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ISSUE 188 JANUARY 2017

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OPENING SHOT







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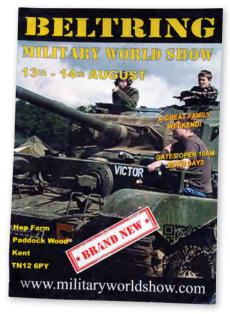
Despatches

e're all used to reading about big buck tank restorations and applaud the fact that yet another historic vehicle has been saved from an undignified end at the hands of a scrap metal merchant or rescued from a field where it has been left languishing. But such stories become even more remarkable when the rebuild has been carried out on a budget, as has been the case with Jon Phillips's StuG III Ausf D (pages 22-27). Jon carried out the vast majority of the restoration work himself, calling on the help of friends and experts when needed. But where this story is particularly heartwarming is the help he got from the wider military vehicle collecting community. Putting the progress of his project on social media he pricked the interest of enthusiasts world wide - and that became particularly useful when trying to source hard to find parts. Of course, rare German tank bits usually come at a price, but when people learned about the good work Jon was doing, and the fact that he honestly didn't have a huge pot of cash to draw on, they were all too willing to come to an arrangement. After all, it's better to put these items to good use bringing a vehicle back to life than have them sat around doing nothing and perhaps eventually being lost or destroyed. The end result is one that benefits everyone. Jon has successfully preserved a rare and historically very significant vehicle and we enthusiasts get to enjoy seeing it at shows. Result!

Ian Cushway



Dave King, 45, the man behind the Military World show at the Hop Farm along with his business partner Jeffrey Marfleet have been found guilty of 'sophisticated and sustained fraud' according to Kent Online. King is to spend two-and-a-half vears behind bars after admitting at **Lewes Crown Court** to three counts of fraudulently avoiding VAT. Marfleet was given a 16-month sentence for two



counts of the same offence. It is reported that the pair illegally claimed back £163,642 from HM Revenue and Customs (HMRC) between 2010 and 2013 by creating false invoices relating to five companies based in Kent and East Sussex. King was also convicted of committing an offence while serving a suspended sentence.

The Military World show was held in August 2016 at the Paddock Wood venue, four years after the War and Peace event switched to the Folkestone Racecourse. Allegedly, King scheduled the date to clash with Headcorn's Combined Ops show, which he used to help organise, which in itself caused upset among enthusiasts as well as various show promoters, including the former organisers of War and Peace who were keen, following the conviction, to make it clear that there was no connection with King or his activities. Said War and Peace spokesperson Georgina Martin: "War and Peace would like to point out that Military World had no commercial link or relationship with any of the War and Peace businesses or the War and Peace Revival. In previous years Dave King's company did provide tank rides at The War and Peace Show/Revival but has not done so since 2015. The Military World Show at The Hop Farm Family Park should in no way be confused with the previous War and Peace Show that was held there or the War and Peace Revival at Folkestone Racecourse."

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NEW TIGER EXHIBITION

The Tank Museum is in the throws of organising a new exhibition which will showcase the very best of German armour as well as make available for the first time crew interviews and testimonies from those brave men who faced them in action during WW2.

The new exhibition, supported by Wargaming, will feature the museum's Tiger 1, two King Tigers, Jagdtiger and at least one vehicle on international loan - which will be going on public display in Europe for the first time since it was captured in 1944. The US Army **Ordnance Training and Heritage Center** has confirmed that it will be loaning The Tank Museum its Elefant (based on the rejected Porsche Tiger chassis) for the exhibition and the museum remains hopeful that it will be joined by a Sturmtiger from overseas.

With its unveiling set to take place in April 2017, the new exhibition will also look at the development and technology employed in these huge machines along with historical detail about the battles in which they fought.

Veteran accounts will include reminiscences from those who were present at the capture of Tiger 131 and the story of Gunner Joe Ekins of the Northamptonshire Yeomanry who, in August 1944, knocked out three Tigers in his Sherman Firefly within a matter



of hours. It is believed that one of these Tiger tanks was crewed by famed tank ace Michael Wittmann.

In an interview conducted before his death in 2012. Gunner Ekins recalled: "We were in the orchard, looking out over a couple of thousand yards of flat, plain land. Suddenly there were three Tigers coming across our front. We waited until they were at about 800 yards. My commander said 'target the rear one' and I fired two shots at him and hit him. We pulled out again and fired at the second tank, hit him with the first

shot and it went up in an explosion so, obviously we hit the ammunition or something. By this time the first tank of the three had realised what was going on and he started looking for cover, so it turned a bit towards us, we fired two shots at him and I hit him as well.'

Of course, the German perspective will also be presented. Former Tiger 1 driver Wilhelm Fischer was interviewed by museum staff in 2015 and research is being carried out to identify further personal accounts.

JEEP SELLS FOR £29,813

A 1944 Jeep that had undergone an extensive nut and bolt restoration was sold at November's NEC Classic Motor

Show sale, held by Silverstone Auctions (www.silverstoneauctions.com) for the princely sum of £29,813. It originated



from a Belgian collection but needed further work doing, so the previous owner embarked on a process of further refurbishment, stripping the body, chassis, running gear and engine followed by a meticulous rebuild. It was sold with a matching period correct trailer, with the total project reportedly costing £11,000 in labour and parts alone.







