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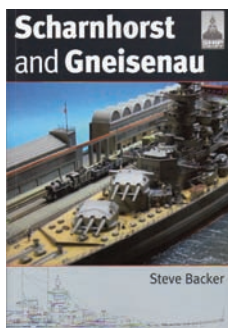
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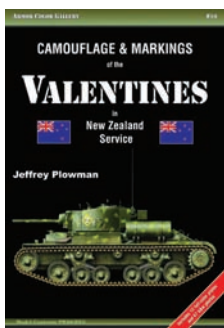
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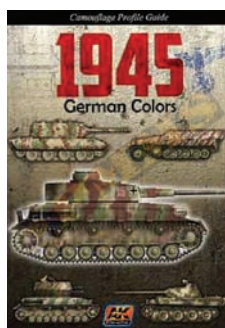
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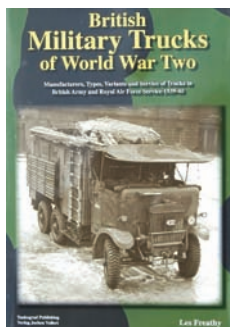
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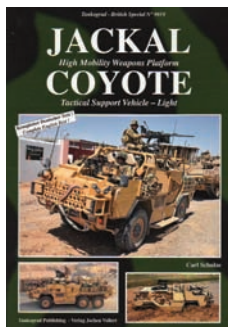
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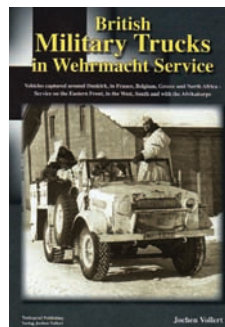
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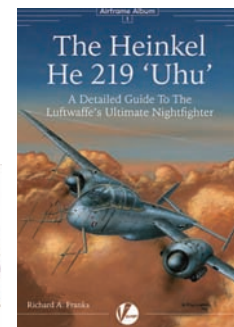
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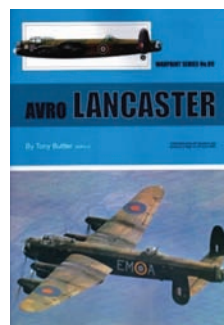
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Welcome to the first issue of Military Machines International of 2013, even though this issue went on sale at the end of 2012 and I was writing this item in November! 2012 will be remembered for many things, including the Queen's Jubilee, the holding of the Olympic Games in London, and of course the summer weather, which wasn't exactly what we all wanted all of the time. Despite the sometimes adverse weather conditions, the quality and quantity of the military vehicles to be seen displayed at the

many different shows up and down the country was as good as ever, with newly restored vehicles making their debuts amongst a plethora of more familiar vehicles. Even though the 2012 season hasn't finished, I'm already looking forward to the new season, and no doubt many of you will be too. Our final few show reports will appear in the next couple of issues, but we'll be back in 2013 with more show reports from the new show season together with the usual varied selection of articles to keep you occupied - Ed.



Ian Young

Ian Young
Editor



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further details



NEWS and REVIEWS

UP FRONT

Pretty in Pink!

Never one to shy away from things, head honcho at Witham Specialist Vehicles, Paul Southerington, arrived at work in October sporting bright pink hair! It wasn't a case of a 'new look' for Paul, or an accident at the barbers, it was in fact a deliberate attempt to show his support for the 'Wear it Pink' day held on Friday 26th October 2012 at Witham Specialist Vehicles in aid of the Breast Cancer Campaign & Wear it Pink charity. The Breast Cancer Campaign is a unique community of scientists, supporters and people touched by breast cancer, and wear it pink is part of a focus on Pink Science – a pioneering approach to breast cancer research that funds projects with the greatest potential to save and improve lives, and ultimately find a cure. On the day the site had a distinctly 'pink' feel, with balloons adorning the reception area, cup cakes decorated with pink icing for sale, and various members of staff wearing pink items of clothing or sporting pink hair!

You can learn more about the research that your support makes possible on Breast Cancer Campaign's website at: www.wearitpink.co.uk



Bedford MW Roof Rack

Reader and occasional contributor to MMI, Simon Thomson, contacted us with a plea for information. Simon owns a rare Bedford MWR Radio Truck and is looking for photos and or drawings of the wooden roof rack structure that some Bedford MW's were fitted with in Europe after D-Day. Simon tells us that the rack was held down by webbing straps attached to the lower body, and that those tie down points are present on his MWR. The rack itself sat on the canvas, and while Simon has seen a couple of fuzzy photos, he has nothing else to work from and is seeking information that would enable him to construct one for his truck with the intention of having it ready for a trip to Normandy in 2014!

If anyone has any photos, information or even better drawings of the roof rack Simon can be contacted via the Editorial Office, details of which can be found on page 3 – Ed.

'Chocs for Chaps'

The War & Peace Show this year saw the launch of 'Chocs for Chaps', chocolate ammunition, authentic, full size munitions made from delicious quality Belgian chocolate. The initial range comprises .50cal, 20mm Vulcan, 30mm Aden and 30mm Oerlikon rounds and the classic Mills bomb, which is available solid or hollow filled with white chocolate buttons or jelly beans. Smaller rounds come in ammo box packaging or blister packs, while Mills and large rounds are boxed only. For orders 50 per items upward, packaging can be tailored with customer motifs, logos or messages. For more information go to:

www.chocsforchaps.com

Paxman Digging the Dirt



He's famed for digging for answers, but Jeremy Paxman found himself digging the dirt during a recent visit to The Tank Museum. The host of BBC 1's Newsnight, renowned for calling a spade a spade, volunteered to 'break the earth' on The Tank Museum's latest building project whilst filming a documentary about the First World War.

In July, The Tank Museum learned that it had been awarded £2.5m towards a series of developments including a new 40,000 sq ft building titled The Vehicle Conservation Centre. Capable of housing 120 vehicles in stable environmental conditions, it will be first time many of them will be on display. The building will include an exhibition explaining how the Museum maintains and cares for its unique collection of armoured fighting vehicles



and provide the facilities to allow simultaneous volunteer led conservation projects. Building work has now begun on the Vehicle Conservation Centre, which will be open to the public in autumn 2013.

The work is being carried out by Dawnus Construction LTD of Exeter.

DOG COMPANY REPLICAS



Ben Dobbs set up 'Dog Company Replicas and Restoration' in early 2012 having had the germs of an idea for some time. Ben had lusted after a Willys Jeep since he was ten years old but, like many people, the dream of owning one had always been out of his reach, be it financial or circumstantial. About three years ago, Ben spied a battered and unloved kit car parked outside his local pub in obvious need of major TLC, and one day he put one of his business cards under the wiper with a message on the card to ring if the owner was interested in selling.

The kit was an old Jago Jeep, but Ben had spotted the potential of making it into a replica and in his mind he was already stripping away the bad bits and copying the real thing! Ben then discovered that there was talk of a Monte Carlo Rally to raise money for prostate cancer open to vehicles of vintage or a 'quirky nature' and while Ben thought that it would be a great thing to do, he didn't have the car to do it in. Then by coincidence, a week later Ben got a call from the owner of the Jago Jeep and bingo a deal was struck!

Ben had three months to complete the rebuild and enlisted help from friends. By mid June the Jeep was ready for an MOT and after a couple of minor tweaks the Jeep was MOTd and legal. The following Wednesday Ben and



his co driver set off for the meeting point in London for the charity Monte Carlo Rally and went on to perform faultlessly throughout the event.

When Ben finished work at the builder's merchants where he worked due in part to his ill health, he decided to start his own business building these Jeeps full time. Since then there's been no looking back and the demand for the replica Jeeps by people who can't quite afford the real thing has gone from strength to strength. Dog Company Replicas and Restoration, is a living, breathing thing, run and manned by enthusiasts and re-enactors, building for enthusiasts. Ben travelled to Normandy in May with two Jeeps and had a huge amount of interest and even secured a sale during the trip! To date they have sold a number of replicas, and have a workshop full of Jeeps in various states of completion and in 2013 Dog Company Replicas will be displaying and selling their vehicles at Stoneleigh, Malvern and then the War and Peace shows, so if you fancy a Jeep but can't afford the real thing check them out.



Archive Photo Info

Mike Cecil contacted us with regard to an image that appeared in the November 2012 issue. This is what he had to say - Ed.

Hi Ian,

MMI arrived today, so it was 'down tools' as usual while I read all the latest. I note James Payne's query about the Diamond-T Model 980 on page 71, and can offer some information about this particular vehicle.

It is one of the batch of Model 980 and 981 model Tank Transporter Prime Movers (US Army M20) allocated to the Australian Army during the Second World War under Lease-Lend. The Australian Commonwealth registration number 49741 shows it is chassis number 9800960, engine number 366617. Note the 'left hand drive' sign: a must when driving in Australia, where vehicles are right hand drive. It appears to be a post-war image, as the vehicle is not finished in disruptive camouflage. The Diamond-T prime mover remained in service in Australia until progressively replaced by the Leyland Contractor in the late 1960s/early 1970s. In this ballast body configuration, they were used for towing the US M9 tank transporter trailer (Rogers and Freuhauf: In US Army service, when combined with the M20, the 'rig' became the M19.) and later the Dyson Mk.3. Some were later (early 1960s) converted to haul the Australian 60 ton Tank Transporter trailer by removing the ballast body and installing a 'fifth wheel', amongst other modifications. A small number were also retained in this original ballast body form for use as the 'pusher' tractor for the 60-ton transporter with Centurion aboard.

Best regards - *Mike Cecil*

Santa's Goddess

Colin Stone emailed us this photo of his four-year old son Seamus posing by a 'Green Goddess' that was being used as a mobile advertising bill board for a local garden centre's 'Santa's Grotto'. His son couldn't quite understand why it was called 'Green' Goddess when it's clearly red!



M&N Pictures



If you're a fan of modern military vehicles then German-based M&N Pictures may well be of interest to you, thanks to their extensive range of military vehicle related videos covering many European-based military exercises, allowing you to sample the sights and sounds of a military exercise where the dust and mud is kicked up by the heavy tanks and armour, putting you in the thick of the action.

M&N Pictures are popular traders of military videos in Germany, having been established more than 15 years ago. They travel around Europe to capture a wide range of armoured vehicles from many countries being put through their paces. Over the years the countries that the team has visited include Norway, Switzerland, Germany, France and Poland, and in some cases the exercises featured in the videos feature military units no longer in existence, providing a historical record of their service. Events featured in the range of videos include formation reconnaissance exercises in civilian areas in Germany, armoured air defence, the Royal Signals, Royal Engineers featuring the Chieftain AVRE and AVLB, plus the

Trojan and Titan that replaced them, Royal Artillery, plus armoured battle group formations.

Amongst the many titles available from M&N Pictures is a training film about the Power Pack Repair Facility of 2 Battalion REME in 2006, and were the first to see a river crossing of the then new Trojan engineer tank on an amphibious M3 bridging ferry at the Drawsko-Pomorski Training Area. These fascinating films transport you from your living room to the action of the battlefield, pump up the volume and you could almost be there, the only thing missing is the smell of the diesel hanging in the area.

Why not visit the M&N Pictures homepage where you'll find an introduction to the company and a short trailer and scenes from the various videos offered. The main language of the site in German, however, English-speaking viewers are also catered for. The site includes more than 1,200 photographs in the gallery, and you can download their video catalogue and order from an expanding range of military vehicle related videos, which currently numbers 140!

www.mn-pictures.de



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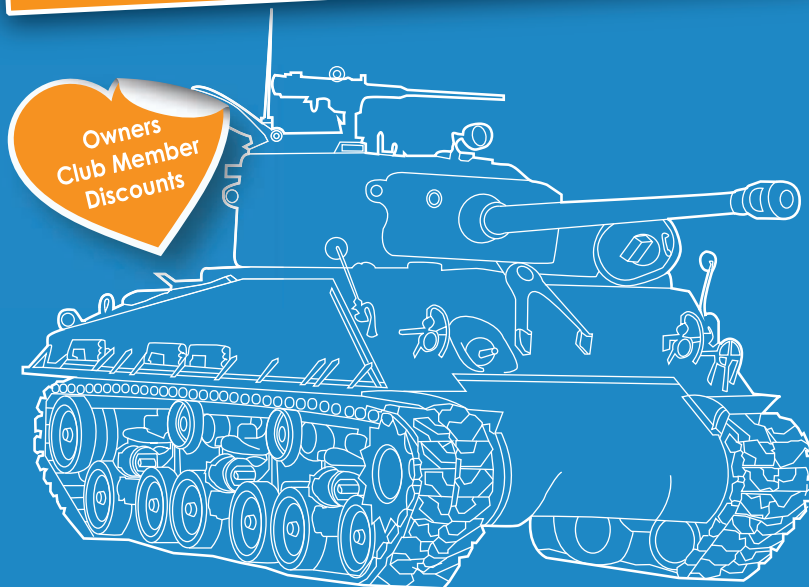
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Wartime Military Vehicle



Steve Tydeman contacted us with a brief report from an event staged at the Tank Museum at the end of September 2012, which was run in conjunction with the local Dorset Area of the Military Vehicle Trust and effectively resurrected the shows held in the early days of the museum. Sadly MMI were unable to attend, but Steve has been kind enough to provide us with photos and a report from the event, which he attended. Our thanks to Steve for emailing us – Ed.

Dear Editor,

I'm pleased to report on a new show that was held at the Tank Museum on Saturday 22nd September. Planning started in 2011 and the decision was made to hold it in conjunction with the Tiger day, which gave the public great value as the normal museum entrance fee was held but also provided access to 50 visiting privately owned military vehicles on display. As a vehicle owner myself I could not resist taking my Land Rover and we camped on site Friday night with other owners. The arena displays were split in to wartime and post-war, with museum staff giving

the crowd commentary whilst the vehicles took to the arena. One of the stars of the post war section was the BRDM-2, but the arena parade featuring the wartime section featured a number of highlights, which included John Ilott's GMC alongside Richard Sparkes' 1943 GMC and Ron Pier's immaculate BSA M20. Incidentally, the motorcycle is often used as an outrider bike for MVT road runs. WWII armour also joined in with the arena displays and included Tiger 131, which I came face to face with the Turret in the arena a real chilling experience not to be forgotten!

Regards *Steve Tydeman*



Show



WAGTAIL SPINNEY



Reader Dave Bedford sent in a selection of photos taken at an event where a number of military vehicle owners were putting their vehicles through their paces on an off-road course. The event took place at Wagtails Spinney, near Banbury





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Bush Truck





Gordon Arthur updates us on the Bushmaster, a success story from down under

Native to Central and South America, the Bushmaster is the world's largest species of venomous pit viper. This deadly creature is capable of multiple bites, and it has forged a formidable reputation. Large, thick-bodied and with an upturned snout, its typical colouring is light brown with a series of dark brown or black blotches that run the length of the body. I still remember my first encounter with a Bushmaster, with the foregoing description proving fairly accurate. However, my face-to-face confrontation did not take place in the deep jungles of South America, but rather in Australia.

Since the species' introduction into Australia, the Bushmaster has spread rapidly all around the continent.

However, this Bushmaster species rolls on four wheels across the outback rather than slithering on its belly through jungle undergrowth! The 'Bushmaster', the name selected for a 4x4 armour-protected vehicle, has taken Australia by storm, with no less than 838 manufactured or ordered for the Australian Defence Force to date.

The Bushmaster Protected Mobility Vehicle (PMV), originally called an Infantry Mobility Vehicle (IMV), was later changed and is now widely employed by the Australian Army and even by the Royal Australian Air Force (RAAF). This MRAP Category II vehicle has been a huge success story, with the vehicle even enjoying export sales. According to the manufacturer, it offers 80% of the functionality of an 8x8 vehicle for 30% of its cost!

Main photo opposite: the DFSW variant is externally indistinguishable from other variants. The difference lies in the internal layout where there are seats for a three-man weapons team, and racks to stow heavy weapons such as the MAG 58, .50-cal M2, Javelin and Carl Gustav.

Top right: this vehicle belonging to A Battery, 1 Regiment Royal Australian Artillery, was photographed at the Shoalwater Bay Training Area (SWBTA) in central Queensland. Protection and mobility are helped by a ground clearance of 430mm.

