 20 May 2012: Belvoir Castle Steam & Country Festival:

Belvoir Castle, near Grantham, Lincs, NG32 1PE. Tel: 07860 758872 www.steamfestival.co.uk



MAY 2012

Saturday 26 Sunday 27 May 2012: Trucks & Troops: held at Beaulieu National Motor Museum. For further details call: Tel: 07544 570911
www.trucksandtroops.com

Saturday 26 Sunday 27 May 2012: AEC Centenary Rally: held at Newark Showground, incorporating the 'Bomber County Road Run'. For entry please contact Jim Read: Tel: 01406 424769 (between 6pm & 9pm)
rally@aecsociety.co.uk
www.aecsociety.com

Saturday 26 Sunday 27 May 2012: Battlegroup North "Jubilee" Military Wheels & Wings Show: held at the Yorkshire Air Museum, Elvington, York, YO41 4AU. Opening times 10am – 5pm For further details contact: Tel: 01904 608595
museum@yorkshireairmuseum.org

Saturday 26 Sunday 27 May 2012: Little Easton on the Home Front: held at the village of Little Easton, near Great Dunmow, Essex. Open 10am – 5pm both days. Participant camping available from Friday 25th May. For further details contact Chris Warne on: Tel: 07887 545908
cwarne@arrowuk.com

JUNE 2012

Friday 1 to Monday 4 June 2012: Overlord 2012: held at The Lawns, Denmead, Waterlooville, PO7 6TZ. For details call: Myrddin Evans (General & Trade) Tel: 01243 375695 Trevor Bush (Vehicle Entry) Tel: 07774 988015 or visit: www.solentoverlord.co.uk



JUNE 2012

Saturday 2 to Saturday 9 June 2012: D-Day Anniversary Jeep Tour: organized by Flatdog 4x4 Adventure Tours. Limited places available. For further details contact: Tel: 07773 110101
dday.tours@btinternet.com

Friday 8 Saturday 9 Sunday 10 June 2012: Southport Funfest: Victoria Park, Southport. For further details or to book in contact Jimmy Vasco at: mgl966uk@hotmail.com
www.westflancsmvt.com

Saturday 9 Sunday 10 June 2012: Home Farm Heroines: held at Tyntesfield Estate, Wraxall, North Somerset, BS481NX. For further details contact James Shopland on: Tel: 07968 274480
james@shoplandsawmills.co.uk
www.imps.org.uk

Saturday 9 Sunday 10 June 2012: Wicksteed at War: held at Wicksteed Leisure Park, Barton Road, Kettering, Northamptonshire, NN15 6NJ. Contact Tim Hawkes on: Tel: 07990 574 338
tim@letsrushit.com

Friday 15 to Sunday 17 June 2012: Cholmondeley Pageant of Power: held on the Cholmondeley Estate in Cheshire. For further details see: www.cpop.co.uk

Saturday 16 Sunday June 17 2012: Lister Tynedale Steam & Country Show: held at Nibley House Farm, North Nibley, Dursley, Glos, GL11 6DL. Contact John Keedwell: Tel: 01453 890920

Sunday June 17 2012: Duxford Military Vehicle Show: held at the Imperial War Museum, Duxford, Cambridgeshire. Vehicle entry enquiries should be addressed to: V. Chiverton, 51 Collingwood Road, Eaton Socon, Cambs, PE19 8JQ.