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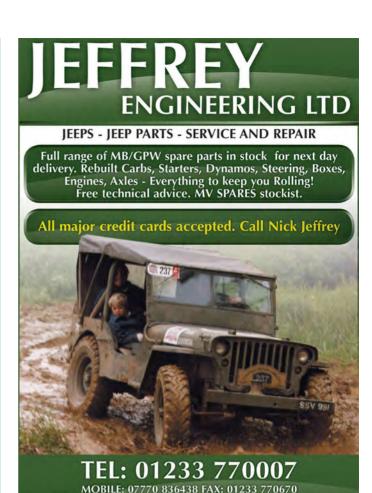
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WRITE TO REPLY!

IT'S A CENTAUR

Having just received the November issue of CMV. I have the following comments to make/add to the 'Cromwell or Centaur' debate on page 10.

The tank in question was put together at IWM Duxford from the hull of a Centaur Dozer with the dozer attachments and most of the fittings removed, although traces of these still remain. The turret was recovered from a range, as far as I can remember, and was welded on. The gun is a dummy and the engine decks were just made up to cover the hole.

This was done so that this vehicle could be taken to France to replace a Churchill AVRE that was on display, but was required back at Duxford. It went directly to Hermanville-Sur-Mer, transported by British armed forces in 2001, who also recovered the Churchill AVRE. It was never at Pegasus Bridge. It was on display still with a plaque describing it as a Churchill AVRE for several years, but this has since been changed. As far as I'm aware the 'Close Support Centaur' that was at Pegasus Bridge is the one currently, following conservation/restoration, on display in the grounds of the Memorial Pegasus Museum. The facts above are as I remember them, and will hopefully help clear up any queries about this tank.

Brian Harris, via email

STEELS STATES STATES

I've already had my ear bent about this, so Brian is quite right. The information I gave to Mr Proudler was about the wrong tank, although otherwise the information remains good - David Fletcher



WORLD OF DISCOVERY

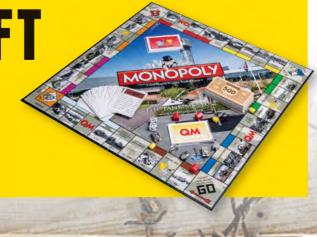


Please find enclosed some photos taken at the Discovery Museum in Newcastle upon Tyne. The paved area outside the museum was still under construction when I visited so I wasn't sure if the Challenger was in its permanent resting place or whether it will be moved again. The Discovery Museum is essentially at one end of Scotwood Road and at the other end is the site of the Vickers tank factory, although the buildings are now under new management and no AFVs are built there now. I can't confirm if the Challenger on display is the vehicle that was on display on a large circular plinth at the factory; if it is, it was the last of a long line of AFVs that stood there. including a Chieftain and an Abbott. The Armstrong Whitworth car is, of course, a civilian vehicle but one could claim it is an ancestor of the Challenger as it was built in the same factory. The Universal Carrier here, sitting on a railway flat car, was taken at Locomotion in County Durham.

Des Penny, Blaydon

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Looking for that elusive last minute Christmas present, or want a rest from watching the Queen's speech on 25 December? Then why not get hold of this very special Monopoly game set from the Tank Museum. You can play your way around the museum, with pieces including the Mark IV and Tiger tank, buying up the museum's tank collection. Once you've done that, get a card from the officer's mess or the quartermaster and purchase tank sheds and even your own workshop to house your new collection. It costs £29.99 - visit tankmuseum.org for more details.



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THE VINTAGE DAYS, PERIGUEUX,

Military vehicles rumbled through the picturesque Dordogne town



erigueux is the capital town of Department 24, the Dordogne in France. It is a beautiful location with many picturesque squares containing shops, bars and restaurants. There are many historic buildings including the cathedral which is regarded as one of the finest in France.

This year on the 3-4 September a large area of the centre and old town was taken over by the Vintage Days show which as usual boasted an eclectic collection of cars and motorbikes with the central square itself – Place Bugeaud – taken over by preserved military vehicles. The whole weekend takes on a '40s theme, with everyone dressing up for the occasion, while

Left: Re-enactors in uniform and costume create a period scene next to the GMC CCKW 2½ ton 6x6 truck — although we're not too sure about the plastic chairs! This is fully marked as a vehicle in use with the Free French forces.



Right: The immaculate M3 half-track carries markings of the US 2nd Armoured Division. Below: Well restored Harley Davidson WLA motorcycle, again in Free French markings. Below right: Harley was nicely presented with a wonderfully period patina on the wheels and front mounted leather holster.







FRANCE - 3-4 SEPTEMBER, 2016

of Perigueux and David Garden was there to savour the experience

various WW2 societies were present in uniform to explain and inform the public all about their vehicles.

Tented displays contained glass cabinets showing the personal items of WW2 soldiers and many de-activated weapons. Again, society members were on hand to explain and to answer questions. One of the societies is changing from just a 'Jeep club' to an organisation dedicated to the memory of the soldiers who fought and died to liberate France. In this respect they visit schools and give talks illustrated by their vehicles and displays. An activity very close to the heart of this writer!

The preserved M4A2 Sherman was the first thing I saw as I entered the square from the south. Quite a surprise! The tank was built in 1942 and used by the French Army. It was part of the forces that landed in

Right: Nicely presented US M35 truck with subdued markings.