Bottom left: an impressive line-up of 'Bushie' PMTVs belonging to 8/9 RAR at Raspberry Creek in the SWBTA. The vehicle features a monocoque V-shaped hull, and storage boxes with a useable volume of 2.5m³ line both sides of the hull.

Left: the Bushmaster is propelled to a top speed of 120km/h by a Caterpillar 3126E turbocharged diesel engine. It can stop efficiently too, thanks to dual-circuit disc brakes on all four wheels. The wire-cutters on the forward edge of the roof are raised.





Top left: the 7.62mm MAG 58 serves as the standard GPMG in the Australian Army, and here one is fitted in the R-400 RWS. Alternatively a .50-cal MG can be fitted.

Above centre: because radio equipment inside this PMCV is deemed classified, the only interior that can be shown is the driver's compartment.

Above: a Bushmaster PMTV participating in the biennial Talisman Sabre exercise at the SWBTA near Rockhampton. Note the roof-mounted R-400 Remote Weapon Station.

Right: like its serpentine namesake, the large Bushmaster PMV could never be described as attractive!



PROJECT BUSHRANGER

Perry Engineering in Adelaide, with technical assistance from Timoney Technology Limited of Ireland, initially designed the Bushmaster. Later, ADI Limited (now Thales Australia) acquired the prototype, design and tender. Two prototypes were trialled in East Timor in 1999, and a total of 250,000km was covered during five phases of reliability trials in Australia.

The future of the Bushmaster was assured when the Australian Army named it as preferred tenderer on 10 March 1999 after Project Bushranger trials for a protected land mobility requirement. A contract with ADI was signed on 1 June 1999 for 370 vehicles, though this was renegotiated down to 300 in 2002 because of funding constraints. Full-rate production only commenced in 2004 and full design acceptance for the Troop Carrier variant occurred on 24 February 2006. At that stage, deliveries were running three years behind schedule because of technical difficulties related to the driveline and suspension.

With the input of its corporate resources, Thales Australia developed a range of six variants at its production facility in Bendigo, Victoria. A modular design approach allows reconfiguration and simplicity of repairs. The six variants fielded by the Australian Army are: Protected Mobility Troop Vehicle (PMTV); Protected Mobility Command Vehicle (PMCV); Protected Mobility Mortar Vehicle (PMMV); Protected Mobility Assault Pioneer Vehicle (PMAPV);

Protected Mobility Direct Fire Support Weapon Vehicle (PMDFSWV); Protected Mobility Ambulance Vehicle (PMAV). The first variant delivered was the Troop Carrier, followed by the Command Vehicle, with all variants being fielded by 2010.

In December 2006 it was announced an additional 143 Bushmaster PMVs would be acquired under the Enhanced Land Force initiative. A further order for 294 vehicles was signed in late October 2008 under Phase 3 of LAND 121 Project Overlander. The latest order for 101 vehicles was approved in May 2011 with delivery expected to be completed in 2013. Thales Australia has a through-life support contract for all these vehicles.

THE 'BUSHIE'

The Bushmaster, affectionately known as the 'Bushie' by Aussie troops, is principally deployed in motorised infantry units. Units such as 6 RAR (6th Battalion, Royal Australian Regiment) and 8/9 RAR of the 7th Brigade based in Brisbane are being fully equipped with the Bushmaster, while the RAAF also operates twelve Bushmasters in its No.1 and No.2 Airfield Defence Squadrons. Another army unit equipped with the Bushmaster is B Squadron, 3rd/4th Cavalry Regiment. They are also used by other units such as artillery for transporting gun crews and for command functions.

The Bushmaster has been deployed overseas - ten vehicles arriving in Iraq in May 2005 as part of the Al



Muthanna Task Group, with 19 operating in Iraq by September 2006. In addition, the Special Forces Task Group in Afghanistan has operated a small number of Bushmasters since September 2005, and the Mentoring Task Force relies on an extensive fleet. The 4x4 has performed well in the rugged terrain and climatic extremes of Afghanistan.

DESCRIPTION

The basic Bushmaster variant provides armoured transport for infantrymen, able to carry a complement of ten soldiers plus provisions for three days. Upon arrival at a combat zone, personnel would normally dismount to fight. The vehicle offers high mine-blast resistance thanks to its V-shaped monocoque hull; it can withstand a

blast the equivalent of a 9.5kg high-explosive mine under a wheel or the centre of the hull. The vehicle's all-welded steel armour offers protection against 7.62mm small-arms ammunition and improvised explosive devices (IED).

The driver and vehicle commander are seated in the front two seats, while the rear compartment has a total of eight individual seats with full harnesses along the two sidewalls. The vehicle has ballistic glass in seven windows, three either side and one in the rear door, these allowing occupants to maintain awareness of their surroundings and to keep their eyes accustomed to prevailing light conditions. Fuel and hydraulic tanks are positioned outside the crew compartment for safety reasons, while a protected auxiliary tank offers an



Top left: this is a Mortar Vehicle belonging to Mortar Platoon of 8/9 RAR. Externally it is indistinguishable from a basic Troop Carrier, but its internal storage allows carriage of an F2 81mm mortar and ammunition, however, the weapon must be dismounted for firing.

Top right: a single window is mounted in the rear door, while there are three bulletproof windows either side of the hull to enable occupants to maintain situational awareness. Internal volume of the crew compartment is a spacious 11.2m³.

Above right: a pair of 'Bushies' from 6 RAR pushes forward along Route Blue at the SWBTA during Exercise Talisman Saber 2009. Fitted with Michelin 395/85 R20 XZL tyres and CTIS, the vehicle can tackle 457mm-high vertical obstacles.

This Bushmaster PMTV has been well camouflaged, concealing the hydraulic self-recovery winch that is mounted halfway down the left side of the vehicle.



Technical specifications for Bushmaster PMTV

Seating:	1 driver + 9 passengers
Length:	6.6m (7.18m including the spare wheel)
Width:	2.48m
Height:	2.65m
Ground clearance:	430mm
Weight:	12.4-tonnes
Combat weight:	15-tonnes
Maximum speed:	Governed at 100km/h
Operating range:	800km
Fording depth:	1.2m
Engine:	7.2-litre 6-cylinder air-cooled Caterpillar 3126E ATAAC turbocharged diesel engine producing 330hp at 2,400rpm
Transmission:	ZF 6HP502 Ecomat G2 6 fwd 1 rev
Suspension:	Independent all-round, double wishbone with shock absorber at front; trailing arm with dual shock absorbers at rear

emergency supply of fuel to keep the vehicle mobile in emergencies. A novel 270-litre water tank is installed under the crew compartment floor, providing drinking water plus extra safety in the event of an explosion.

One criticism of the Bushmaster's design is that there are no doors in the cab, which could prevent or slow egress from the rear door or roof hatches in the event of an accidental rollover or attack.

All crewmen and passengers are given personal headsets with which to communicate with each other.

The author has travelled in Bushmasters a number of times, and most recently I spent a number of days based in a variety of Bushmasters during Exercise Talisman Sabre, and I found its utilitarian appearance grew on me each day. Comfort is an important consideration to ensure

troops are not fatigued before they enter combat. Vehicles feature such home comforts as a water boiler and climate control system. Operational deployment has resulted in modifications such as a protected weapon station, spall liner and fire explosion suppression system. The Bushmaster is deployable by RAAF C-130 Hercules and C-17 Globemaster III transport aircraft.

An MR555 ring mount manufactured by W&E Platt is fitted on the roof beside the forward circular roof hatch. This can accommodate either a 5.56mm or 7.62mm machine gun. Two roof hatches at the very rear have a mounting boss for a 5.56mm machine-gun swing mount. In response to criticisms from Australian soldiers in Iraq and Afghanistan, a Raven R-400 Remote Weapon Station (RWS) with .50-cal M2 QCB machine

Top left: the machine gun has been removed from the RWS of this Bushmaster in preparation for transportation. The vehicle is parked on a 20-ton trailer towed by a Mack R-series wrecker.

Above centre: the array of antennas gives away the fact that this is a PMCV. Refurbished Command Vehicles featured terminals for the Elbit Systems TORC2H digitised BMS.

Above: this PMTV belongs to the HQ of Charlie Company, 8/9 RAR. It is missing the camouflage cover that would normally cover the spare wheel. Note the empty machine gun swing mount beside the left rear roof hatch.



Two Bushmasters put their best snout forward for a photo at the MBTA. Machine guns. While the 'Bushie' could conceivably tow a 155mm M777A2 howitzer, it has not been certified to do so.



gun or 7.62mm MAG 58 was fitted to many Bushmasters from early 2007 onwards (this is the same as the M101 CROWS used by the USA). These are usually fitted to basic Troop Carrier variants so that they can support squads when they dismount. Their thermal imaging systems are also extremely useful for surveillance.

Fulltime four-wheel drive with selectable front, centre and rear differential locks ensures excellent cross-country mobility, as do short front and rear overhangs. The central tyre inflation system (CTIS) is controlled by a push button on the dashboard.

A Caterpillar turbocharged diesel engine produces 330hp at 2,200rpm, and the power pack can be removed and refitted in less than three hours. Steering is power assisted, while the fully automatic ZF transmission is operated by a push button. Commercial off-the-shelf (COTS) components such as engine and driveline ensure a high readiness and reliability rate for this AUD563,000 vehicle. A Sepson self-recovery winch is also mounted on the left side of the hull.

Thales has also developed a fire-fighting variant called FireKing for the civilian market. A cargo-carrying prototype called the Copperhead Armoured Combat Support Vehicle (ACSV) has been exhibited internationally. The Copperhead has an armour-protected single-cab or dual-cab design and a rear flatbed capable of carrying up to 3.5-tonnes. The Australian Army has tested this 'ute' version, but one difficulty with the design has been overcoming its tendency to roll owing to a high centre of gravity when loaded with cargo. Nevertheless, the army is expected to acquire this Ute variant in due course under LAND 121. Other designs offered by Thales include a vehicle

with an IED interrogator arm, and the ISTAR Osprey with a Will-Burt Stiletto telescopic mast that mounts a Sophie thermal-imaging device, laser rangefinder and Kylmar optronics sensor.

EXPORT SALES

After negotiating an agreement with Oshkosh Truck in the USA, Thales entered the Bushmaster in the US Army's MRAP competition. However, the Australian contender withdrew in August 2007. Despite this unsuccessful first foray, the Bushmaster has achieved significant export successes to the Netherlands and United Kingdom. In July 2006, the Dutch government approved the purchase of 25 vehicles for troops operating in Afghanistan. Because it was an urgent operational requirement, this batch of vehicles was delivered from Australian Army stocks, with 23 sent straight to Afghanistan and the remaining two dispatched to Holland for training purposes. A total of twelve vehicles mounted the Thales SWARM RWS. Subsequently, 17 CROWS RWS were ordered from Electro Optic Systems in July 2007. The Dutch subsequently ordered a further ten (in November 2007), 13 (in June 2008), nine (in January 2009), 14 (June 2009) and 14 (August 2009), bringing the total to 86.

The other sales success has been to the UK, which purchased 24 Bushmasters in May 2008. These were used by the British Army, including Special Forces, in Iraq and in Afghanistan. They have been fitted with electronic countermeasure devices to disrupt IEDs.

Despite a long gestation period, the Bushmaster has proven to be a rugged player in some of the harshest terrain and climates in the world. To date 31 Australian Bushmasters have been

damaged beyond repair by mines or IEDs in Afghanistan, yet not one Australian fatality has been incurred, fine testament to the vehicle's qualities.

The 'Bushie' has forged a prominent place for itself in the Australian Army, and soldiers I spent time with are very pleased with its capabilities. It is indeed a home-grown success story from Down Under!

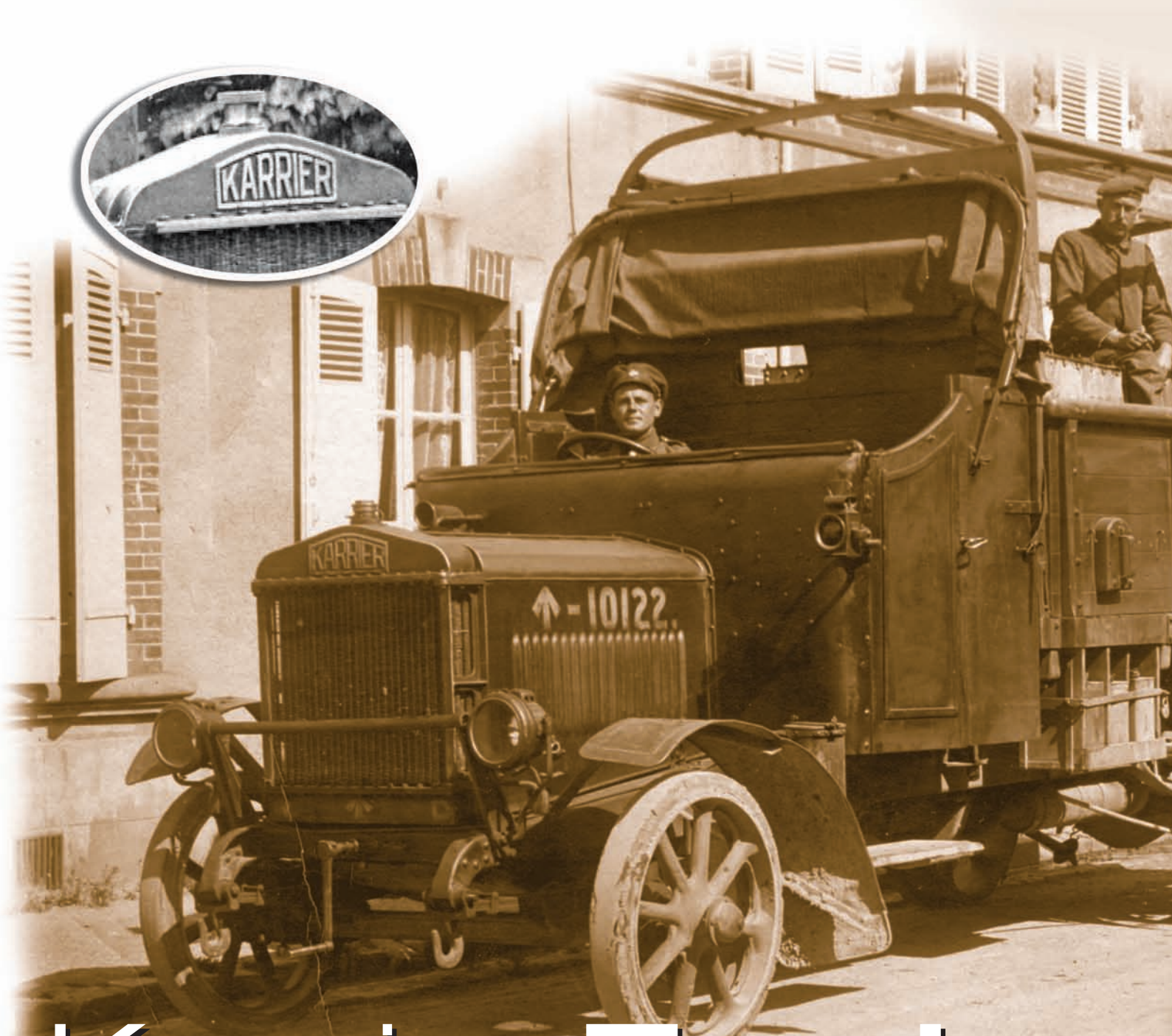
Above: Bushmaster with its front-mounted SPARK (Self-Protection Adaptive Roller Kit) made by Pearson Engineering. It is being used to proof a main supply route during a large exercise in 2011. PMAVs carry a variety of specialist equipment to support infantry combat engineers.



Below: a Bushmaster Ambulance conducts an emergency mission. The PMAV can carry two stretcher cases, or one stretcher plus four seated patients. A range of medical equipment is stored inside.

Bottom: a hoist is fitted to the right of the rear door to help raise/lower stretchers into the back of the Ambulance. The rear door on the PMAV is significantly larger than on other variants.





Karrier Trucks

Tim Gosling describes Karrier trucks of the Great War



The town of Huddersfield is perhaps best known for having been both a centre of production for textiles and as a hotbed of civil unrest during the industrial revolution. This opposition to industry did not have a permanent effect upon the town (something to do with the Government stationing 1,000 soldiers there at the height of the unrest) as in 1908 Herbert Clayton with his son Reginald established the firm Clayton & Co and with a small workforce started building commercial vehicles.