Friday 22 Saturday 23 Sunday 24 June 2012: The Yorkshire Wartime Experience: held off Hunsworth Land, Hunsworth, Bradford, BD4 6RN. Vehicle & re-enactor bookings call Stuart Wright on: Tel: 07748 604461
Stuart.wright@hotmail.co.uk
Stall holders contact Paul on: Tel: 07709 052501
Pdt3945@hotmail.com
www.ywe-event.info

JUNE 2012

Saturday 23 Sunday 24 June 2012: Muckleburgh Collection Military Display Weekend: Held at The Muckleburgh Collection, Weybourne Camp (off the B149) North Norfolk, NR25 7EG. Call: Tel: 01263 588284
events@muckleburgh.co.uk
www.muckleburgh.co.uk

Saturday 23 Sunday 24 June 2012: Wartime in the Vale: National MVT Show, held at Ashdown Camp, Badsey near Evesham, Worcs. For more information visit the events page on the website at: www.ashdowncamp.webs.com

Sunday 24 June 2012: Militaria & Medal Fair: held at Stratford Leisure Centre, Bridgefoot, Stratford on Avon, Warks, CV37 6YY. For further details contact: Tel: 01753 534777

Saturday 30 June Sunday 1 July 2012: Tankfest 10th Anniversary: held at the Tank Museum, Bovington, Dorset. For further details or to order tickets see the website at: www.tankmuseum.org or call Tel: 01929 462359

Saturday 30 June Sunday 1 July 2012: 40th Sheffield Steam & Vintage Rally: held at Rackford Road, North Anston, Nr Sheffield, S25 4DF For further details contact: Tel: 01709 545047.

30 June 1 July 2012: The 1940s Experience: held at the Isle of Wight Steam Railway, The Railway Station, Havenstreet, Isle of Wight, PO33 4DS, open 10.00am to 5.00pm each day. Contact: Tel: 01983 882204
info@iwsteamrailway.co.uk
www.iwsteamrailway.co.uk



JULY 2012

Sunday 1 July: Preston Arms Fair: held at Mercure Dunkenhagh Hotel, Blackburn Road, Clayton Le Moors, Lancashire, BB5 5JP, Accrington. For details call: Tel: 01254 263260
info@prestonarmsfair.co.uk
www.prestonarmsfair.co.uk

Friday 6 Saturday 7 Sunday 8 July 2012: Military Vehicle Trust Show, Caple, Surrey: East Surrey & West Kent Area Show, Temple Lane, Caple, Surrey, RH5 5HJ. For further details contact Yvonne on: Tel: 01306 711 907
yvonne@g-j-anstee.demon.co.uk

Friday 6 Saturday 7 Sunday 8 July 2012: Operation Home Guard: For further details contact John & Elaine Ward on: Tel: 01524241024
www.ingletonhomeguard.co.uk

Saturday 14 Sunday 15 July 2012: Manchester Airport Aviation & Transport Fair: in association with Ace Mobile Living History Group & Help for Heroes at the Runway Visitor Park. Tel: 07952 176134
www.tasmanchester.com/TAS_Fair.html

Wednesday 18 to Sunday 22 July 2012: The War & Peace Show: The Hop Farm, Paddock Wood, Kent. The world's largest military vehicle show. For details: Tel: 01304 813945
www.thewarandpeaceshow.com
Tel: 01622 872068
www.thehopfarm.co.uk

Saturday 21 Sunday 22 July 2012: Woodhall Spa 1940's Festival: Held at Jubilee Park, Stixwold Road, Woodhall Spa, Lincs, LN10 6QH. For further details contact Stuart Holmes on: Tel: 01526 353215 (after 6.00pm)
stupot667@talktalk.net

MISSION BRIEFING

DATES FOR YOUR DIARY

JULY 2012

Friday 27 Saturday 28

Sunday 29 July 2012: **Welland Steam and Country Rally:** held at Woodside Far, Welland, Worcs, between Upton-on-Severn & Malvern, WR13 6LN. For details: Tel: 01531 890762
www.wellandsteamrally.co.uk

Saturday 28 Sunday 29 July 2012: **Erewash Steam & 40's Show:** held at West Park Leisure Centre, Wilsthorpe Road, NG10 4AA. Tel: 01159 135823
dave.hoyles@ntlworld.com
www.midlandeventclub.co.uk

Saturday 28 Sunday 29 July 2012: **War Machines at Davidstow:** Davidstow Airfield & Cornwall at War Museum, Davidstow, Camelford, Cornwall, PL32 9YF. Mob: 07799 194918
www.cornwallatwarmuseum.co.uk