Provence in August 1944. Unfortunately, it was lost in combat and covered with sand until found and recovered on 2 March

1990. It was then fully restored, taking over 5000 man hours by the MVCG France. Named Bayard the tank ran again in the









Above: An Airborne re-enactor riding on a Cushman 1944 M53 Airborne scooter. Quite a rare machine, in service it proved fragile on landing. The addition of a weapons holster gave it more of a military appearance. Left: A Norton 16H 490cc dispatch rider bike looked like it had undergone a meticulous restoration. Below: Large military tents held displays of soldiers' personal equipment and small arms. Here are Russian automatic weapons, PPSh 41 and PPS 43 submachine guns and an RPD light machine gun.

VE commemorations on 8 May 1991. Several times during the day the Jeeps. weapons carriers and motorbikes joined civilian vehicles in circuits round the town centre squares. Vehicles equipped with sirens gave their owners a chance to gleefully sound these off while driving

restored M4A2 Sherman. Well crewed by re-enactors and society members and much admired by the public. Below: This was the only Jeep we spotted restored to 7th Armoured Division format.

round. Possibly the only time they could do so legally in the city centre!

The main societies involved where MVCG Nontron and Midi Pyrenees branches, Liberty Vehicles Group and Passeur de Memoire. Many thanks to all for a great display!









Above: Patrick Bruyere regularly visits War and Peace Revival in his Jeep. When in Britain he dresses as a Desert Rat of 51st Highland Division complete with kilt! Below: The only German vehicle in the display – an Sd.Kfz.2 NSU Kettenkraftkrad. Painted in the correct German three colour camouflage, it was used on Sunday to tow a civilian motorbike and sidecar that was on a trailer.

Below: The German MG-42 machine gun. This was capable of firing up to 1300 rounds per minute and was a great menace to allied soldiers. Bottom: British small arms, the SMLE rifle and the Sten SMG. The latter was dropped in large numbers to the local French Resistance.









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MEDIUM MARK II

Tank historian David Fletcher profiles the Medium Mk II tank and its later derivatives

edium tanks Mark I and II were quite different and deserve to be treated as such. Here, we are going to concentrate on the latter and its derivatives, 37 of which were built by Vickers Ltd and 63 by the Royal Ordnance Factory. Visually, the Mark II is distinguishable by the way the side skirting plates continue all the way down to cover the suspension and track rollers, and the way that the driver's hood is raised to the level of the turret, rather than below it. One imagines this might have been done to improve the driver's view of the road ahead, but since a crew member is usually seen sitting on the outside near the driver, this may not have worked. Inevitably, the shape of the armour plates at the front of the tank had to be modified accordingly which gives the tank a much chunkier, bulkier look than the Mark I.

RACKHAM'S TREASURE

These features had been foreshadowed on the two special tanks built for trials in India, although they retained the same drive train as the Mark I. On the Mark II, although the engine, clutch and primary gearbox remained the same, there were changes further back. Beyond the gearbox but in line with it was a two-speed epicyclic 'box which provided an emergency low gear and beyond that again a bevel box which transferred the drive through 90 degrees to the cross shaft that linked to the drive sprockets. However, here was another



A Medium Mark II in 5th Battalion service, still painted in Mechanized Force colours and the crew wearing gas masks, posing with a Hotchkiss gun mounted for ant-aircraft defence.

change, and quite a striking one. Instead of the steering epicyclics in the Mark I, the Mark II was equipped with Rackham clutches and brake drums at each end of the axle. The Rackham clutch, the invention of a gifted ex-Tank Corps engineer, relied on a system of cams and ball bearings to disengage the drive along with a conventional brake drum which slowed down or locked the

track. Used independently they served as a steering medium but used together they brought the tank to a halt. The only problem with Rackham clutches was a tendency to run hot, so much so that on occasion the crew found it necessary to squirt them with the contents of Pyrene fire extinguishers in order to cool them down. Since Rackham clutches were later used, quite successfully,





on Matilda tanks this problem must have been solved.

The other difference concerns the main armament, the 47mm three pounder gun. It was slightly longer than the gun in the Mark I and also had a horizontal sliding breech instead of the falling breech of the Mark I, a small detail, granted, but worth recording since they did make a bit of a difference. The gun in the Mark II had a greater muzzle velocity, 1850ft per second as against 1750ft per second in a Mark I, and a slightly greater effective range of

7000 yards as against 6000 yards in the Mark I. A few tanks were again fitted out for the Close Support role, mounting a 3.7in breech loading mortar instead of the three pounder. Otherwise the armament, in particular the secondary armament, was the same and underwent the same changes. As new a Mark II would have air-cooled Hotchkiss .303 machine guns around the turret and two water-cooled Vickers, mounted one in each side of the hull. Later developments saw the adoption of a co-axial water-cooled Vickers and the elimination of the Hotchkiss guns which, with the addition of a Bishop's mitre cupola on top of the turret, led to the designation of Mark II*. Later still, half of them were fitted with a large, box-like extension to the turret which housed a type MC wireless set. In this guise they were designated Mark II**. A few of the tanks were also seen with a vertical tube mounted at the front of the turret. To be honest we don't know what this was for, suggestions have included a signalling lamp or a compass, but it is not written down anywhere and there is no obvious clue as to what it was.



A Medium Mark II** showing the wireless extension on the back of the turret. When the gun was painted white it was normally meant to represent a Close Support tank on an exercise.



A rare top view of a Mark II** stuck in a hole showing the Bishop's mitre cupola and the wireless bulge, complete with aerial. Notice too the tinplate cowl over the nearside headlight. This was intended to mask the beam at night from the air.