Their first lorry, the imaginatively named "Model A" was fitted with a Tylor engine which delivered power to the back axle by chains running

from the gearbox jack shafts to sprockets on the inside of the back wheels. The driver sat directly above the engine and with no cab or protection against the weather the lorry looked more like a horse drawn wagon than a motor lorry. On the plus side the driver did no doubt have a magnificent view from his very high seat.

Advertised by Clayton & Co as the "Karrier Car" by the end of 1909 they had sold fifteen of these "Model A" lorries and the following year a further forty six were sold. With a fairly successful first entry in to the commercial vehicle market the Claytons started developing its successor.



Main photo above: this Karrier is being used to deliver water. A large water tank and two POW's can be seen in the back.

Far left bottom: as can be seen from the markings this "A Type" previously belonged to the Great Central Railway.



Above: almost certainly a driving lesson for these five men of the Army Service Corps in a new looking Karrier.



Left: the design of the wooden body on this Karrier demonstrates that this was an early pattern subsidy lorry.

Below: I do wonder what the driver of this Karrier thought of the name "The Fat Boy" painted on the front?

The "B Type" range of lorries was introduced in 1911. The range ran from the B40 (this being a two ton chassis with a 30 HP engine) up to the B110, which was their largest vehicle (a six ton chassis with a 45 HP engine). Sitting in the middle was the B 60 (at 2 1/2-tons) and the BR80 (which was a 3 1/2-ton with a 35 HP engine. Still chain drive they had the more conventional arrangement with the driver located to the rear of the engine and no doubt much to the drivers relief they were also fitted with a cab.

Although not designed as military vehicles many of these (and some "A Types") were requisitioned at the start of the war and saw service through to





Above: no doubt tired of the canvas flapping the driver has fixed it in place with wooden boards nailed on top of it.

Below: the chains that can be seen on the back wheels of this Karrier still did not prevent the lorry from sliding into a ditch on this snow covered road.

the end with a large batch of them being disposed of at Kempton Park in 1919. It would be the Karrier "WDS Type" (War Department Subsidy), and which was fitted with a 50 HP Tylor, which would be Karrier's greatest contribution to the war effort. Designed and built to the the subsidy scheme specifications, the British War Department purchased more than 2,000 of these outstanding lorries.

THE SUBSIDY SCHEME

In 1912 the War Office met with a number of British lorry manufacturers to agree upon a set of standard specifications to which lorries would be built in order for the purchaser to qualify for a Government subsidy. The downside of this was in order to qualify for the subsidy the lorry had to be maintained in top condition and the owner would have to hand over the lorry in time of war or national emergency with just 72 hours notice. Clayton & Co took this to be the perfect opportunity to develop a non chain drive lorry and started building what would become known as the Karrier WDS, which would be their first worm drive.

In order to ensure that any new lorry met the requirements of the scheme they would have to be certified. Certification was given following a rather rigorous series of tests.

Clayton and Co entered their Karrier in the September 1913 trials, which went on for three weeks during which time the Karrier completed a journey of 1,500 miles including a speed trial on the Brooklands racing track. Unfortunately the Karrier failed to complete this final part of the trial but despite this it still received accreditation, as did the Tylor engine for use in other lorries.

KARRIER WDS

In order to meet the requirements of the subsidy scheme the Karrier had to meet stringent standardised specifications such as the positioning and marking of controls, wheel and tyre size, cab and body design. This was to allow drivers to go from one lorry type to another with minimal amount of difficulty. The Karrier WDS met all of these specifications, but had some of its own peculiarities in an attempt to make it a more desirable lorry to the owner/driver (Messrs Clayton probably had their eyes firmly set on the post war market).

The subsidy scheme dictated that lorries should have a 30hp engine. The engine used in the Karrier was once again manufactured by Tylor and although rated to give 45 to 50 hp it actually produced 53hp making it the most powerful engine fitted to subsidy lorries. The same engine would be later fitted to AEC "Y Type" lorries which were purchased in very large numbers. One unique feature of the

"... Certification was given





Karrier was that the chassis sloped downwards from in front of the driver to the front wheel dumb irons. This allowed for a much lower radiator and bonnet giving the driver improved visibility and making maintenance on the engine more easily accessible. It appears that Karrier considered the ease of maintenance and repair as a top priority. When reviewed in 1915 it was found that the design of the WDS Karrier allowed for the removal or inspection of any part of the "mechanism" with the minimum of trouble thereby saving time and expense.

Every lorry that left Karriers Huddersfield factory was submitted to a rather severe road test. Leaving the factory they would drive three miles to "Deep Lane". An immediate 90-degree turn would prevent any run up this hill, which started off with a one in four gradient. This incline would soon ease to a more manageable one in six, before returning to another one in four

Having a well fitted canvas tarpaulin is an absolute rarity on any WW1 British lorry!



...following a rather rigorous series of tests ..."

gradient combined with a 90-degree bend near the top. At this point the lorries would be brought to a stop and then the driver would have to tackle the gradient from a standing start. To make the journey a little bit more difficult the road surface was very bad, and crossed with deep drain gutters. In addition each of the subsidy lorries would be given a test load of 1-ton in excess of its gross laden weight.

IN SERVICE

Records suggest that the Karrier generally performed very well. However, it had the same Achilles heel as most of the other British army subsidy lorries - the chassis had a tendency to crack. This would usually occur in one or all of the following places: by the rear bracket that secures the front spring, under the scuttle and where the gearbox is secured to the chassis.

This image shows how the chassis slants down steeply in front of the scuttle visible above the front wheel.



Top left: Karrier subsidy lorries unusually all had WD marking on the bottom of the radiator.

Top right: the "B Type" Karrier was still chain drive. Note the number 22 above the cab.



Top left: the high sided wooden body on this Karrier is quite unusual and could well be a local modification. The lorry is also in very good condition.

Top right: the WDS Karrier lorry bearing the name "Mr Micawber" seems to have attracted the interest of a pair of typical French peasants.

Below: it appears from the vast amount of damage and wrecked bodywork and twisted chassis that this WDS Karrier has almost certainly been rolled over.

SURVIVORS

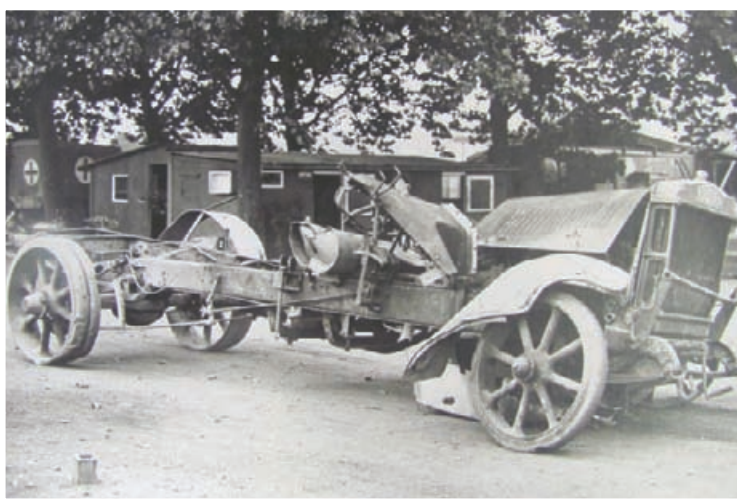
Although built too late to see service in the war, there is just one surviving Karrier WDS lorry, which is mechanically complete. Recovered from a smallholding in Bradford it was in remarkable condition and made a fabulous restoration project.

It still has its data plates, which give its type as "WDS 1919" (War Department Subsidy and year of manufacture) and chassis number as 2927. Despite being built too late to see war service it is interesting to see that Karrier was still making lorries of the same wartime design regardless of the vast stock of surplus military vehicles available on the second hand market. Like many other manufacturers it seems likely that Karrier was making these lorries at a loss in order to keep its workforce occupied. This particular Karrier was partially restored before being sold about 10 years ago and I have not seen or heard of it since.

(Photos courtesy - M. Sutcliffe)



"... there is just one surviving Karrier WDS lorry today..."



Karrier produced pressings for strengthening the frames, which were despatched to the front and then from 1917 (chassis number 1712) they increased the thickness of the steel in the chassis, which resolved the problem. Karriers production of WDS models in 1916 was just 8 a week. The Ministry of Munitions sought to increase this to 20 a week but it seems unlikely that this stretching target was ever achieved. By 1918 there were just 1,557 Karrier built subsidy lorries in service and a further 181 A and B Types (although the number of A types still in use would have been minimal).

When writing about vehicles from the Great War I don't normally comment on the markings, as that would be worth a separate article in its own right, however the Karrier

subsidy lorries had a common peculiarity, which is worth mentioning. The naming of lorries was generally frowned upon but prior to the Karriers leaving the factory they were each assigned the name of a character from the works of Charles Dickens. This was painted in 6" high letters across the front of the scuttle.

As a result the rather comedic named "Mr Squeers", "Mr Micawber", "Mr Tuckle", "Dick Swiveller", "Sergeant Buzfuz" and "The Fat Boy" amongst many others could be seen driving behind the lines on the Western Front. This naming does not feature on all of the photographs of Karriers which I have seen so it may well be that they were soon over painted or the factory was asked to desist from this practice.

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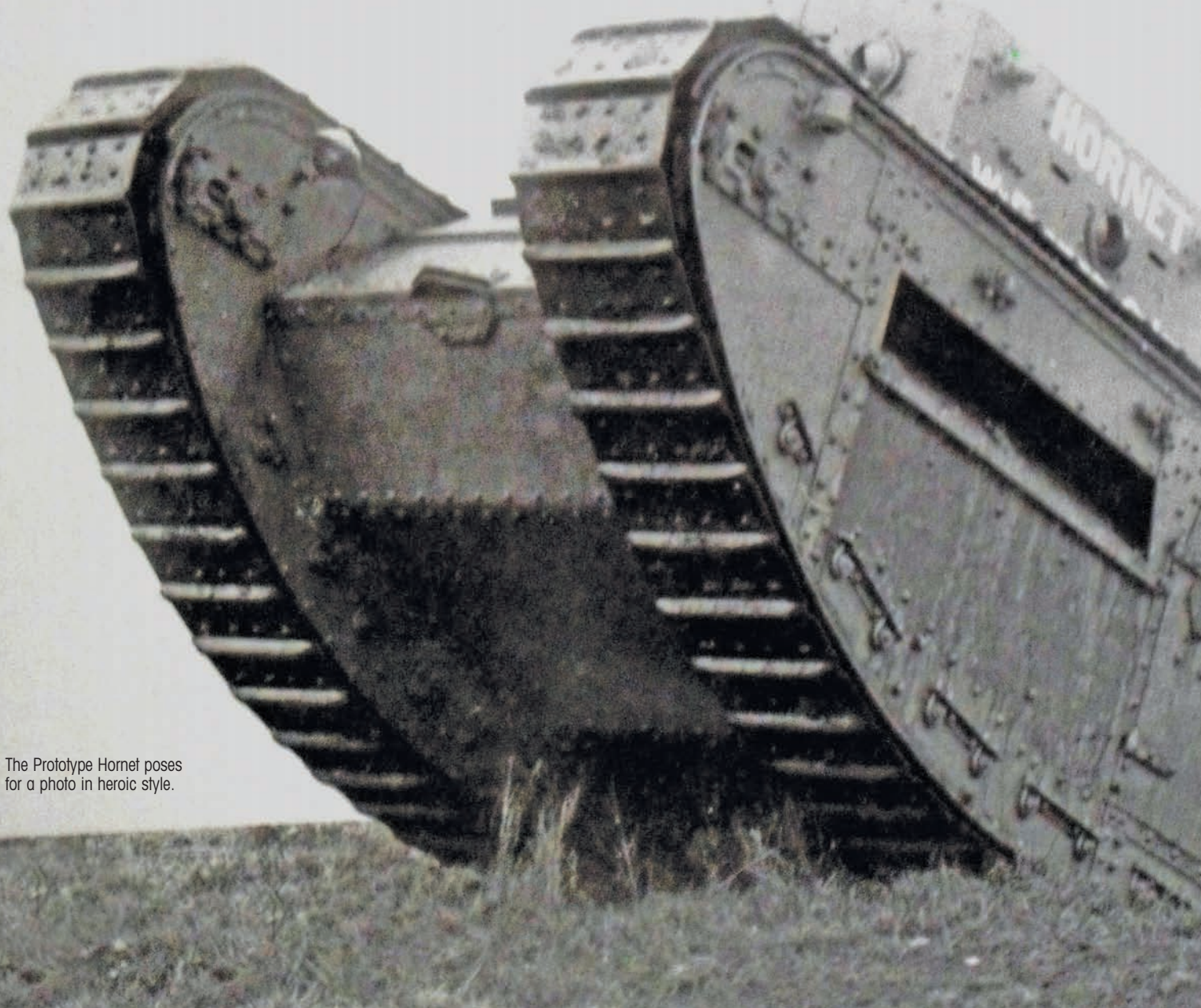
We carry books on Tanks, Jeeps, Trucks, Halftracks, Motorbikes to uniforms and ladies 40's fashions and much more!

The prototype Medium C was sign written up with an advertisement for the makers on both sides of the cab.

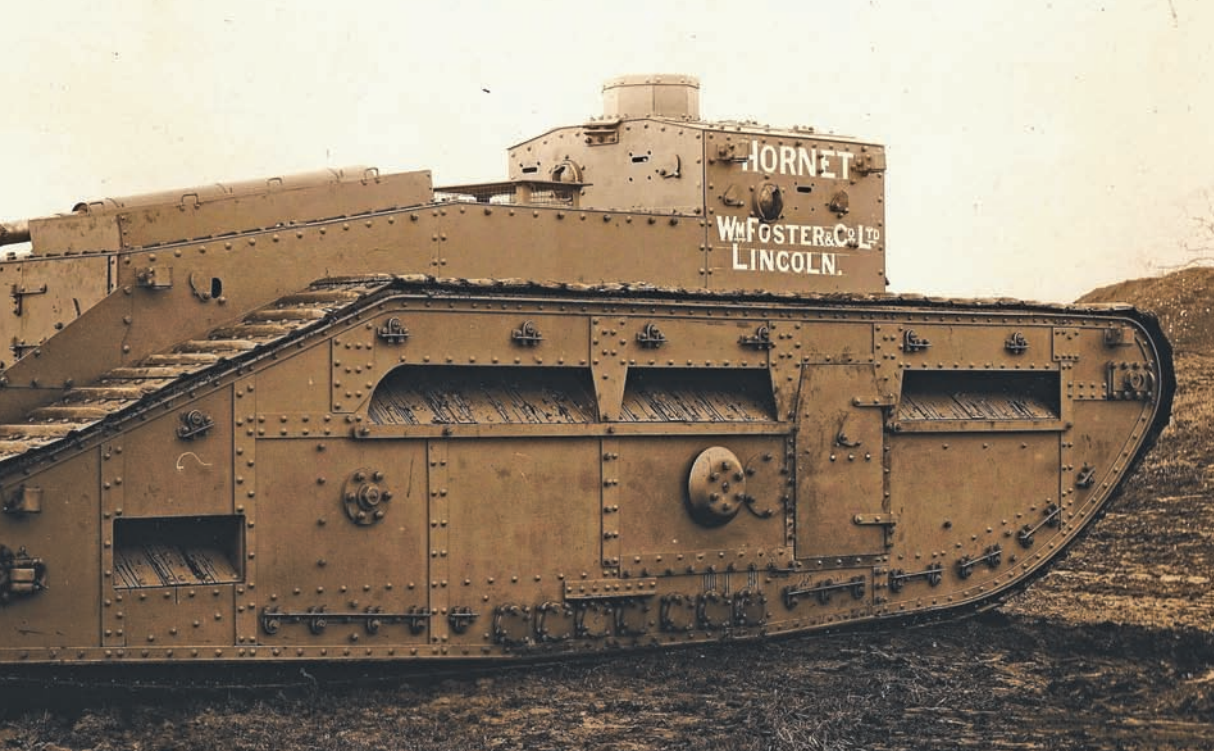


GREAT WAR HORNET

Richard Pullen looks at the British Medium C Hornet tank of WW1



The Prototype Hornet poses for a photo in heroic style.