AUGUST 2012

Friday 3 Saturday 4 Sunday 5 August 2012: **Woodvale International Rally:** Southport, Merseyside. See website for info and entry forms contact Jimmy Vasco at: mg1966uk@hotmail.com
www.westlancsmvt.com

Friday 3 Saturday 4 Sunday 5 August 2012: **Gloucestershire Steam & Vintage Extravaganza:** held at South Cerney Airfield, Cirencester. For details about the event please visit: www.steamextravaganza.com

Saturday August 4 2012: **MVPA 2012 Alaska Highway Convoy:** MVPA 70th Anniversary Convoy on the famous Alaska Highway. For further details contact: hq@mvpa.org
www.mvpa.org



AUGUST 2012

Saturday 4 Sunday 5 August 2012: **Croft Nostalgia Weekend:** For further details check out the website at: www.croftmilitary.co.uk

Saturday 11 Sunday 12 August 2012: **Cobbaton Combat VJ Weekend:** Cobbaton Combat Collection, Chittlehampton, Umberleigh, N. Devon, EX37 9RZ. For details contact Tim Isaac on: Tel: 01769 540740
info@cobbatoncombat.co.uk
www.cobbatoncombat.co.uk

Saturday 11 Sunday 12 August 2012: **Combined Ops 2012:** IMPS Military show & Classic Aircraft weekend, held at Headcorn Aerodrome, Nr Maidstone, Kent. For details contact Malcolm Dunlop: Tel: 01303 267271
mgdunlop@aol.com
www.imps.org.uk

Sunday 12 August: **Preston Arms Fair:** held at Mercure Dunkenhagh Hotel, Blackburn Road, Clayton Le Moors, Lancashire, BB5 5JP, Accrington. For details call: Tel: 01254 263260
info@prestonarmsfair.co.uk
www.prestonarmsfair.co.uk



AUGUST 2012

Sunday 19 August 2012: **Militaria & Medal Fair:** held at Yate Leisure Centre, Kennedy Way, Yate, nr Chipping Sodbury, Bristol, BS37 4DQ. Doors open from 10.30am till 2.30pm. For details: Tel: 01753 534777

Saturday 25 Sunday 26 August 2012: **Rauceby Forties Weekend:** For further details contact: Tel: 01529 488354
www.raucebywarweekend@hotmail.co.uk

Saturday 25 Sunday 26 August 2012: **Eastnor Castle Land Rover Show:** The Deer Park, Eastnor, Nr Ledbury, Herefordshire, HR8 1RL. Contact Mark Woodward: Tel: 016974 51882
www.4x4sparesday.co.uk

Sunday 26 Monday 27 August 2012: **Northeast Military Vehicle Show:** held at the Durham Light Infantry Museum, Durham City. For further details contact: nemvc@hotmail.com

SEPTEMBER 2012

Sunday 2 September 2012: **Militaria & Medal Fair:** held at The Princes Hall, Princes Way, Aldershot, Hampshire, GU11 1NX. Tel: 01753 534777

Sunday 30 September 2012: **Newbury 4x4 and Vintage Spares Day:** Newbury Showground, Chieveley, Berkshire, RG18 9QZ. Call Mark Woodward for details. Tel: 016974 51882
www.4x4sparesday.co.uk

Sunday 30 September 2012: **Manchester Militaria Fair:** held at Event City, Phoenix Way, Urmston, Manchester, M41 7TB. Located next door to the Trafford centre. For Further details contact Amanda on: Tel: 01743 762266

OCTOBER 2012

Sunday 7 October 2012: **Hack Green Secret Nuclear Bunker Rally:** French Lane, Nantwich, Cheshire, CW5 8BL. For details call Rod on: Tel: 01270 623353
www.hackgreen.co.uk