FIRE AT WILL

Mark II tanks dominated the Experimental Mechanised Force of 1927 and the Experimental Armoured Force of 1928. They were built in larger numbers than the Mark I, at least 100 of them, and they can be seen in contemporary photographs, sweeping across Salisbury Plain in what look like great masses.

Only two modifications of the Medium Mark II are known. One was fitted with a pair of hinged bridge girders, carried in brackets on each side of the tank. But since they had to be lifted off and emplaced by the crew you could hardly call it a bridgelayer. The other featured an enlarged, flat-topped turret which is believed to have housed more communications equipment. We are not sure whether this turret could still rotate or not, or indeed whether the gun it mounted was real or a dummy. But gunnery, particularly firing on the move, was what the Royal Tank Corps was all about. Recruits, trained at the RTC Gunnery School, Lulworth Camp, were taught to fire the three-pounder from a moving tank running over a special course. This consisted of a track, marked out in the form of a square, each side approximately half a mile long, down which the tank proceeded, firing as it went.

Undoubtedly the most interesting and unusual version of the Mark II was one described as Tank, Medium, for Radio and Wireless. This dispensed with a turret altogether and instead came with a much enlarged box superstructure which contained two wireless sets and a single machine gun. It was intended as an armoured command vehicle for the



T198 started life as an ordinary Medium Mark II but was later modified into a command tank with a special turret. We know very little about it.

commander of an armoured formation, such as a Tank Brigade. Known unofficially as The Boxcar, or even less politely as The Thunderbox it was built by the Royal Ordnance Factory in 1926. A contract for four more was issued in 1927 but there is no evidence that they were ever built.

In 1928, after the last of the Medium Mark II tanks had been built, ten more appeared with the designation Mark IIA. In this case seven were built by Royal Ordnance and three by Vickers. The only distinguishing feature, small as it is, is the way that the return rollers were mounted

on each side. They were fitted on brackets above the supporting bar rather than passing through it. In fact, the turret still had a bevel at the back as with the Mark II. At least one of them was fitted with the close support howitzer, at least for a while. The plan was that these tanks should all be sent out to Egypt where two Royal Tank Corps armoured car companies were in the process of converting to a tank company from February 1929, ultimately becoming 6th Battalion, RTC on 1st April 1933. The plan was at one stage to equip these tanks with a Ricardo S90 diesel engine which it





Above: The Medium Mark II command tank 'Boxcar' with the French General Weygand taking the salute. He was over here as a guest of the Royal Tank Corps.

Right: This is a Medium Mark IIA close support tank mounting the 3.7in breech loading mortar.

was hoped might cope better with the heat than the air-cooled Armstrong-Siddeley. This never happened, and in any case a mere ten tanks was insufficient to equip a battalion, even if all ten had gone out there in the first place, which they may not have done, so the numbers were made up with ordinary Mark Il tanks. Some were fitted with an outer layer of asbestos panelling in order to reduce the heat while at least one appears to have had a series of ventilation slots cut into the front of the engine compartment to improve the air flow. Two were captured by the Germans during the desert war, but whether Mark II or IIA we don't know. Either way they could not have been much use.

PAST ITS BEST

In about 1930 Vickers-Armstrongs
Ltd published a catalogue entitled
Mechanization that listed and illustrated its
range of military products. These included
a Medium Mark II tank which it described
as the Vickers-Armstrongs Medium Tank.
Presumably by this time the British Army
had lost interest in the tank, although they
still continued to use it, otherwise Vickers
would not have been allowed to offer it for
sale. It seems a rather desperate effort to
sell what was by then quite an old tank.

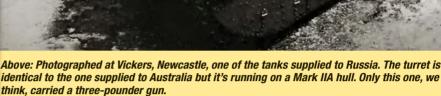
It is interesting to note that it describes the armament of its commercial product as having one 47mm gun and two Rifle Calibre machine guns, which we assume are the two mounted in the sides of the hull. There is no evidence of any machine guns fitted to the turret at all, unless of course, that is what the customer wanted.

In 1929 four Medium Mark II tanks were purchased by Australia. They were identical to the British version except in respect of the secondary armament. Since the Australian Army did not use the air-cooled Hotchkiss machine gun the turret was adapted to mount two Vickers machine guns instead, in addition to the two fitted on each side of the hull. In order to accommodate the larger guns in the turret the side bevels were much









smaller and there was no bevel at the back. As in Britain these Medium Tanks, now well beyond their sell-by date, remained in service as training machines into the early part of WW2.

The Soviet Union also acquired 15 Medium Mark II tanks, which they called the 'English Workman', or so it is said. They had

the same return roller arrangements as the Mark IIA in British service, but had modified turrets to take a couple of Maxim

water-cooled machine guns. Only one was apparently delivered with the 47mm weapon, the rest were supplied without guns, which were fitted in Russia (probably their 45mm). Funds for them are said to have been made available in 1930 but it has to be said that they were a very elderly design by this time and even the Russians realised that they were not worth developing any further. In any case Russia obtained a couple of Christie prototypes from America at about the same time and realised that

their future tank design lay in that direction. The Medium tanks were sent down to Kazan, in Soviet Central Russia where the Germans were also training their embryo tank force. Whether the Mediums were sent down there to give the Germans a false impression is not clear. About half a dozen Russian Mediums seem to have fallen into

KNOWN SURVIVORS

There are only a few Medium Mark II tanks left now. There is a Mark II*, T199, at the Tank Museum and for a while the collection contained a Mark IIA, or the remains of one, which was dug up from Ashdown Forest in Sussex where it had been since the war. Sadly it was too far gone to be worth

preserving. There is a Medium Mark IIA in the Ordnance Museum Collection in the USA which was recovered from the desert, and the

Australians have one of their four machines which now lives at the Royal Australian Armoured Corps Museum at Puckapunyal, Victoria. I don't believe any survive in Russia, or anywhere else that I am aware of – but if anyone knows differently...