Left: a very nice view of the prototype Medium C 'Hornet' on the William Foster test field in the Summer of 1918.

In the William Foster and Co. Ltd engine record book for late 1917 there are several entries for engines intended for a new tank, designated the Mk VI. This seems a little odd at first glance as the Mk VI was a heavy tank proposed in June 1917. The Mk VI had only gone as far as the wooden mock-up stage before being cancelled. The tank was such a radical departure from the heavy rhomboids of the time that the project came to nothing, so why were Fosters mentioning the Mk VI in their order books?

The mystery is solved when one sees the word 'Hornet' on the next page. The tank was actually nothing whatsoever to do with the old Mk VI and was instead the latest in a line of machines known as Medium tanks. Once the heavy tanks had breached the trenches, the Mediums would come to the fore and chase the German army back to Berlin at terrific speed, well that was the plan anyway!

The Medium tanks of the Great War were the Medium A Whippet, the Medium B and the Medium C Hornet. The Medium A saw action in the last year of the war and they and their crews did sterling service in many battles. The next tank was the

Medium B, often cruelly described as the 'ill-fated Medium B'. The heavy tanks were designed at William Fosters factory in Lincoln by a team headed up by two men, William Tritton, Managing Director of the company and Major Walter Wilson RNAS, who had been sent by the Army to oversee proceedings and give things a more military air. The two men worked well together, but the Medium B was to be the first Great War tank designed by Walter Wilson alone.

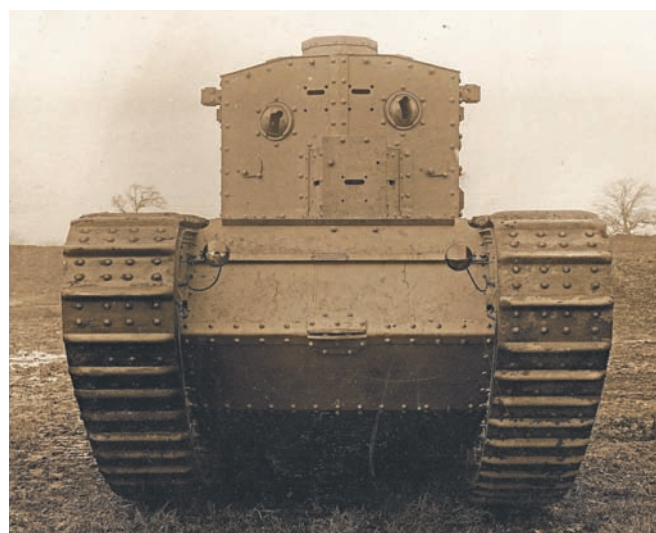
He was a brilliant engineer and an inspired designer, but although the Medium B was full of good ideas, the entire package was a bit of a disappointment. Wilson was all too aware of the problems of moving tanks by rail and he decided to make the new machine as short as possible so that it could be driven onto just about any standard flat railway truck. Unfortunately, the length of the tank left interior space in short supply and both the engine and fighting compartments were very cramped indeed. There was no access to the specially shortened 4-cylinder Ricardo engine via the crew compartment, so a problem with the engine would mean the crew having to exit the tank under

fire to get under the bonnet. There were several other problems with the tank and of the 700 ordered, a total of just 80 were produced by The Metropolitan Carriage, Wagon and Finance Co. of Birmingham, Coventry Ordnance of Glasgow and the North British Locomotive Co. of Glasgow before the order was cancelled. It may not have seen action in France, but several Medium C tanks, Mk V

Below right: a head on shot of the Medium C photographed here under test in Lincoln.

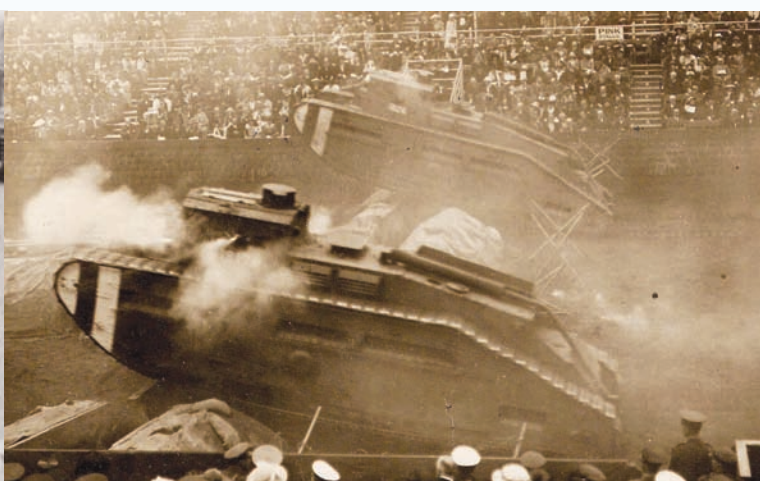
Bottom left: a Medium C photographed ambling along in Aldershot during some kind of parade.

Bottom right: people rarely seem to take photographs of tanks from behind, but here we see a very usefull shot of the new tanks rear end.





“... the Medium C was originally known in the factory as



Above left: the Victory March through London in July 1919 included the Tank Corps' newest machine, the Medium C Hornet. **Above right:** a brace of Medium C Hornets 'race' for the crowds at the 1923 Royal Tournament. **Below left:** with the house of Parliament in the background, the Medium C tanks mark the end of the war with a parade for the watching hoards, which was ironic really as they never fired a shot in anger! **Below right:** crowds line the streets of London to see Medium C Hornets in the Victory Parade.





the Hornet ..."

machines and Medium A Whippets were given to the White Russians.

In a remarkably logical piece of military thinking, the next of the Medium machines after the B would be known as the Medium C. It would be designed by William Tritton without input from Wilson and was built by William Foster and Co. Ltd of Lincoln. It shouldn't be assumed that Tritton and Wilson fell out over their separate designs; in fact there was apparently some good-humoured rivalry between the two men, who remained firm friends. The Medium C was originally known at the factory as the Hornet, but this never seems to have been an official military title. It is often described as the best tank of the era as Tritton and the design team from Fosters combined all the best ideas and experience of three years of tank building when he created the new machine and it was packed full of new thinking and clever technology.

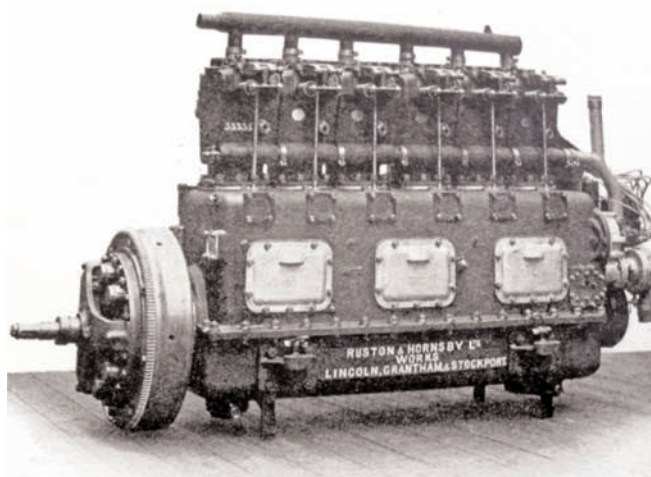
Instead of the old 105hp Daimler Sleeve Valve engine used on the early British Tanks, the Medium C was powered by the full size 6-cylinder 150hp Ricardo that had already seen service in the Mk V and some late model Mk IV machines. The Daimler had been a compromise as it had not been intended for use in tanks, but the new engine, designed by the brilliant Harry Ricardo was purpose built for tanks and despite increased interior working temperatures the new power

plant was perfect for the new generation of machines.

It may not sound particularly special, but the Medium C could boast a completely separate engine compartment with a partition between it and the crew compartment. This meant that for the first time, the crew were much less likely to be asphyxiated by fumes from their own exhaust. It is an often-quoted fact that Tank Corps losses in the Great War were around 40 percent and more men were killed by carbon monoxide poisoning than they were by enemy fire. The engine now being separate to the crew also made for a much quieter environment and each position was linked by a voice tube, negating the age old practice of relaying coded orders by banging a large spanner on the tanks engine casing.

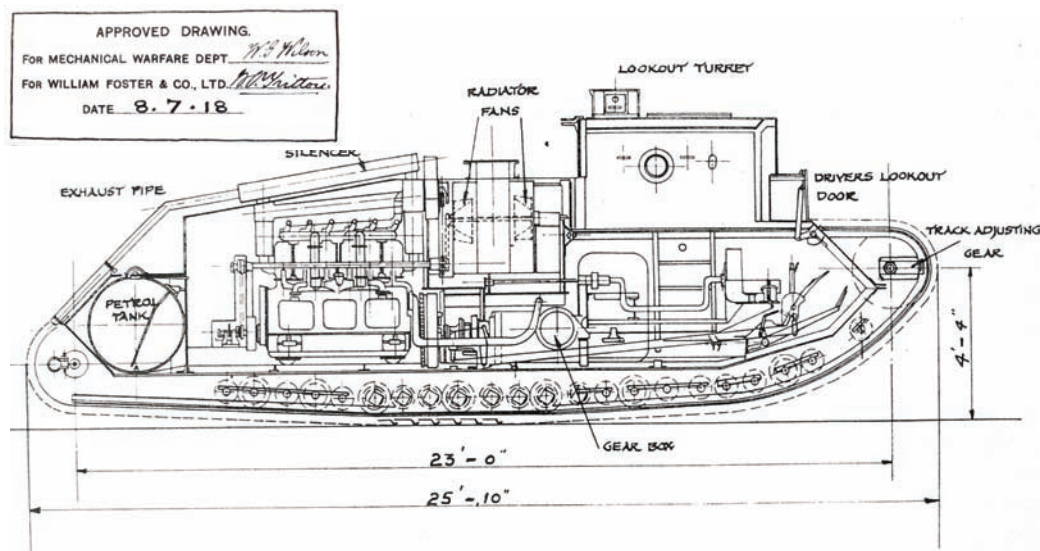
Like most other tanks of the late war period, the Medium C could be driven by just one man, and it had five ball mountings that each took a .303 Hotchkiss machine gun. The complete armament of a Medium C Hornet was made up entirely of machine guns, which officially designated the tanks as 'Females'. There had been a plan to make a 'Male' version with a six-pound gun at the front of the cab, but the variant never went beyond the drawing board. The Medium C had room for five machine guns, but only four were fitted. There was also a mounting in the roof of the cab so that if the tank was attacked by enemy aircraft one of the four guns could be moved into this position and the top hatch could be flung open to return fire. This fitment had also been seen on Wilsons Medium B, so perhaps there was a bit of collaboration between the two supposedly separate projects after all?

Unfortunately, the anti-aircraft hatch would leave the gunner



Above: a Ricardo 150hp petrol engine as fitted into the Medium C. This example is part of a batch constructed by Rustona nd Hornsby in Lincoln.

Below: a Medium C 'Hornet' gingerly crosses a railway line at Farnham in the early 1920s. It has clearly attracted the attention of the locals!





Top right: a grainy old shot showing at least four Medium C tanks on the factory testing grounds in Lincoln.

Background photo above: a group of Medium C tanks photographed at the Military Review in Aldershot in 1923.

Above: the Medium B wasn't one of our greatest tanks, consequently many were given away to the White Russians.

Below: this photograph is from the Tank Corps 1918 official Christmas Card and shows a Medium C, Mk V and Rolls Royce to the left.

completely exposed to both aerial and ground fire, so it would have been unlikely that the hatch would ever have been used for its intended purpose. Behind the hatch was a rotating hexagonal cupola, just big enough to get your head in, which would give the Commander a 360-degree view all around the tank. The cupola was a good idea, but pushed the finished tank over the standard railway loading height and would have needed to be removed prior to train travel.

The Commander had his own fold down map table, a compass of the type used in aircraft and there even

was a distance indicator, which was driven off the tanks final drive. There was a charge of gun cotton placed next to the gearbox so that the tank could be destroyed instead of falling into enemy hands and perhaps most impressive of all, the new tank had its own doorbell so that troops outside could attract the attention of the crew inside. The Medium C also had the ability to create its own smoke screen thanks to a reservoir of Sulphonic Acid which could be squirted into the machines hot exhaust, this system was another device that had been fitted to some Mk V* machines and also Wilsons Medium B.

The War Office were suitably impressed with Trittons Medium C Hornet and placed an order for 200 machines. In October 1918, further orders were placed with various factories for both female and male machines, but these were all immediately cancelled leaving Fosters the only factory to produce finished Medium C tanks. It is a shame that the tank could not have been tested in battle, but by the time it was ready, things were coming to an end, we had the Germans on the run and there was no point in shipping new tanks out to the Western Front when the war would have been over before they arrived. At



a Royal Commission hearing in 1919, William Tritton was asked why the Medium C had taken so long to come into service? He replied that 'many months had been lost on tank production due to the failure of the Mechanical Warfare Supply Department to deliver parts. The Ministry had promised engines and gearboxes, but the delivery fell further and further behind until the delay was well over a year'. Several factories, such as Ruston and Hornsby in both Lincoln and Grantham, built the Ricardo engine under licence, but the shortages became worse and worse until the Medium C gained its unofficial title of 'the best the tank never to see action'. By February 1919 William Foster and Co had delivered just 36 out of the 200 machines ordered and soon afterwards, the contract for the remaining 164 was cancelled. Some sources say that a further 14 to 18 Medium C tanks were created using parts collected together from the other factories whose contracts had been cancelled, but details are sketchy and it is unclear if this is actually true and if so, which company actually assembled them.

The Medium C officially went out of service in 1923 although several remained with the Army until the mid 1920s and the last remaining example was apparently sliced up during the scrap metal drive of early World War 2. The Medium C Hornet may never have seen action, but is a significant milestone in the story of British Tank design and can quite rightly take its position as the missing link between the early heavy rhomboids and the more conventional, modern designs that followed it.



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SWEDISH HEAVYWEIGHT

Shaun Connors takes a look at the range of military trucks produced by Scania

Main Photo above: following an initial order for 15 LHS trucks for delivery during 2005-2006, the Irish Army more recently ordered 36 R420CB6x6HHZ (shown) and two (8x4) trucks that were delivered 2007-2008. The Irish Army also received during 2008, 10 (4x2) Scania vehicles for EOD use.

Scania will be well known to most MMI readers as a major Swedish manufacturer of commercial vehicles, specifically heavy trucks and buses. However, the company also manufactures diesel engines for other heavy vehicles (including military), marine use, and other general industrial applications. In 1900, Maskinfabriks-aktiebolaget Scania was founded in Malmö in the south of Sweden as a manufacturer of

bicycles. By 1903 the first cars had left the factory, and two years later Scania built their first truck.

Scania's origins (through merger) actually trace back to 1891 and Vabis (Vagnsfabriksaktiebolaget i Södertälje). Vabis founded in 1891 as a railway carriage-manufacturing subsidiary of Södertälje-based steel company Surahammars Bruk. In 1902, engineer Gustaf Erikson designed the company's first truck, this powered by a petrol

engine and featuring two gears. The first order for a Vabis commercial vehicle was placed a year later in 1903, and 1907 saw the inauguration of a new factory, specifically for the manufacture of automobiles and engines.

A new 3-ton truck was developed, and despite this winning the Swedish Royal Automobile Club award for 1909, orders were low and Surahammars Bruk resolved to sell Vabis. In 1911 Vabis and Maskinfabriks-aktiebolaget Scania merged to create AB Scania-Vabis. Engine and car production was moved to Södertälje, with truck production taking place in Malmö.

Scania-Vabis merged with Saab in 1969 to form Saab-Scania AB, and



HITS

DEFENCE MARKET

Scania has a defence market approach for its trucks that is pretty much unique to the company, and one that in recent years has served it extremely well. Some company's offer only purpose-designed trucks to the defence market, Oshkosh of the United States a good example here. Others, of which IVECO, MAN, Mercedes-Benz and Renault are all good examples, offer purpose-designed trucks alongside militarised versions of their commercial product range, this militarisation ranging from no more than a coat of green paint through to modifications that leave the base truck almost unrecognisable. Scania's trucks for defence applications, like the company's commercial trucks, are based (with an absolute minimum of exceptions) on the modular use of its extensive range of cabs, chassis and driveline aggregates.