OCTOBER 2012

Sunday 21 October 2012: **Militaria & Medal Fair:** held at Stratford Leisure Centre, Bridgefoot, Stratford on Avon, Warks, CV37 6YY. For further details contact: Tel: 01753 534777

Sunday 28 October 2012: **Dallas Dig Out:** Dallas Autos, Cold Ash Farm, Long Lane, Hermitage, Newbury, RG18 9LT. Tel: 01635 201124
admin@dallasautoparts.com
www.dallasautoparts.com

NOVEMBER 2012

Sunday 4 November 2012: **Northern Military Expo:** Newark Country Show Ground, Notts, 2 minutes off the A1M (NG24 2NY). Contact Mark Askew on: Tel: 01302 739000
jeep.promotions@btconnect.com
www.northernmilitaryexpo.co.uk

Sunday 4 November 2012: **Militaria & Medal Fair:** held at The Princes Hall, Princes Way, Aldershot, Hampshire, GU11 1NX. For further details contact: Tel: 01753 534777

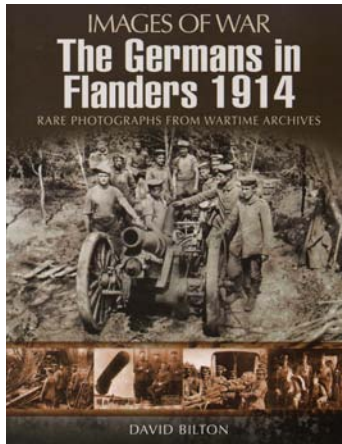
Sunday 18 November 2012: **Military Vehicle Day at Brooklands Museum:** Brooklands Museum, Brooklands Road, Weybridge, Surrey, KT13 0ON. For details call: Tel: 01743 762266

Sunday 18 November 2012: **Malvern Militaria Fair:** Three Counties Showground, Wye Hall, Malvern, Worcester, WR13 6NW. Contact Neil Sinclair on: Tel: 01932 857381
neilsinclair@brooklandsmuseum.com
www.brooklandsmuseum.com

Sunday 25 November 2012: **Militaria & Medal Fair:** held at Yate Leisure Centre, Kennedy Way, Yate, nr Chipping Sodbury, Bristol, BS37 4DQ. For further details contact: Tel: 01753 534777

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 ask event organisers to notify us of any changes as soon as possible.

Why not email your show details to: ian.young@keypublishing.com or post them to the Editorial Office, details are to be found on page 3



The German Army in Flanders during World War One

This new book from Pen & Sword is the latest in their growing 'Images of War' series, with this particular book taking a look at the German Army during their time in Flanders in the early stages of the First World War. While there's little in the way of military vehicle content apart from the odd few photographs of various softskin vehicles (remember the tank hadn't been invented by then!), it's still a fascinating account of that period of the Great War, with lots of images packed between the covers showing various aspects of military life for the German soldier at the time.

In addition to the comprehensive written history that is profusely illustrated by the accompanying photos there are a number of maps and an extensive chronology of events in Flanders 1914 that offers the reader a day-by-day account of the action in Belgium. There's also a comprehensive listing of the histories of the many different German units involved at Flanders, all of which builds into a comprehensive account. While there isn't much to specifically satisfy the military vehicle enthusiast, it is nonetheless a superb account of an important WW1 action.