"Half a dozen Russian Mediums seem to have fallen into Finnish hands at the time of the Russo-Finnish War."

Finnish hands at the time of the Russo-Finnish War but what they were doing in that region is not at all clear. They look too dilapidated to be fit for any sort of action and it seems a miracle that their engines carried them that far anyway.



Above: A Medium Mark IIA at Lulworth, a rare picture of one in original condition and still in England. Right: An Australian Medium Mark II with its crew on parade. There were only ever four of these, now just one survives.





Social media has its positives, one being the help it afforded Jon Phillips when embarking on the incredible low budget restoration of this rare StuG III Ausf D Words and pics: Ian Cushway

turmgeschütz III Ausf D assault gun, chassis number 90678, was captured by the British at El Alamein in May 1942 and was transported back to the UK. Ingloriously, it was used as target practice at Pirbright before being rescued by Kevin Wheatcroft. Its current owner Jon Phillips, needing a new challenge, bravely took on the restoration, calling on the help of military collectors the world over when it came to sourcing missing parts, of which, as you might imagine, there was quite a few.

Making its show debut this year, it now represents one of the rarest and most interesting vehicles on the scene – testament not to the amount of cash poured into the project, but spadefuls

of sheer determination, a down-to-earth motivation to get it done – and more than just a smidgen of ingenuity when it came to encouraging fellow enthusiasts to get involved.

SWAPSHOP

The story began in early 2013 when Jon from Chatham, Kent, took a long, hard look at his wartime Schwimmwagen and decided it was time for a change. "I was bored, I suppose," he admits. "I wanted a new challenge, so got in contact with Kevin and asked him if he'd got anything he'd be interested in swapping. I went to his yard in Leicestershire and among the half-tracks and other relics, I spotted what looked like





THE RESTORATI

pictures courtesy of Jon Phillips





Above: Jon got the tracks from Normandy. They were seized solid.



Above: Engine and various other running gear came from a donor FV432.



Above: With help from a few friends, Jon finally gets the StuG up and running.

Right: Almost there. Jon acquired and was given parts from enthusiasts located all over the world.



Above: Jon, a welder by trade, did the majority of the metal fabrication himself.





Above: Jon swapped his Schwimmwagen for this rusty relic.

Left: As found, languishing in Pirbright's firing range. It was rescued and found its way into Kevin Wheatcroft's collection.



Above: Work started on the lower hull first, with Jon, aided by various friends and other enthusiasts, carrying out the repair work.



Above: Jon couldn't get the original cast steel hinges so made some himself.

Left: Work is carried out on the high mounted air intakes, part of the tropicalisation work done before it went to North Africa.





Above: Parts were acquired from as far afield as Poland, Latvia and France. Right: Gun is the 75mm short barrel as used in the Panzer IV. Above it to the left there are two holes, which are range damage, while below it is another hole (visible here) made by a Piat.

a rusty skip in the corner. I found out what it was and was so intrigued, I did the swap. Part of my reasoning was that because it shared the same chassis as the Panzer III, there would be parts in common which would make life easier."

Once it had been hauled back to Kent, Jon started by tackling the lower hull which took almost a year to complete, followed by the fighting compartment then the engine deck. "One of the biggest problems I had at this

early stage, apart from the fact that so many bits were missing, was getting the drop arms and torsion bars out," explains Jon.

Being a welder and engineer by trade and having worked on heavy plant in the past, Jon did the vast majority of the work himself using pictures, drawings and books as a reference. Where there was a gap in available information, Jon simply applied a



generous dose of common sense in order to arrive at a suitable solution.

The second year of the project was taken up by work on the fighting compartment, with Jon acquiring a 75mm gun and most of the infrastructure. "I'd started up a Facebook page by then and people from all louvres. "A guy from Latvia sent me these," explains Jon.

Capturing the imagination of military vehicle enthusiasts in order to source the necessary missing components was a masterstroke on Jon's part, although a certain amount of talking turkey had to

take place given Jon's limited DIY budget.

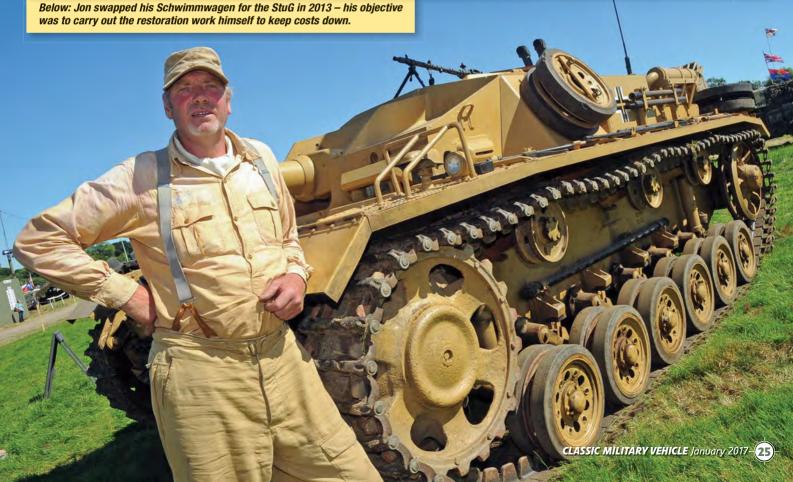
"People initially got in touch asking silly prices, so I'd say 'no I couldn't