Mirroring its commercial range, Scania's current military offerings are based on the P, G and R Series, and as of early-2013 these have GVWs ranging from 16- to 58-tonnes, and a GCWs ranging from 30- to 180-tonnes, although GCW may be increased to >250-tonnes with special specifications and conditions.

Military trucks traditionally have higher unladen weights and lower



Above: Scania R143EK (6x6) tractor truck of the Norwegian Army coupled to a Maur six-axle semi-trailer.

payload ratings than their nearest commercial equivalent, a current generation military (8x8) likely to have an unladen weight of up to 21-tonnes, with a payload rating of around 15-tonnes... Tank/heavy equipment transporters are unlikely to exceed 130-tonnes GCW, payload unlikely to top 70-tonnes for most applications.

Motive power for current P, G and R series trucks is provided by four basic Scania engines: a nine-litre five-cylinder unit developing from 230 to 360 hp; a 12-litre six-cylinder unit developing from 360 to 470 hp; a 13-litre six-cylinder unit developing



Below left: the Swedish military received around 2,850 SBA/SBAT between 1974-1989, with an estimated 1,500-2,000 remaining in service as of late-2012.

Far left and below: under various contracts and options, Scania has delivered approximately 440 assorted trucks to Finland's armed forces since 1999.



when the two split again in 1995 the name of the truck and bus division changed to the simpler Scania AB. In 1996 Scania AB was introduced on the stock exchange.

Fellow Swedish truck maker Volvo attempted to take over Scania in 1999, however, the attempt failed as did a similar attempt by MAN in 2006. Currently the two major stockholders of Scania AB are Volkswagen AG and MAN SE. Volkswagen AG has a 70.94% voting stake (equity), while MAN SE holds a 17.37% voting stake. As a further twist, Volkswagen AG also owns a 29.9% voting stake in MAN.

The short version of that is simply Scania is not Swedish, it is German, the majority of the company owned by Volkswagen!



In 2006 Scania received an order for R420LA4x2HNB (4x2) tractor trucks for fuel tankers from Swedish defence forces.

FRENCH TRUCKS

France, a traditional stronghold for Renault, placed its first sizeable order with Scania in 2002 for 242 10,000-litre fuel tankers; to date around 450 assorted Scania vehicles have been delivered.



360 to 480 hp, and a 16-litre V8 unit developing from 500 to 730 hp.

Engines meeting EURO 3, 4, 5 or 6 requirements and utilising either EGR (Exhaust Gas Recirculation) or SCR (Selective Catalytic Reduction) emissions technology are available. EURO 3 EGR engines are often preferable to armed forces with experience of deployed operations where prolonged austere operating conditions exist, to say nothing of a need to operate on NATO-standard F34/JP8 (jet fuel), this not something EURO 5 engines appreciate, and something that will offer up considerable technical (and logistic) challenges for EURO 6 engines...

Driveline options include 8- and 12-speed manual gearboxes with a conventional clutch and with/without crawler gears or splitters, the majority of manual gearboxes available with Scania's Opticruise (automated gearbox) and/or a retarder. For combinations above 150-tonnes GCW a torque converter option is available. Allison fully automatic gearbox options are available in combination with engines of up to 420 hp. Single- or double-reduction drive axles complete the driveline, conventional C-section chassis frames usually taken from the construction/heavy-duty ranges. A wide range of cab options (including four-door) are available in

Scania P113HK8x6HZ (8x6) 3 Series carrier/launch truck for four land-based Saab RBS-15 anti-ship missiles.





Above: Scania's trucks for defence applications, like the company's commercial trucks, are based (with the absolute minimum of exceptions) on the modular use of its extensive range of cabs, chassis and driveline aggregates.

Below: here we see a Finnish Army crew-cabbed NBC (Nuclear Biological & Chemical) decontamination vehicle.

Bottom right: Swedish Army Scania P124CB6x6HZ360 (6x6) fitted with the CP31 four-door crew cab.

three major types, P (low-mounted), G (mid-mounted) and R (high-mounted), with G and R the most common for military applications.

One cab option not offered to commercial customers, but based on Scania's modular range, is an armoured option. Developed in conjunction with Sweden's Akers Krutbruk, Scania's latest (4th) generation protected cab option completed verification testing in 2012. In keeping with Scania's preference, a benign-in-appearance solution has been chosen, and while it may not be immediately obvious to the untrained eye, this 4th generation cab is in fact an exchangeable unit; previous generations effectively being fixed or add-on kits.

Protection levels cannot be disclosed (for obvious reasons), however, those offered by this latest cab are an improvement on earlier generations, and are believed to at least match those of an armoured personnel carrier (APC). This latest cab has been developed with particular attention paid to the effects of the improvised explosive device (IED), the insurgent's current weapon of choice. To minimise weight while maximising protection, >90% of the armour is lighter-than-steel ceramic composite material. Chassis-mounted anti-tank mine protection is also available. The first customer for this 4th generation

solution is understood to be Luxembourg, which has ordered 31 Scania G480CB8x8HHZ (8x8) trucks, eight of these to be fitted with armoured cabs, and an additional five cabs supplied for exchange use.

Scania's modular use of its commercial component range will not suit all military customers, however, its small dedicated military projects team have proven most adept at selecting those customers it will suit (and those it will not...), and in these difficult financial times the company probably has the best current military contract compete/win ratio of any of its main competitors.

The largest single user of Scania's militarised trucks is Sweden, which along with fellow users and Nordic neighbours Norway and Finland could soon operate more if Scania wins a soon-to-be-decided competition that includes MAN and Mercedes-Benz...

Other interesting, and possibly not immediately obvious users of Scania trucks that for a variety of reasons are worthy of mention include France, Holland and Turkey.

France, a traditional stronghold of Renault, placed its first sizeable order with Scania in 2002, this calling for 242 R114CB6x6HZ340 (6x6) 10,000-litre fuel tankers. These were built at Scania's Angers facility in France. To date the French military has ordered around 450 assorted





Above: Turkish Army R480CB6x6EHZ tractor unit pictured here negotiating a steep incline during trials in late 2010.



Right: an Algerian order covering four (6x6) recovery vehicles was disclosed at Eurosatory 2008.

Below right: Norwegian Army Scania 3-Series dump truck with snowplough.

Below: Scania P124GB6x2NZ360 (6x2) multi-purpose airbase vehicle configured for gritting/deicing operations.



8 WHEELED TRUCKS

Below from left to right: Scania's latest fourth-generation armoured cab continues the firm's benign-in-appearance approach; Swedish Army P124CB8x8HHZ420 (8x8) fitted with Akers Krutbruk second-generation protection; prototype for Luxembourg's 31 G480 (8x8) truck order, 28 of which will be fitted with a LHS.





Left: the P124CB8x8HZ420 (8x8) 4-series truck is based around Scania's commercial trucks and the modular use of components from these. The Dutch Army have received 555 examples (2005/2006), the Swedish 66 (2001) and the Irish 15 (2004/2005); there are slight specification variances between the three deliveries.



Left: artist impression of the French Army's (8x6) tractor units, deliveries of which commence later this year.

Scania trucks, the most recent order being for 13 (+ 22 optional) highly unusual (8x6) tractor units that will mount France-specific armoured cabs and pumping equipment for 20,000-litre fuel tanker semi-trailers; deliveries commence later this year.

The Dutch Army announced in October 2003 that in a deal worth up to €172.5 million it had selected Scania (in preference to Mercedes-Benz (Actros)) to supply 548 R124CB8x8HZ420 (8x8) trucks fitted with a Multilift load handling system (LHS) and seven with container side loaders from Hammar Maskin. The order included 20 trucks to the Navy with a 1.5 m fording capability, and 262 3rd generation armoured cab kits from Akers Krutbruk.

Despite a taxing specification which limited the overall height of these (8x8) trucks to 4m when laden with an 8ft 6in ISO container, only three components from outside of Scania's modular range were used in build... Assembled at Scania's Dutch subsidiary, Scania Production Zwolle BV, these trucks were projected to have an operational lifetime of at least 13 years, based on an annual mileage of 30,000 km; currently some average less than 7,000 km per year...

During 2011, and as a subcontractor to local prime contractor HEMA ENDUSTRI A.S., Scania supplied its first trucks to the Turkish Army. The 45 R480CB6x6 (6x6) tank transporter tractors will be used with a locally supplied semi-trailer, and with an ongoing Turkish Army requirement for 1,000 new MBTs, Scania will doubtless be hopeful of additional orders in the future.



A selection of CVR(T) Stormers were up for grabs.



There was also a group of four CETs listed in the catalogue.



Another CVR(T) this time the Shielder.



Witham's MOD TEN



Above: another p
one being slightly
construction are cl

Right: if you were
expedition vehicle
have fitted the bill,



This Bombardier Lynx GLX 5900 Ski Doo might be useful this winter?



These Yamaha Quad Bikes were definitely in need of some TLC and a lot of new parts.

ORDER SALE



A pair of EPS Springer ATVs were in the sale, the better than the other, and by a quirk of their classification as 'armoured vehicles'.

Wanting a donor vehicle for a camper or this 6x6 Pinzgauer 718 ambulance may be but the guide price was a hefty £29,500.

MMI attended the October 2012 MoD Tender Sale held at Witham Specialist Vehicles

A casual glance through the catalogue for the October 2012 Tender Sale saw a few vehicles of particular interest jumping out at me, and what had caught my eye were a number of vehicles that until very recently had been serving in Afghanistan. The vehicles in question were a collection of Yamaha quad bikes, albeit in poor condition and what is probably best described as kit form, and another couple of EPS Springers. The curious thing is that despite the benign appearance of this buggy type vehicle, it is actually listed as an armoured vehicle due to the composite armour panels that protect the crew compartment!

Another consignment of Land Rovers were once again listed, including a selection of 90s and 110s, a single ex-Dutch Lightweight and a pair of Wolf 90s and a pair of Td5 station wagons in reasonable condition. At the more unusual end of the Land Rover scale was a single example of a left hand drive 110 Defender equipped with air conditioning and fitted with a Racal communications system plus a trailer and antenna. It's a rare thing and the £9,500 guide price for this 1988 truck showed how rare it was. Another rarity was an armoured P38 Range Rover, ideal for popping down to shops in!

A selection of tracked armour was also up for grabs in the October sale, which included another four examples of the Combat Engineer Tractor, plus some CVR(T) Stormers and CVR(T) Shields.

Ambulance



MILITARY LAND ROVERS



Above: there was a single example of a rare 110 Defender fitted with a complete suite of Racal Comms equipment in the rear, as shown here.

Left: another ex-Dutch Army Lightweight Land Rover turned up, complete with storage pallet.

Below left: two views of the armoured P38 Range Rover in the sale.

Below right: and still they turn up, an ex-SAS Honda XR400 motorcycle.

Below centre right: I can't imagine there's a lot of call for these bar mine layers!

Bottom right: one of two RB44 trucks fitted with an insulated cabin.

Once again I found a fascinating collection of vehicles being offered for sale in the tender, making it well worth the visit. Just before going to press the date for the next tender sale had yet to be set, but all being well we'll be covering the next sale in a future issue, and you can also check for the dates of any future sales by logging on to the website shown below, or if you can't wait, Witham Specialist Vehicles' also have a very popular online auction site on their website, plus regular additions and updates and to the direct sales section too, selling everything from trucks and trailers to tanks and Land Rovers.

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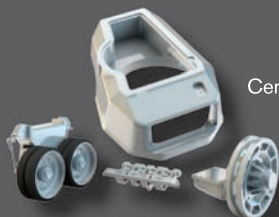


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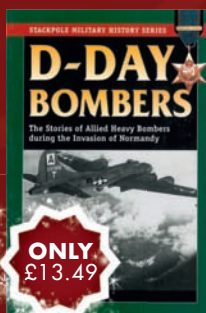


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DEATH ROW PARDON

MMI met up with a family that saved a rare Australian Series IIA Land Rover from almost certain destruction



When Dean, Jack and Joe Burton spotted an advert for a Land Rover in the classified section of MMI he hoped that the vehicle was what it purported to be, and at the same time hoped no one else had spotted the significance of that particular Land Rover. The advert, which first appeared in the April 2006 issue of MMI read: "1966, Ex-Australian Cut-Wing Series 2A Land Rover, diesel, O/D, FWH, twin fuel tanks, workshop body, ideal camper or to restore as was."

What Dean had taken special note of were the words 'Australian Cut-Wing Series 2A' and 'Workshop Body', because the workshop bodied or maintenance 'Truck, Platform' Land Rovers were seriously rare in the UK,

and in the case of the Series IIA just 386 were built between 1963 and 1969 and very few survive today, even in Australia! Thankfully Dean and his two sons, Jack and Joe had recognised the significance of this particular Land Rover and rather than purchasing with the intention of breaking it for spares or converting it to something it never was, they decided to return the vehicle back to its original condition.

Having travelled to Canvey Island to take a look at the Landy, they soon secured the deal and before long the new restoration project was back at the family home in Surrey. Now if you're wondering why they took such a keen interest in this particular Land Rover, especially when at any one time there are literally thousands of Land Rovers



I first spotted the Land Rover at the 2012 Overlord show, but I had to wait until the War & Peace show before meeting up with Dean and his family and arranging a photo shoot for this article.



Below left: the wrap around canvas is unique to these Australian workshop Land Rovers and was sourced from Australia.

Below right: here we see the family's other Series IIA Land Rover in action in the arena at the War & Peace Show.

Bottom left and right: Joe, Dean and Jack wore their authentic Vietnam era Australian uniforms for the photo shoot.





for sale around the UK, it stems from their interest in the Vietnam War and the fact that he and his sons are members of the Vietnam re-enactment group 'Rolling Thunder' with a specific interest in the Australian forces who served there.

Over the years they have collected together a large amount of Vietnam era militaria, including American, Australian, New Zealand and South Vietnamese Army uniforms and equipment, and their two Australian Land Rovers compliment the militaria perfectly and are often seen at shows, indeed they took part in the battle re-enactment performed by Rolling Thunder at this year's War & Peace Show. Their interest has also taken them to Vietnam where they toured many of the battlefields from the Vietnam conflict, which included the Australian base camp at Nui Dat in Phouc Tuy province south of Saigon, and it's not beyond the realms of possibility that their Land Rover served there?



Vehicle Data

ARN: 114-113

Census: 6040G Welding Shop, Truck Mounted, 3/4-Ton, GS, ARC/ Shielded Gas

Engine No: 25249681H

Chassis No: 25316600C

Notes: 11/11/1991 returned by 3/14 CHU Sqn to 30077

Disposed: 05.12.91

INTERESTING HISTORY

Having been built in 1966 and designated a 'Welding Maintenance Truck Platform' the Land Rover subsequently entered service with the Australian Army and was finally pensioned off in 1991.

The Land Rover was then purchased by a logging company working in New Guinea and when they had no further use for it the Land Rover was sold to an English couple

Top left: here we see the Land Rover set if operating in the field. The process of preparing the vehicle and erecting the canopy is demonstrated by Jack and Joe at the foot of the page.

“... the Land Rover was designated 'Welding M

Right: these three images show the Land Rover during the restoration. The rigid camper body was the first thing to be removed, which revealed the original tub.





who it is thought converted it to a camper and used it to tour New Guinea and Australia.

The Land Rover was then shipped back to England by the couple, and taking into account the cost of shipping they must have had a strong attachment to it! For a while it lived on a Farm in Wiltshire before being sold again and ended up in Canvey Island where Dean purchased it in 2006.

Having got the Land Rover back home Dean, Jack and Joe began evaluating what they had bought. First off the rear bodywork, which should consist of a frame and canvas had been turned into a rigid camper type body, fortunately the main bed of the vehicle had been left pretty much intact, as had many of the fixtures and fittings. Secondly the original petrol engine had been replaced with a diesel engine at some time, and was eventually changed for a 1968 military spec petrol engine, but the original gearbox was retained, as was the overdrive unit, and

while it wasn't original, it did make sense for practical reasons.

As the strip down got underway the search for additional reference material that would help them construct the rear frame and return the rear body to its original condition also began and the Australian Register of Ex-Military Land Rovers (REMLR) group were very helpful with their advice and excellent website. Their help was invaluable in tracking down some of the hard to find spares, which are rare in Australia let alone the UK.