Title: The Germans in Flanders 1914

By: David Bilton

ISBN: 978 1 84884 445 2

Price: £14.99

Format: Softback

Available From:
Pen & Sword Books Ltd.
www.pen-and-sword.co.uk

World War Two German half-tracks in photographs

Title: German Half-Tracks at War 1939-1945

By: Paul Thomas

ISBN: 978 1 8484 482 7

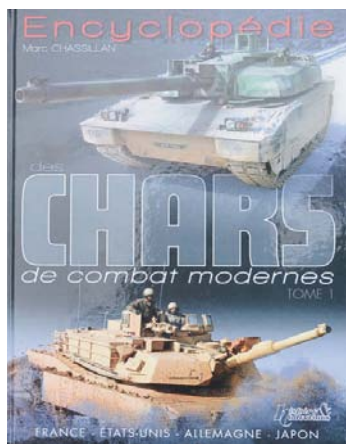
Price: £14.99

Format: Softback

Available From:
Pen & Sword Books Ltd.
www.pen-and-sword.co.uk

The second book from Pen & Sword this month is also from their 'Images of War' series, but this time the subject matter will definitely appeal to vehicle enthusiasts and indeed model makers seeking reference material. The 124-page book features over 150 period black & white photos showing a whole variety of German half-tracks, from the softskin transport types to the various armoured troop carriers. In addition to the more run-of-the-mill types you'll find various flak half-tracks, Panzerwefers and an assortment of other vehicles too.

Given the more than reasonable retail price of £14.99 you're getting plenty of material for your money and it has to be said that many of the images contained within the book may not have been seen before. Each image includes a comprehensive caption providing valuable material on the subject of the photo and additional text details the widespread use of the half-track by the German Army during the Second World War. All in all this is another fine addition to the 'Images of War' series and one well worth taking a look at if the subject matter appeals.



Encyclopedia of Modern Combat Tanks Volume 1

Before you get too excited about this new book from Histoire & Collections there are a couple of things you need to know. Firstly it is written entirely in French, and there aren't even any English captions, and secondly the content is far from complete. There's no disputing that the quality of the book and images contained within are superb, with lots of stunning photos supplemented by illustrations and diagrams that enthusiasts and model makers will find interesting, however, not all of the tanks are as well covered, with some fairing better than others.

Around 15 types are covered, including AMX-32, Leclerc, Leopard 2 from various countries, Abrams, Abrams Tusk and some Japanese MBTs, however, there's one glaring omission - the British Challenger, one of the few MBTs to have actually seen service! A second volume is planned, but this looks set to include the likes of Israel, Russia, China Brazil and various third world countries, but again there's no mention of the Challenger. There's no denying this is a fine reference book, but it's far from complete and the French text may deter some from buying it.

Title: Encyclopédie des Chars de Combat Modernes Vol. 1

By: Marc Chassillan

ISBN: 978 2 35250 176 3

Price: £35.00

Format: Hardback

Available From:
Casemate UK Ltd.
www.casematepublishing.co.uk

The Valentine Tank and derivatives 1933-1960

Title: Into The Valley - The Valentine Tank 1938-1960

By: Dick Taylor

ISBN: 978 83 61421 36 8

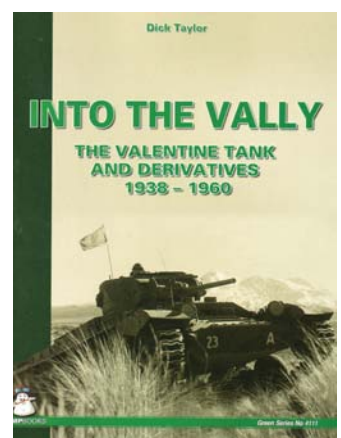
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Mushroom Model Publications.
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The final book this month is the latest addition to the now well-established and very well-liked Green Series of books published by Mushroom Model Publications and looks at the Valentine Tank and its various derivatives between the period of 1938 and 1960 (No.4111). Once again author Dick Taylor has done a magnificent job, cramming masses of information and many, many photos into this comprehensive book that will be especially appreciated by military model makers. Using period black & white

images together with illustrations, line drawings, colour illustrations and colour photos of preserved examples, the book describes one of the better known British tanks to have come out of WW2. Amongst the derivatives to be covered are the DD Valentine, Archer self-propelled gun and the Bishop self-propelled gun, all of which are covered in some detail, which includes some beautiful colour illustrations covering various camouflage schemes adopted on the Valentine. This is a fine book and well worth the modest cover price.



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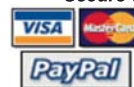
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