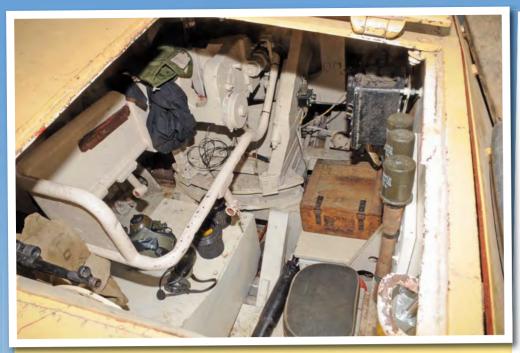
afford it.' Then they'd come back to me and say, 'okay, how much can you afford?' In the end, we'd come to an arrangement. I think at the end of the day, people with parts sitting around were just happy to see them being put to use."

"I spotted what looked like a rusty skip in the corner."

over the world started offering me items for it. The gun mantlet, for example, came from a guy in Czechoslovakia."

Incidentally, the mushrooms on the rear of the deck are original, but the two back ones are unique to the D and are more like









DRIVING FORCE

Next, because the StuG arrived minus its original Maybach powerplant, Jon needed to find another engine to push it along. "Of course I would have liked to have found a Maybach for it, but at £150,000 they're just too expensive so I had to find a more feasible alternative," he explained.

That came in the form of a cheaply acquired donor FV432, which Jon also plundered for its steering box and various other bits.

Being virtually 'squaddie proof' a big bonus was the simplicity of the electrics and with everything being labelled, Jon soon had the StuG up and running.

By this time the project had received 420,000 views on Facebook and the prospect of this rare piece of German wartime history being brought back to life was creating a real buzz among military enthusiasts worldwide.

Of course there were the inevitable teething problems, admits Jon, like a blowing exhaust, and the need to repair a damaged propshaft. The fact that the tracks, sourced from Normandy, were rusted solid

"People with parts sitting around were just happy to see them being put to use."

> when they arrived serve to remind Jon of the hardship the project involved. "Trying to knock out the pins was murder. Despite soaking the whole lot in diesel, it still took me eight hours to do just six."

The aim throughout, admits Jon, was to

do everything on a shoestring budget, an approach which resulted in long hours in the workshop – and some epic drives in order to collect parts. "I was always on a mission to do things as cheaply as possible, which invariably meant doing all the work myself. I wouldn't think twice at driving to Poland to

get a part I needed. I saved a fortune doing it that way."

SOCIAL CIRCLES With the vehicle finally debuting in 2016, Jon is pleased with what he's

achieved. And rightly so, because what he's managed to do in just three years is nothing short of remarkable. That said, he's happy to acknowledge the assistance he received from other enthusiasts. As he puts it: "I've had a lot of help from a lot of good people



The crest of the Sonderverband z.b.V 288 was a green laurel wreath surrounding a palm tree and rising sun over a small swastika.



Tropical fittings included additional pre-cleaning filters, additional air intakes cut into the deck access hatches and fuel/water can racks mounted across the rear engine deck.

STUG III AUSF D HISTORY



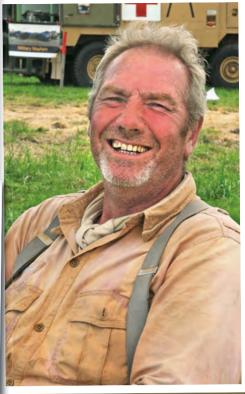
Jon's was one of three StuGs used by a special unit called the Sonderverband z.b.V 288 and they were tropicalised before being sent to North Africa. When they were captured, one got dumped, and the other two were sent to the UK. Jon's was sent to Pirbright, and the other one travelled to Sweden for mine testing.

and I've made a good few friends along the way. I've enjoyed doing it."

The fact that he's saved a historic military relic from an inglorious demise is one thing, but his endeavours, and the fact that he's documented the whole tale on Facebook, is also worthy of applause. It proves that it is possible to restore a wreck on a miniscule budget and that you don't need to be a multi-millionaire to own something rare and truly historic. And this has inspired other people to embark on equally ambitious projects, thus saving other important vehicles for future generations to enjoy.

You can follow the full rebuild on Jon's facebook page – www.facebook.com/ StuglllAusfDRestoration





Above right: An always cheerful Jon recognises the help and support he's had from other enthusiasts such as Bruce Compton. Not forgetting his wife, Stephanie.



RASPUTITSAL

John G Teasdale delves through his archives to illustrate how, during Operation Barbarossa, Soviet mud proved more effective in slowing the German advance than the might of their army

ne of Russia's most significant tsars was Peter the Great, who ruled from 1682 until his death in 1725. He modernised and expanded the state, reorganised the army and founded a navy. One thing he did not do though was to pave Russia's roads. The main obstacle to him doing so was that, particularly in European Russia, there was a lack of rock that could be quarried for roadstone.

During the Russian summer, the earth baked hard in the sun and provided good going on the unpaved roads. When it rained though, the roads quickly became muddy. In the autumn, when it tended to rain a lot, the roads became very muddy.

rain a lot, the roads became very muddy.