The restoration process was lengthy, taking five years, but was at least reasonably straightforward. The canvas, which is unique to the truck, took some tracking down, but an original item was eventually located in Australia via a member of the aulro.com forum and was made by an ex-employee of the company that originally supplied the Australian MoD! Another hard to find item was the rear number plate bracket, which



Top left: the rear body is kitted out with original items, but it's an ongoing process.

Top right: the whole vehicle is in pristine condition following an extensive rebuild.

Above: the diesel engine that had been fitted was replaced with an ex-military petrol unit.

Left: here we see the left hand fuel filler cap, but below it is the small door for the locker that runs across the vehicle and holds the poles for the canvas awning.

Far left: the Land Rover has a number of features unique to Australian Series IIA.

Maintenance Truck Platform'...





Above: the original equipment that would have been fitted to the Land Rover has been sourced.

Right: the back body carries the original manufacturers identity plate for the 'Pressed Metal Corporation Ltd.'



Right: another original data plate was discovered above the Land Rover manufacturers plate in the cab.

Below right: a set of original gas bottles is currently being sought to complete the vehicle, but these replica bottles came from a brewery and certainly look the part when fitted with the correct gauges and regulators.



"... over the years the Australian Army has built many specialist Land Rover variants..."

again is unique to the vehicle, but again was located via eBay in Australia, in fact all the parts required for the truck, apart from the rear canvas frame, which was made by Jack using dimensions sent by owners in Oz, came from Australia. All bodywork and painting was carried out by Joe, which involved an awful lot of work given the amount of paint on the panels and as much as practicable, all original parts were fitted.

As far as the family knows it is the only Maintenance truck outside Australia, and the type aren't that common even in Australia due to the low number produced. Since completing the restoration the Land Rover has appeared at a number of UK military vehicle shows, including Overlord and the War & Peace Show and recently took part in the Land Rover London to Brighton Run, winning the best Series II award.

Many of the fixtures, fittings, tools and items of equipment in or on the rear body were sourced during the restoration, but due to limited space 'representative' gas bottles were fitted until the proper ones could be located to give the look of a welding truck, but Dean let me into a little secret, the empty bottles themselves aren't actually proper welding gas bottles and came via a pub, but if this particular brewer made gas bottles,

they'd probably be the best gas bottles in the world!

I first saw the Land Rover at the Overlord show, but didn't meet up with Dean and his sons until the War & Peace Show this year where we arranged a photo shoot later in the summer, and fortunately it was on one of the sunny days – yes we did have some! The photos here offer a profile of this unusual Land Rover variant and also gave me a chance to see the vehicle set up, as it would have been in the field when serving in the military with Dean, Jack and Joe joining in having donned their Australian, Vietnam era uniforms for added authenticity. So the next time you're at a show keep an eye out for this rare Land Rover, because you're unlikely to see any others in the UK.

My thanks to Dean, Jack and Joe for their help with the photo shoot and the information on the restoration, and to David Hart for his help with the superb location for the photo shoot.

ACKNOWLEDGMENTS

Dean and his sons would like to thank aulro.com and the REMLR forum for all their help, and Richard green for providing the info on the vehicle.

A good website to check out for further information is:

<http://www.remlr.com/>

Workshop Vehicles

Being one of the largest users of Land Rovers in the world, the Australian Army has built many specialist variants of the type based on a variety of Land Rover variants. The current 6x6 Perentie Long Range Patrol vehicles are perhaps one of the better-known varieties of specialist Australian Land Rover, but the Series IIA 109 Land Rover also had its fair share of specialist variants.

One of the rarer types was the workshop truck, or to be more correct, the 'Truck Platform', which was based on a standard 109-inch wheelbase Series IIA and had a special platform body fitted at the rear that could be configured to perform a variety of tasks, including small arms repairs, automotive repairs, machine shops, lubrication duties and, as in the case of the vehicle featured here, welding.

With the canvas in place the vehicles looked very similar to the standard 109 Series IIA General Service truck, but the canvas was in fact in two pieces. A forward section covered the cab area, while a separate canvas covered the rear load bed, however, this canvas could also be extended upwards and outwards with the use of the hood frame and additional poles and guide ropes to create an open shelter under which the operatives could comfortably work. An additional skirt was also provided to attach to the load bed and cover the underside of the vehicle.

The workshop trucks went on to serve for many years and took part in a number of conflicts, including the Vietnam War before being pensioned off in the 1990s. When first introduced in the early 1960s the Land Rovers would have been painted in a standard gloss Deep Bronze Green. Later in service the colour was changed to an overall matt Olive Drab finish, and those that went on to serve into the mid-1990s were painted in the then new three-colour camouflage scheme of Olive Drab, Black and Tan. By the time the Series Land Rover workshop trucks left service 476 had been built, totalling 50 Series II, 386 Series IIA and 40 Series III.

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Exercise Stabilo Due

Daniel Nowak joined the Swiss Panzer Battalion 13 during a rare Field Training Exercise [FTX]



Monday, 7th May 2012, 1345 hours – “Due to the current news-official situation from military intelligence, the stand-out situation FÜRST or SEE is likely to happen. The move of major parts of the brigade into staging area Uster and of Infanteriebataillon 61 into the staging area Wil to be undertaken immediately.” - this was the initial order for Panzer Battalion 13 to start the Field Training Exercise (FTX) ‘Stabilo Due’.

Between Monday, 7th May and Wednesday, 9th May 2012, the Swiss Panzer Battalion 13 of Panzer Brigade 11 conducted a Field Training Exercise in a civil area around Uster-Wil, Bischofszell and Gossau involving

Left: this picture shows a command version of the Spz 2000 (CV90) in use with the HQ Squadron and the company HQs within the armoured infantry companies.

some 1,000 soldiers and more than 50 tracked vehicles.

The battalion provides multiple tasks and as well as the ‘Führungsstaffel’ (Headquarters Squadron) and the logistics squadron, the unit also fields two armoured squadrons with 11 Panzer 87 WE (Leopard 2 Wert Erhalt (Leopard 2 (value preservation) and two companies with 14 Spz 2000 (CV90) infantry fighting vehicles, enabling the commanding officer to undertake multiple tasks.

Over the next three days, the battalion’s six squadrons trained as a mechanised unit as if they were facing real combat conditions. The exercise took place away from the military training areas in the area between Hinwil and Frauenfeld, where soldiers were faced with situations not normally found on any training area, i.e. the civil

Main image: a Pz 87 WE secures the entrance to the staging area on a farm next to a restaurant. This variant can be recognised by the commander's periscopic sight of the Leopard 2 A5.

Right: all Spz 2000 of 3rd company (Hammer Kompanie) display the painted hammer-symbol on their hull as shown.

Below centre right: six of these the Mowag Eagles are fielded by the reconnaissance troop.



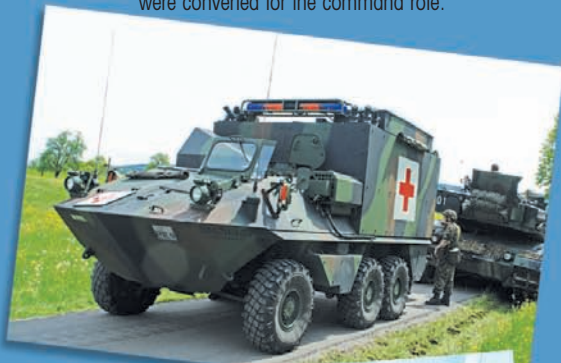
Above right: the command variant of the Spz 2000 can easily be recognised by its antenna masts mounted at the vehicle's rear.

Below: 4th company pictured here during a halt on their advance to Eastern flank. One infantry troop fields three Spz 2000.



Piranha I

Below from top to bottom: Pz 93 armoured ambulance vehicle is also based on the chassis of the Piranha I 6x6; here we see a Piranha I 6x6 command vehicle armed with a Kongsberg Protector weapon station for self defence; the HQ Squadron uses Piranha I 6x6. Those vehicles were originally designed as anti-tank vehicles and were converted for the command role.



traffic network, that is often designed for civilian vehicles rather than armoured formations. It was therefore necessary to plan a route suitable for an armoured formation that doesn't have to negotiate built up areas and to ensure that bridges and roads can withstand the weight of main battle tanks. This demanded careful and serious planning procedures, correct release of orders and the attention of both vehicle drivers and commanders to avoid expensive damage. Furthermore, they aimed not to disturb civil traffic any more than necessary.

SNIPERS & DILEMMAS

The FTX was split into four phases, moving into staging area in Uster, approaching the operational theatre in the direction of Wil, and attacking the area around Fürst to secure the area. On Monday, the battalion moved from Hinwil to Volketswil, Effretikon, Illnau, Weisslingen and Russikon.

On Tuesday morning 08:30 troops started moving towards Russikon-Wila-Tubenthal-Bichelsee-Balterswil-Eschlikon-Münchwil-Wil-Zuzwil-Oberbüren-Niederbüren and Bischofzell.



Top & above right: the third and fourth company Panzerbataillon 13 are equipped with the basic version of the Spz 2000.

Right: at the end of FTX 'Stabilo Due', these Saurer 10DM 6x6 trucks were used to transport soldiers personal gear back to base.



Far right: this Piranha IIIC 8x8 RAP (Radio Access Point) was the only vehicle that did not belong to the Panzerbataillon 13.

Right: the Duro 4x4 is produced by Bucher. The 2970 kg payload vehicle is primarily designed for light transport tasks.





During the exercise, some twenty 'Markeure' (Role Players) provided unexpected situations for the battalion with the role players acting out a series of scenarios, challenging the squadrons in a variety of situations ranging from angry villagers, blocking roads to mob rule, and saboteurs trying to infiltrate opposing forces, needless to say the role players kept the battalion busy!

PUBLIC INTEREST

Some 1,000 soldiers with about 50 tanks are hardly likely to go unnoticed in a civilian area, and the armoured squadrons of Panzer Battalion 13 became unlikely stars in the villages, with interested people looking in and around the military vehicles, children being treated to military biscuits by the soldiers and older people chatting about their own military experiences. Even the civil land owners (mainly farmers), showed a positive attitude to the FTX, supporting the troops move into their staging areas willingly.

It was obvious, that an FTX like 'Stabilo Due' is not an every day occurrence and the rarity of the event prompted media interest with more than a dozen representatives joining the battalion, reporting directly from the only FTX conducted by Panzerbrigade 11 in 2012.

PANZER BRIGADE 11

The Panzer Brigade 11, with their commanding staff at Winterthur, field a total of eight battalions and detachments as an effective armoured formation, including:

Führungsunterstützungsbataillon 11 (Headquarters Support Battalion 11); *Aufklärungsbataillon 11* (Reconnaissance Battalion 11); *Infanteriebataillon 61* (Armoured Infantry Battalion); *Panzerbataillon 13* (Armoured Battalion 13); *Panzerbataillon 14* (Armoured Battalion 14); *Panzerbataillon 29* (Armoured Battalion 29); *Artillerieabteilung 16* (Artillery Detachment 16); and *Panzersappeurbataillon 11* (Armoured Engineer Battalion 11).

The brigade has about 10,122 soldiers and is equipped in the following way: 143 Armoured Command and Engineer vehicles (Piranha 6x6 & 8x8); 116 CV 2000 (CV90 Infantry Fighting Vehicle); 112 *Kampfpanzer 87 Leopard 2 WE* (Leopard 2 Main Battle Tanks); 73 *Reconnaissance Vehicles* (Mowag Eagle); 48 12 cm *Minenwerferpanzer 64/91* (Mortars based on M113); 28 *Panzerhaubitzen* (Self Propelled Guns); 20 *Panzerjäger* (Anti-Tank Guided Weapon); 17 *Schiesskommandantenfahrzeuge*

(Armoured Command Vehicle); 17 *Kdo Radschützenpanzer 93/99 inkl. INTAFF* (Integrated Artillery Target Engagement System)

The Swiss Panzerbrigade 11 is equipped with the most modern combat vehicles within the Swiss Armed Forces, used primarily for the task of providing defence in the event of a military attack.

Next to the Panzer Brigade 1 from French-speaking Western Switzerland, Panzer Brigade 11 forms the only remaining heavy brigade within the Swiss Armed Forces, and while most NATO states in Europe seem to be reducing heavy armoured formations, this currently cannot be said of the Swiss Army.

A DVD of this FTX is available from M&N Pictures (Order number 144), see the website below for details.

www.mn-pictures.de

Top left: the Büffel ARRV (Armoured Repair and Recovery Vehicle) is based on the Bergepanzer 3 chassis and is in use within the armoured squadrons. The vehicle has various modifications such as a quick recovery attachment at the vehicle's rear.



Acknowledgements

The author would like to say thank you to Brigadier Kellerhals, Major Ramel und Hauptmann Oswald as well as all other soldiers of Panzerbataillon 13 for their kind support during FTX 'Stabilo Due'.



Above: Pz 87 WE (Leopard 2) WerfErhalt of 1st squadron, Panzerbataillon 13, have moved into a cow shed on a farm near Will.

Left: a convoy of Pz 87 WE lines up on a field way for maintenance. In Switzerland tanks must drive with the turret traversed to the rear following road safety rules.



The largest exhibit at the museum is the 2B1 self-propelled nuclear mortar, based on the chassis of the T-10M heavy tank.

RUSSIA'S BOYS' BIG TOYS

**Jim Kinnear
paid a visit to
The Artillery, Engineer
and Communications
Forces Museum**



The Russian Federation has a great many military vehicle and equipment museums, more than most people resident in the country can easily visit on the occasional weekend off, never mind tourists on a restricted timetable. One of the “must sees” in Russia for the military vehicle enthusiast is however the Artillery, Engineer and Communications Forces Museum in St. Petersburg, which rather handily is located in perhaps the most tourist-friendly city in the Russian Federation, with its canals, palaces, museums and art galleries; and small and relatively economical tourist hotels.

Better still, the city is small enough that one can comfortably walk around the tourist central areas. Even better, the principal military museum is right across the river from the Winter Palace, or Hermitage, containing one of the world's foremost art collections, and is directly behind the famous and tourist-packed Peter and Paul Fortress, which in short means that the chances of slipping off for a few hours reviewing one's “green-hobby” might not even be missed by other members of “la famille”...

The Artillery, Engineer and Communications Forces Museum, henceforth referred to as “the museum” to save a few pages of text (!) is the oldest collection of military equipment in the country. The museum was established as an artillery museum in 1730 by order of Tsar Peter 1st, and understandably the great majority of the collection is biased towards artillery - a broad term now covering everything from towed systems to field rockets and intercontinental missiles.



Above: the museum entrance, flanked by two pieces of tracked artillery from the 1930s that were used extensively during World War Two.

Main photo: the MAZ-543M based BM-30 Multiple Rocket Launcher.





Over the years the artillery collection has been complemented by engineer and communications forces equipment. Most of the heavy equipment or "tekhnika" is located outside the huge horseshoe shaped red brick museum building; however a significant amount of relatively heavy equipment including a few tracked vehicles are located within the museum building. The building has a history all of its own, including use as a tank repair workshop during the Siege of Leningrad, with several photographs surviving today showing T-26 light tanks being repaired within the vaulted halls of the museum.

The museum collection is today in some ways much as it was well over 30 years ago, particularly within the building itself, but the outside "tekhnika" collection has been expanded in the last few years, with many older vehicles replaced by more modern types, particularly the softskin based vehicles, many of which had over the years suffered the ravages of being located outside through successive Russian winters



Top right: two generations of tracked air defence vehicles, the ZSU-23-4 Shilka (background) and its replacement the 2S6 in the foreground.

Above: the 203mm B-4 tracked howitzer was introduced in the early 1930s and served throughout WW2. Some were modernised post-war on a wheeled chassis known as the B-4M as seen here.



ENGINEER VEHICLES



Top left: the highly specialised BTM-TMG trenching vehicle was based on the AT-T artillery tractor.

Above left: the IMR engineering vehicle, used for clearing roadways and rubble.

Right: a 2S9 airborne self-propelled artillery vehicle, developed to support Soviet VDV airborne forces.



The old ZiS-151 and KrAZ-214 based bridging vehicles are long gone, for the most part replaced by wheeled rocket launchers and additional armoured vehicles.