Burned out and wrecked Soviet Army lorries litter a road through the open steppe; the photograph was taken in July 1941. Blitzkrieg was ideally suited to such terrain – when the weather was dry and the hard-packed earth made progress relatively easy.

They only became passable again in the winter, when they froze solid. In the spring, due to the combination of snow-melt and more rain, the roads became exceedingly muddy indeed. Autumn and spring on Russia's roads became so notorious that a word was coined to describe the seasons: rasputitsa.

The invention of railways was a godsend to Russia. The first main line, connecting St Petersburg and Moscow, was opened in 1851. Thereafter, the railway network was steadily extended. After the 1917 revolution, the Soviet government continued to extend the network. Using the railways to transport stone, some main roads were paved too. However, the resulting all-weather roads were lightly constructed, as heavy traffic would continue to be conveyed by rail.

The black earth of Ukraine and Russia made for terrible roads, but it was exceedingly fertile. When Adolf Hitler seized power in Germany, he was determined in due course to seize the Ukraine and western Russia too and settle them with German peasants. On 22 June 1941, the Germans launched Operation Barbarossa; the invasion and occupation of the Soviet Union had begun.

The invading army included teams





German Army motorcycles and Kübelwagen are seen here on a road passing through a typical village in the Soviet Union. The weather is dry, and the hard-packed black earth of the road through the village provides good going. The leading Kübelwagen is a Light Cross-country Car (leichter geländegängiger Personenkraftwagen) as built by BMW, Hanomag and Stoewer from 1936. The original design featured four-wheel drive and four-wheel steering. However, the latter was an absurd over-complication, and from 1940 it was dropped. From this year only Stoewer built the car, and the example seen in the photograph is a Stoewer Typ 40.

of engineers whose sole task was to convert Soviet railways to the gauge used by the railways in western Europe (from 1520mm to 1435mm track gauge). However, the railway network in the Soviet Union was by no means dense. and the bulk of the German invasion force would have to go by road. The hope was that by conducting the Blitzkrieg (Lightning War) that had proved so successful in Poland, France and the Low Countries in 1939 and 1940, the German armed forces (Wehrmacht) would be able to conclude their campaign before the autumn rains fell. Needless to say, things did not work out as hoped, as this series of period photographs demonstrate...





Above: Rain fell on 2 July 1941, and it rained on and off for the next six days. Under the weight of traffic, even the few paved roads began to break up. This photograph is undated, but shows the consequences of even a modest rainfall. Large numbers of German soldiers are pushing a lorry and its equally large trailer over an unpaved road that is beginning to rut. Left: A column of Wehrmacht vehicles 'somewhere in the Soviet Union'. The soil here appears to be sandy, so this may be the western part of Ukraine. While the going on the sandy soil will deteriorate when the rains fall, conditions will not get as bad as on the black earth roads further east.





Left: Given the inability of many of the Wehrmacht's motor vehicles to cope with bad going, it was soon obvious that they would require assistance when road conditions deteriorated. One solution was to re-deploy prime movers from their primary task and use them to drag stuck cars and lorries out of whatever morass in which they had become stuck. This Luftwaffe Hanomag SS 100, photographed in 1942, is now deployed in that role. Although fitted with a powerful 100hp diesel engine, it is not particularly suited to the task; it is fitted with road-going tyres, dual at the rear, and does not have all-wheel drive.

Below left: Many of the motor vehicles serving in the Wehrmacht were civilian models fitted with road-going tyres and lacking all-wheel drive. A column of such vehicles is seen here on a road that is beginning to be churned into mud. So far, progress seems to be being made. The lorries are likely to be in first or second gear though, and fuel consumption will be high.

Bottom: In the foreground, soldiers set to with shovels to repair a road. In the background, vehicles forming part of Heinz Guderian's Panzergruppe 2 (2nd Panzer Group) have by-passed the road and driven across open country - and have got stuck. Note the motorcycle, which, so far, seems to be coping with the conditions; the rider is talking to the crew of the stuck Kübelwagen. However, deep mud often proved fatal to a motorcycle. If its wheels sank so deeply that the mud passed through the spokes, they were effectively locked into that mud. The motorcycle could not be pushed free, nor could it be towed free. If the frustrated rider tried to ride it free by revving the engine and dropping the clutch, the likelihood was that the driving wheel spokes would all snap, crippling it completely. Given that the Wehrmacht's motor mechanics were all but overwhelmed by the workload induced by the poor road conditions, this would likely lead to the motorcycle being abandoned.





Above: This road has been churned into gloop, though it is not clear if it is the road conditions that have brought the column to a halt. The rear vehicle is a radio car based on the Medium Cross-country Car (mittlerer geländegängiger Personenkraftwagen). Note how the frame aerial on the roof is being used as rack for jerricans.





Above left: The performance of road-going tyres was improved by fitting snow chains. A set is seen here, fitted to the outer wheels of a civilian-pattern lorry. They don't seem to have done much good, and may have helped rip up the road surface even more than the tyres themselves would have done.



Above: An obvious improvement to lorries being built for the Wehrmacht was to give them all-wheel drive. This was done. A more radical step was to replace the rear wheels with a set of tracks; this was done too, resulting in a series of two tonne and four and a half tonne half-tracked lorries known collectively as Maultier (Mule). A more radical step was to build a fully-tracked tractor, Raupenschlepper Ost (Tracked Tractor East), and a four-wheeled tractor featuring large diameter steel wheels, Radschlepper Ost (Wheeled Tractor East). The photograph shows a Luftwaffe Raupenschlepper Ost towing a 5cm Pak 38 anti-tank gun.