COLD WAR THAW

One fundamental change in very recent times is that photography within the museum is no longer “nelzya” (forbidden) as it was in the past. Though until the recent advent of digital cameras the internal lighting within the museum made photography pretty much impossible anyway, unless one had special, and grainy, high-speed film - the things we take for granted today with digital photography! While in the museum I spoke to one of the wardens within the halls whose job in the past was to reinforce that visitors did not touch anything or take photographs within the museum. As I was merrily taking the umpteenth picture of a single exhibit he became curious at my un-tourist-like attention to detail and I told him of my first visits the museum many years ago. He laughed, applauded my knowledge of the exhibits that I was photographing, and told me that his own mother had worked in the museum at the time I had first visited; and it would have been her that would have cuffed my ear back in the “Cold War” days for attempting photography within the museum building. Times change, and

the museum staff are today friendly, helpful and were even tolerant of me going through the halls against the flow of the one way system on the basis that there were certain things which needed “capturing” in the time available before meeting my daughters at the St. Peter & Paul Fortress after their own day in the Hermitage!

The museum collection relates the history of the artillery forces of the Imperial, Soviet and modern Russian armies in meticulous detail, and includes a significant amount of foreign artillery, which was used as the basis for early Russian artillery designs. The influence of Krupp, Skoda and other European artillery manufacturers is given full credit and the history of the evolution of Russian artillery presented in a balanced manner (which was not historically the case in the Soviet Union). The collection includes early bronze artillery pieces, imported artillery, and Russian and Soviet designs, with a marked emphasis on World War Two.

As was recently pointed out to me, Russia has always been highly bureaucratic, but from a research point of view this can be useful as it is thereby often possible to trace where and when exactly any given piece of equipment served the Red Army. The individual histories of many exhibits are known and described, such as one of the 122mm M-1931/37 guns, serial number 551, which on 20th April 1945 participated in the opening artillery

barrage, which preceded the final assault on Berlin.

The museum has an impressive collection of wheeled and tracked rocket launchers, from the wartime BM-8 and BM-13 "Katyusha" systems to post-war field multiple rocket launchers and nuclear and chemical delivery field rockets. A recent addition to the collection is a group of three vehicles used with the "Topol" (NATO: SS-25) intercontinental ballistic launcher, all on MAZ chassis, a massive 14x14 MAZ-7917 based TEL vehicle, and technical support and communications vehicles mounted on 8x8 MAZ-543 chassis. The museum has a significant collection of self propelled artillery from the wartime SU-76 and SU-100 to the most recent 2S19, complemented by a similar array of self propelled anti-aircraft gun and missile systems some of which remain in service to the present day. The museum also has a single T-80 main battle tank, as built locally at the LKZ Kirov plant.

A minor quirk of the museum is that it opens only at 11.00 even in the peak summer period, so there is no reason to turn up at dawn, though the museum is rarely crowded. Photography is unrestricted on payment of a nominal additional entrance fee. The museum descriptive texts are in Russian only; though they are in any event short and the subject information clear to anyone with prior knowledge of the equipment types on

display. With regard to the application of Murphy's Law, I managed to pick the only "iffy" weather day in weeks for my recent visit to the museum; whereby the skies opened and the rain poured, with outside photography being in between downpours - though the upside was contrast free photography. The day ended with me dropping my camera, though luckily the memory card survived!

Across the road from the Artillery Museum, within the grounds of the St. Peter & Paul Fortress, is a small but interesting museum, the GRAU laboratory, within which early Soviet rockets including the wartime 82mm M-8 and 132mm M-13 were developed into the BM-8 and BM-13 "Katyusha" rocket launchers. The quirky museum also illustrates the development of Soviet rocket technology from early military applications to later space flights. And there's a lot for the family to see in the surrounding fortress, and even a café right next to the GRAU museum, so the family can be parked for half an hour without fear of revolution.

With St. Petersburg reasonably accessible, and relatively inexpensive by Russian tourism standards, and with some interesting military museums located within walking distance of the main tourist exhibits that the family would doubtless rather visit, there is a good family explanation for a visit to the Venice of the "Wild East", St. Petersburg.

INDOOR EXHIBITS



Top right: the 2P27 was the first ATGM vehicle mounted on the BRDM chassis.

Above right: the early 2P2 "Mars" (NATO: FROG) ground-ground rocket systems were based on a chassis derived from that used also for the PT-76 light tanks.

Left: the BAZ-5921 was a purpose built all-terrain vehicle developed to transport and launch the "Tochka" (NATO: SS-21 Scarab) battlefield rocket. The TEL vehicle was designated 9P129 and the system 9K79.



SOGGY SATURDAY

MMI ventured north for the holding of the first Yorkshire Wartime Experience

As I sat in a traffic jam on the motorway within spitting distance of the exit I wanted, a well-known saying came to mind that goes something along the lines: "the best laid plans of mice and men..." and never truer was that phrase when referring to my visit to the Yorkshire Wartime Experience near Leeds this year. After eventually arriving at the show an hour later than planned I should have known that things weren't going to run according to plan, and when I discovered that the region had a month's worth of rain the previous night, and found myself being pushed across the car parking field by organisers as my wheels desperately tried to find some grip in the mud, I was starting to wonder why I was here?

Being the ex-Boy Scout that I am, I came prepared with a change of boots, cloths to wipe the mud down and paper to put down in the car to protect the carpets, and boy am I glad that I did because as I made my way to the display field I was greeted by an awful lot of water and mud, with organisers frantically scurrying around the site trying to lay straw and gravel so that visitors could at least reach the main show field. What was so sad about this situation is that it was completely out of the control of the organisers and what promised to be a fantastic new show came close to being washed out, but sterling work on the part of the organisers and a 'Keep Calm & Carry On' attitude from those who did turn up for the show made the best of a bad situation.

One of the attractions of this show was the fact that it attracted vehicles rarely seen in the south, such as this airfield control Dodge WC51.



A Bedford MW makes its way to the waterlogged display field, but despite the treacherous conditions managed to cope with the mud with ease.



This Austin K2 ambulance was amongst the wartime vehicles at the show.



Above: a nice pair of wartime Jeeps, the awful ground conditions endured by exhibitors are clear to see, but the organisers did the best they could under difficult circumstances.

Below: despite vehicle numbers being down due to last minute cancellations thanks to the weather, there was still a good selection of armoured vehicles to be seen at the show.



WW2 American Softskins

Below left: I first saw this rare imported Studebaker US6 truck at the now defunct Ponderosa show.

Below centre: fine example of the American amphibious DUKW in colourful camouflage scheme.

Below right: one of several GMC 6x6 trucks, this being a long wheelbase soft top with MG ring.



Screaming Eagles

Below: another of the GMC 6x6 trucks that turned up for the Yorkshire Wartime Experience despite the horrendous weather conditions, which saw a month's worth of rain fall on the area the night before the show. This particular example is marked up for the 'Screaming Eagles'.



FANTASTIC LINE UP

Had the weather not intervened, the line up of vehicles booked in for the show would have been spectacular, with many wartime British and American rarities due to put in an appearance. In the event the number of vehicles that actually turned up was significantly down on those expected, but those that were there provided an interesting and varied collection of

vehicles, which included many wartime and post-war vehicles, a great many of which rarely down to the many other shows in the south of the country. The planned mass-battle in the arena was also downsized too due to a number of re-enactment groups cancelling at the last minute due to the weather conditions, but the show went on and from what I've heard from other visitors to the show, it was well



Above: nice example of the Standard Tilly wearing 'Mickey Mouse Ear' camo scheme.

Below left: this Bedford OXD was another of the many WW2 British softskins at the show.

Below right: one of my all time favourite vehicles, the Humber Heavy Utility.





This Morris-Commercial C8 Mk III gun tractor, limber and 25-pounder was one of a number of artillery pieces at the Yorkshire Wartime Experience show, firing for the crowds during the event.

liked despite the appalling conditions and the efforts of the organisers to make the best of a bad job was appreciated, as was the waiving of the entrance fee when it became apparent that the conditions on the site were worse than anticipated.

Obviously vehicle movement had to be limited during the event, partly because there was a very real danger of even the four-wheel-drive vehicles getting stuck, and partly in an effort to preserve what little good ground there was so the vehicles could at least get off the site at the end of the show. Despite the mayhem brought about by the rainfall there were a great many

visitors at the show, with the car park packed with cars by the time I left the showground later in the day.

Featured within this show report is a relatively small selection of photos from the Yorkshire Wartime Experience show taken during a brief period when the clouds parted and sun started to show itself during my visit. Despite the weather conditions I'll definitely be making a return trip next year, and if the weather is good I feel sure it will be a fantastic event, but I'll be keeping a closer eye on the weather and keeping everything crossed (along with the organisers) that they don't have repeat of the 2012 deluge!



WW2 Artillery



Above: nice pair of 25-pounders on display at the show, part of a larger contingent of British WW2 artillery.

Left: new to the show was this recently restored example of the American wartime Allis-Chalmers M4 High Speed Tractor.

Bottom left: Canadian Military Pattern truck towing what I think was a Bofors gun beneath the canvas covers.

Below right: another classic British artillery piece, namely the 5.5-inch gun, as used to great effect in WW2.





WAR & PEACE

2012

Part 3



For our final report from the 2012 War & Peace Show we have a selection of images provided by Simon Thomson, one of the Military Machines International Press Team operating at the show. Here you'll find an eclectic mix of images that demonstrate the diversity of the exhibits to be found at the world's largest military vehicle show, which attracts all types of vehicles from around the world, attracting many thousands of exhibitors and visitors each year. Needless to say we'll be back next year for the War & Peace 2013 Show, which is due to be held between Wednesday 17th to Sunday 21st July 2013. And finally we would like to thank all those who visited us on the MMI stand - we look forward to seeing you next year.





Top strip: the War & Peace Show is famous for the battle re-enactments in the arena and here we see a group of 'GIs' and their Jeeps battling the muddy conditions as well as their adversaries; the quality and quantity of wartime armour found at the show is stunning, here we see an M8 armoured car from a different view thanks to the elevated position used by some press photographers; of course for many the tanks are the real attraction and each year the show sees a huge gathering of armour from the ages; rare example of the Morris-Commercial C8 gun tractor anti-tank MkIII.

Above right: the elevated view from the platform used by the press photographers can provide some unusual views, such as this overhead shot of a Mk2/3 Daimler Ferret in UN colours.

Main photo left: one of the rarest trucks at the show in 2012 was this Russian GAZ, brought to the show by its Russian owners and much in evidence around the show ground throughout the event.



Top left: 'Dixie Clipper', one of a number of American half-tracks that turned up for the show.

Above left: the smaller, wheeled M3A1 Scout Car clearly shares its ancestry with the half-track.

Above right: two American heavy trucks, the wartime Diamond T wrecker, albeit in post-war civilian markings, and the post-war Vietnam Gun Truck, one of several replicas at the show.

Right: my bird's eye view from the arena offers an insight into how cramped the fighting compartment of an American half-track must have been in action.



Left & below: in recent years the representation of British Airborne forces has been much in evidence, with many more vehicles and re-enactors appearing at shows. Here we see just two examples spotted in the arena during the show, with a 6-pounder anti-tank gun to the left and a typical stripped down Airborne Jeep below.





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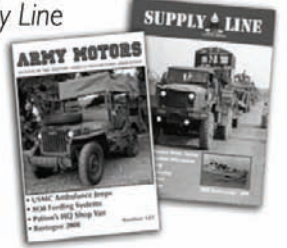


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Into the Archives



Les Freathy searches the archives and gathers together a selection of photographs featuring post-war Japanese military trucks

This month I thought I would take a look at the rarely documented subject of post-war Japanese military trucks, many of which were designed and based on WW2-dated American vehicles, with some almost exact copies. Following the end of the war and the development of the Japanese Self Defence Force (JSDF), much of the initial equipment and vehicles came from ex-US wartime stock held in Japan and the Pacific islands. As time progressed this elderly equipment needed replacing and the Japanese motor industry began producing a range of homegrown products for the military. New designs were thin on the ground mainly due to post-war restrictions on the industry so it was inevitable that companies such as Hino, Isuzu, Nissan, Toyota and Mitsubishi would look to the outgoing vehicles for inspiration, building similar models but with their own stamp. At the lower end of the scale the obvious choice was the Jeep on which Mitsubishi based the CJ3B-J4 and J4C utility. The design of 3/4-ton vehicles built by Nissan and Toyota were essentially copies of the Dodge weapons carrier and later M37, while heavier trucks followed suit and were based on the American GMC, Mack and Autocar as explained within the captions.

Above: Hino based their ZC35 cargo truck the on the Mack 6-ton NM6, but only rated it as a 4-ton truck. It was powered by one of Hino's own DS12 125 bhp 6-cylinder diesel engines.

Below left: Isuzu built a number of varied bodies on the 2 1/2-ton chassis including the model TWD20 short wheel base dump truck. The trucks were powered by a 6-cylinder 125 bhp diesel engine.

Below: the Isuzu TW 2 1/2-ton 6x6 cargo with winch based on the US Army GMC CCKW, indeed many post-war Japanese trucks were influenced by wartime US trucks.





Left: once again the obvious choice of vehicle for the design of this Mitsubishi W24 6x6 bridge erection truck was the Brockway B666 and was used in the main to transport and erect the Treadway bridge components.

Below: Hino were responsible for supplying the Japanese Self-Defence Force with 4 to 5-ton tractors, which were based on the Autocar U-71445. This tractor is one of the vehicles that really did resemble the U.S model and has almost identical features; a number of models were produced from the HB 10 to the HB 13, each consecutive model with a more powerful engine. The HB 10 shown here had a 6-cylinder 110 bhp diesel engine whilst its American predecessor featured the thirsty Hercules RXC 6-cylinder petrol engine.

Opposite top right: this Mitsubishi Fuso 6-ton wrecker is clearly based on the Diamond T 969, but has a single boom more akin to the Ward LaFrance rather than the twin booms seen on the American Diamond T wreckers.

Below: the Hino 4x4 tractor seen here with a van semi trailer, looking closely at the trailer I would suspect it is of American origin carried over from equipment supplied by the US Government. The American influence can clearly be seen in the design of the cab on this Hino 4x4 tractor unit, but as mentioned, the Japanese companies tended to build in their own design features.



BULLETIN BOARD

Shaun Connors takes a look at some of the light armoured vehicles currently being offered by commercial armoured vehicle manufacturer Streit Group

Commercial armoured vehicle manufacturer Streit Group recently commenced an expansion towards UK and European markets, and particularly with a developing range of military-specific/suited light- and medium-weight armoured vehicles. As part of this expansion programme, to raise brand and product awareness the company exhibited at Eurosatory for the first time in 2012, following that with a short trip to the UK for DVD. Streit has also recently opened a European office in London.

Streit Group, of Canadian origin, has a history that traces back some 17 years to 1996 and a market entry based around the production of cash-in-transit vehicles. Company literature notes the company started with little more than a handful of tools, a rented garage and over-extended credit... Its first order was

for three vehicles, these hand-built, completed and delivered ahead of schedule, continuing in use to this day in a back-up role.

By the late 1990s Streit's client base had expanded to include governmental organisations and agencies, private security companies and protection for individuals, with all of these sectors having a fast-growing demand for specialised armoured vehicles.

In 1998 Streit Group increased its manufacturing capability by increasing its production floor area from 20,000 sq/ft to 100,000 sq/ft, this allowing production to increase to 40 vehicles per month. Further expansion followed, and in 2005 facilities were opened in the Middle East, these increasing production area to >500,000 sq/ft with an accompanying increase in production capacity to over 160 vehicles per month.



In 2008 a manufacturing facility was opened in South Carolina (USA), and in 2009 production commenced in Russia.

More recently Streit opened its largest facility to date in the United Arab Emirates (UAE), this ramping up production capacity to 520 vehicles per month. At a cost of \$21.8 million, this 1.4 million sq/ft facility is now the largest armoured vehicle manufacturing space in the world. By 2014 the company plans to complete a further two phases of development in the UAE with another \$32.7 million investment.

At present, Streit has production plants or servicing centres in Canada, India, Iraq, Jordan, Nigeria, Pakistan, Turkey, Russia and the United States, with plans to open its second largest facility in the US in the near future.

Globally, about 250 armoured vehicles currently roll off Streit's production lines each month, these predominantly armoured security vehicles for the banking, law enforcement and VIP communities. Streit has built 5,000 such vehicles for Iraq and 2,500 for Afghanistan, and is a major player across most of Africa. However, as previously mentioned, the company has plans move into defence-related sectors, and in addition to those traditional Middle Eastern and African markets, is looking closely towards the UK and Europe.

For the non-military sectors that currently make up around 80% of Streit's sales, the company has traditionally used staples such as the Toyota Land Cruiser or Ford F series as the basis for its armoured bodies, but with sights set firmly on the defence-related sectors, Streit is developing an expanding range of bespoke monocoque vehicles. With these the company hopes to increase the 20% military percentage of the current commercial/military sales breakdown.

Aimed at the lower cost end of the defence-related market, new vehicles of note demonstrated to date by Streit include the Typhoon and Jaguar.

Typhoon, Streit's first serious MRAP-class design, completed testing in August 2011 and sales have already been made year to the UN and a number of undisclosed African countries.

Priced from just \$350,000, Typhoon comes in at around half the price of its US-produced competitors, the company stating that very low labour costs and the lack of local taxes in the UAE are key to its competitive pricing.

Production Typhoons have a GVW of up to 16-tonnes and feature a triple-floored monocoque armoured hull that features gun ports and a power-operated rear ramp with an open/close time of seven seconds. The V-hull offers certified B7 ballistic and STANAG Level 3a blast protection to a crew of up to 10.



Overall dimensions are 6.65 x 2.434 x 2.75 m (l x w x h), the crew capsule having a 2.024 m width. Wheelbase is 3.775 m. Motive power is provided by a Cummins six-cylinder diesel developing 296 hp and 1,100 Nm torque at 1,500 rpm, this coupled to an Allison four-speed automatic transmission and two-speed transfer box. KaMAZ beam-type axles with leaf springs and anti-roll bars are fitted front and rear, the KAMA radial tyres fitted with runflat inserts and a driver-controlled central tyre inflation system (CTIS).

Most recently Streit demonstrated a slightly smaller MRAP-type semi-military design, the Jaguar. The first prototype

was completed early June, and post Eurosatory and DVD was scheduled to undergo an intense period of blast, ballistic and mobility testing, with full production scheduled for early this year.

Jaguar is projected to have a GVW of up to 11-tonnes and features a monocoque armoured hull that will offer up to STANAG Level 3 protection to a crew of up to six. Motive power is provided by a Cummins 6.7-litre diesel developing 300 hp, this coupled to an unspecified transmission, but probably an Allison automatic. Unlike the heavier Typhoon which features beam-type axles, Jaguar is fitted with fully independent coil spring suspension.

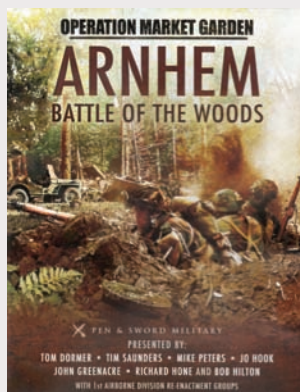
One established Streit vehicle well-suited to military/para-military applications is the Cougar, this nine-seat (6 + 3) Toyota-based light armoured personnel carrier (APC) has the capability to accept a roof-mounted traversing turret with perimeter protection, is fitted with gun ports side and rear, reinforced bumpers front and rear capable of 'ramming', and runflat inserts in all tyres. The base vehicles' brakes, suspension and steering are uprated on account of the Level B6 protection.

Also available and well-suited to military/para-military applications are two larger designs, the Spartan and Titan, these both Ford F550-based.

The Spartan is described by Streit in their promotional literature as a multifunctional and adaptable 'aggressive-in-stance' light armoured vehicle, designed and built to withstand ballistic, light mine and grenade blast scenarios. Titan is described as an armoured personnel carrier (APC) capable of undertaking a wide range of military and security roles.

Titan, the more military in appearance of the two vehicles, is also fitted with larger single 225/70 R19.5 cross-country tyres all-round, with these replacing the more standard F550 fit on the Spartan of 225/80 R20, these being dual fitment on the rear axle.

Arnhem DVD

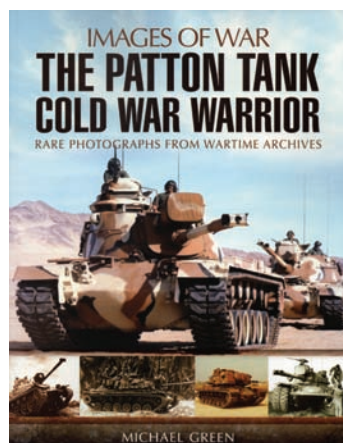


This new DVD released by Pen & Sword examines the fighting between German and British Airborne Forces in and around Arnhem. Using a combination of wartime footage, animated maps, colour footage of re-enactors and interviews with surviving veterans, this documentary type film offers the viewer a great insight into the complexities of the airborne operations at Arnhem. The DVD retails at £16.99 and is widely available from high street outlets or available direct from Pen & Sword. For details see the website: www.pen-and-sword.co.uk

Nijmegen DVD



Our second DVD from Pen & Sword this month also deals with Operation Market Garden, namely the assault on Nijmegen and with the bridge being the key objective for the American and British forces. As with the other film, a combination of wartime black and white images and colour footage of re-enactors brings the story to life for the viewer. The DVD is widely available from high street outlets or available direct from Pen & Sword. For further details check out the website at: www.pen-and-sword.co.uk



Classic Modern American Battle Tank

One of the most important post-war American tanks is the subject of this new title from Pen & Sword in their 'Images of War' series. The Patton tank went on to serve with numerous countries around the world and this profusely illustrated softback book traces the development and use of the Patton tank in its various guises, which includes service with the US Army and many foreign countries too. All of the images contained within this fine book are black and white, but the quantity and quality of those images makes it well worth the cover price of just £14.99.

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Title: Images of War - Great Push - Battle of the Somme

By: William Langford

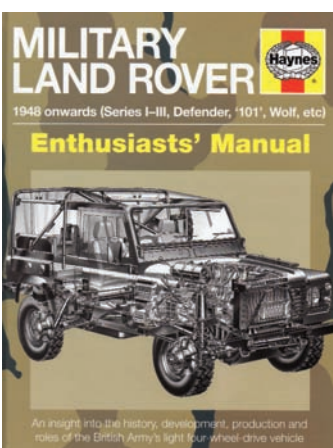
ISBN: 9781781590416

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The second new title in the 'Images of War' series is this book looking at the battle of the Somme in 1916. The many hundreds of superb black and white images contained within this book graphically depict the full horrors of trench warfare during World War One, and while the very fact that the tank hadn't entered service at the time of the battle of the Somme means that there are no images of tanks included, vehicle enthusiasts will find many images of artillery pieces and other military equipment of the time. All in all a great book and good value too.



Fascinating world of Military Land Rovers

Pat Ware's latest offering from Haynes Publishing in their 'Enthusiasts' Manual' series takes a detailed look at the military Land Rover. Like Pat's previous offerings in the series on the Jeep and Sherman, the 'Military Land Rover' is packed with information and many hundreds of colour and black & white images describing the many different variants of Land Rover to have been used by the military over the years. A total of fourteen chapters offer a detailed overview of the military Land Rover from the standard types to the more unusual specialist variants. If Land Rovers are your thing you need to check this out.

Title: Military Land Rover - Enthusiast's Manual

By: Pat Ware

ISBN: 9780857330802

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11th Hull Heavy Battery RGA

Title: Chasing Von Lettow-Vorbeck

By: Harold Downs D.C.M.

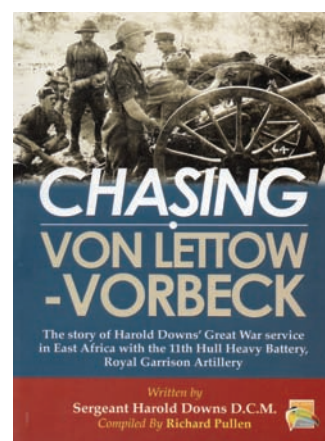
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The story of Harold Downs' Great War service in East Africa with the 11th Hull Heavy Battery, Royal Garrison Artillery is examined in this new book using Sergeant Harold Downs D.C.M.'s own words and compiled by established author Richard Pullen, known for his books on the Great War period. It's a fascinating and entertaining book with numerous black and white photos included within the 168 page book, with many featuring a variety of military vehicles and equipment. It's a little covered period of the Great War and makes for an interesting insight into this forgotten part of history.



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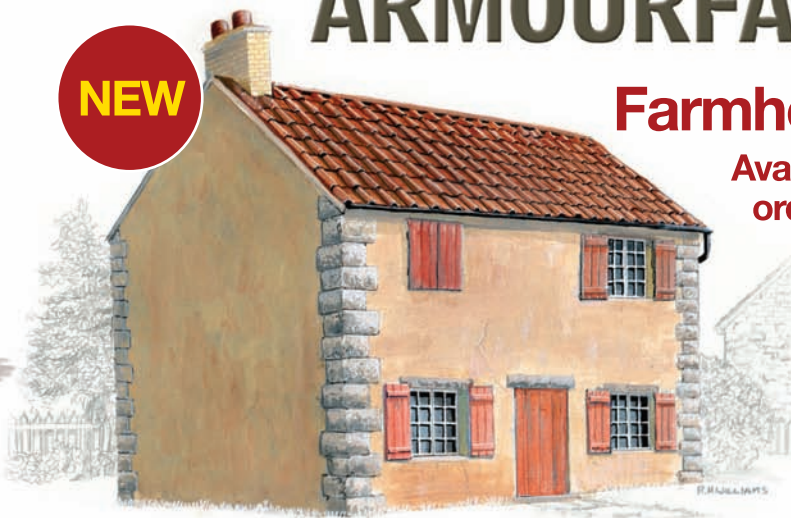


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DATES FOR YOUR DIARY

DECEMBER 2012

Sunday 16 December 2012: History on Wheels Motor Museum: Open Day, located at Longclose House, nr. Windsor, Berks, SL4 6QY. For details: Tel: 01753 862637/833833

JANUARY 2013

Sunday 6 January 2013: Aviation & Military Collectors Fair: held at Croydon Airport Hotel, A23, Purley Way, Croydon, Surrey. Doors open at 10.30am, for details call: Tel: 01737 822200 Mob: 07860 762277 acebellaviation@aol.com www.redhillairshow.co.uk

Sunday 27 January 2013: Militaria 2013: large, indoor militaria event held at the The Exhibition Centre, Stoneleigh Park, Coventry, Warks. CV8 2LZ. For details contact Amanda on: Tel: 01743 762266 amanda@jeeparts.co.uk www.militaryconvention.com

FEBRUARY 2013

Sunday 9 February 2013: Fleet Air Arm Model Show: held at RNAS Yeovilton, Somerset, BA22 8HT. Featuring plastic kits, R/C models, Books and Model collectors. Open 10.00am. For details contact: Tel: 01935 840565 www.fleetairarm.com

MARCH 2013

Sunday 3 March 2013: Hack Green Secret Nuclear Bunker Rally: French Lane, Nantwich, Cheshire, CW5 8BL. For details call Rod on: Tel: 01270 623353 coldwar@hackgreen.co.uk

Sunday 3 March 2013: 5th Annual Vintage Transport Day: held at the Bournemouth Aviation Museum. Wartime vehicles wanted, plus army surplus dealers and re-enactment groups. For further details contact Steve Tydeman: stevetydeman@yahoo.co.uk

MARCH 2013

Sunday 24 March 2013: Malvern Militaria Fair: large, indoor militaria event held at the Three Counties Showground, Wye Hall, Malvern, Worcs, WR13 6NW. Contact Amanda: Tel: 01743 762266 amanda@jeeparts.co.uk www.militaryconvention.com

APRIL 2013

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

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

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

MAY 2013

Sunday 5 May 2013: Cobbaton Clearout: militaria market, held at Cobbaton Combat Collection, Chittlehampton, N. Devon, EX37 9RZ. For details contact: Tel: 01769 540740 info@cobbatoncombat.co.uk

JUNE 2013

Saturday 15 Sunday 16 June 2013: Dunsfold Collection Open Weekend: held at the Springbok Estate, just down the road from DLR at GU6 8EX. open from 9.00am. A rare opportunity to see the unique Dunsfold Collection of

JUNE 2013

Land Rovers and featuring club stands, trade stands. For further details contact: Tel: 01483 200567 Fax: 01483 200738 openweekend@dunsfold.com www.dunsfoldcollection.co.uk

JULY 2013

Saturday 6 Sunday 7 July 2013: Lympne Aero Classic: celebrating the history of Lympne Airfield from 1916-1980s. Held at Lympne Village Hall and playing fields, replica aircraft, military vehicles and re-enactors. Contact John Simpson on: Tel: 01303 265078 johnsimpson43@btinternet.com

Wednesday 17 to Sunday 21 July 2013: The War & Peace Show: The Hop Farm, Paddock Wood, Kent. The world's largest military vehicle show. For details call: Tel: 01304 813945 www.thewarandpeaceshow.com Tel: 01622 872068 www.thehopfarm.co.uk

AUGUST 2013

Saturday 3 Sunday 4 August 2013: Woodhall Spa 40's Festival: held at Jubilee Park, Stixwold Road and Woodhall Spa village hall. Lincolnshire, LN10 6QH. For further details contact Stuart on: Tel: 01526 353215 www.woodhall-spa-40s-festival.com

Saturday 17 Sunday 18 August 2013: Cobbaton Combat VJ Weekend: military vehicle show, stalls, living history, held at Cobbaton Combat Collection, Chittlehampton, N. Devon, EX37 9RZ. For details contact: Tel: 01769 540740 info@cobbatoncombat.co.uk

SEPTEMBER 2013

Sunday 7 September 2013: Peopleton Autumn Show: held at Peopleton Village Playing Fields, Peopleton, Worcs. Classic Cars, Military Vehicles, stalls and entertainment. Open 12.00 noon till 6.00pm. For details call John Sargeant: Tel: 01905 840155 sarg-37@tiscali.co.uk

SEPTEMBER 2013

Sunday 29 September 2013: Manchester Militaria Fair: held at Event City, Phoenix Way, Urmston, Manchester, M41 7TB. Located next door to the Trafford centre. For further details or to book in for the event please contact Amanda at: Tel: 01743 762266 amanda@jeeparts.co.uk www.militaryconvention.com

Sunday 29 September 2013: Stoneleigh Mini Militaria 2013: Blackdown Buildings, The Exhibition Centre, Stoneleigh Park, Coventry, Warks. CV8 2LZ. For details contact Amanda on: Tel: 01743 762266 amanda@jeeparts.co.uk www.militaryconvention.com

OCTOBER 2013

Sunday 6 October 2013: Hack Green Secret Nuclear Bunker Rally: French Lane, Nantwich, Cheshire, CW5 8BL. For details call Rod on: Tel: 01270 623353 coldwar@hackgreen.co.uk

Friday 11 to Sunday 13 October 2013: Wartime Weekend: held in Pickering, N.Yorks with steam trains running, trade stands and 1,000s of re-enactors. For more details about the show visit: www.nrmr.co.uk details about the trading area at: www.jeepworld.co.uk/pickering/warimewweekend.htm

NOVEMBER 2013

Sunday 3 November 2013: Northern Military Expo: popular indoor show held at the Newark Country Show Ground, Notts, 2 minutes off the A1M (NG24 2NY). For details contact Mark Askew on: Tel: 01302 739000 or check out the website at: www.northernmilitaryexpo.co.uk

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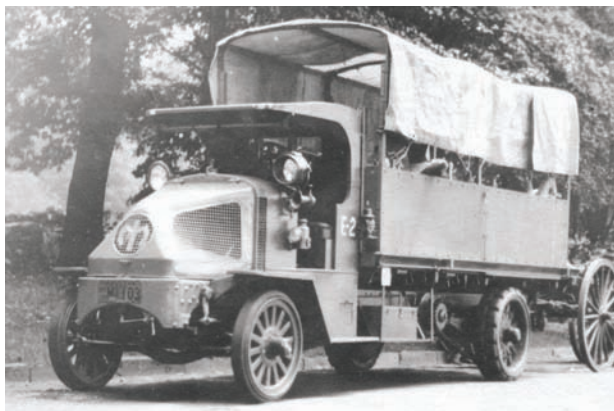


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