Left: Tracks were no panacea for rasputitsa though. The Wehrmacht fielded a series of sophisticated semi-tracks, but they still got stuck in the mud. This 1 tonne semi-track (leichter Zugkraftwagen 1t (Sd Kfz 10)) is being pushed by Soviet prisoners of war in May 1942. The Wehrmacht made extensive use of Soviet PoWs for labouring tasks. The men were semi-volunteers — no doubt they would much rather be elsewhere, but labouring was better than starving in a PoW camp.

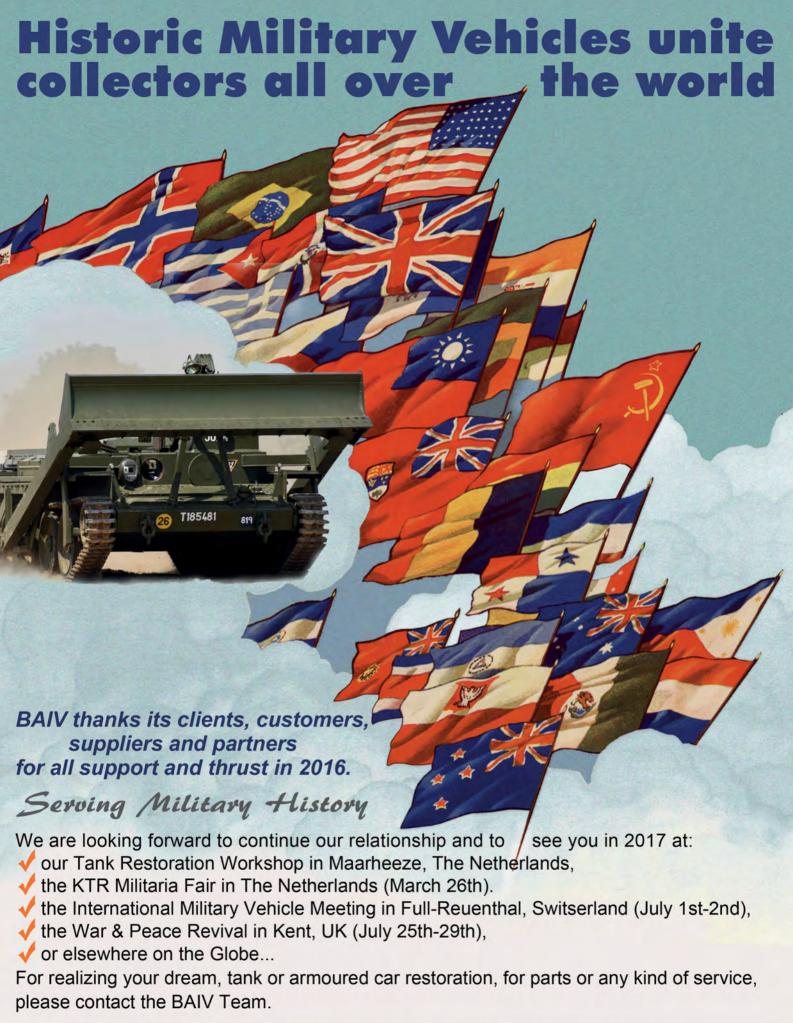


Above: In this case, the approach to a bridge recently erected by the engineers is by way of deep ruts. The front wheels of the MAN lorry have failed to climb up out of the ruts and on to the bridge, instead bulldozing the bridge decking in front of them. So the crew are now attempting to lever up the front of the lorry by means of a log. Note the sections of 'rope ladder' corduroy road rolled up in front of the headlights.

Left: Winter brought relief from rasputitsa, but brought problems of its own. These men are lighting a fire under the engine of an Opel Blitz 3 tonner in order to warm the oil so that the engine can be cranked. The heat will also help the petrol in the carburettor to vaporise and thus start the engine. Given the flammability of petrol though, this is a hazardous undertaking. Indeed, the whole invasion of the Soviet Union was a hazardous undertaking. It would have been better had the men of the Wehrmacht stayed at home...

Below: In places where the roads were really bad, such as where a stream ran in a shallow valley, army engineers laid corduroy roads as seen here. The vehicles are from Panzergruppe 2.









PARK AND RIDE

Travel and military history writer Doug Goodman visits the Siem Reap war museum during a recent visit to Cambodia

fter seeing the mine clearing centre and museum in Luang Prabang and the cluster bomb and artificial limb fitting complex in Vientianne in neighbouring Laos I got to hear about the military vehicle park in Siem Reap, Cambodia's popular destination for tours to the well known Angkor Watt temple areas.

Few tuk-tuk drivers knew about the vehicle park and several believed that it was located in a closed area but eventually, at a cost of \$US10 for the 8km return journey including two hours waiting, a driver was found. Visitors are free to wander around the football pitch-size park and are encouraged to hire a guide for a few dollars.

Mine spoke good English and was a veteran of the Khymer Rouge era of terror. I didn't like to ask how he lost a leg.

The museum has aircraft and a vast range of tanks, guns and trucks in various states of ruin and sheds full of small arms, heavy weapons and bombs. I assumed that all the munitions were inert as I handled an

RPG and a range of Russian, Chinese and American guns.

The vehicles are in desperate need of preservation but Cambodia lacks the finance as it still remains a very poor country after the ravages of the Khymer Rouge and the Vietnam War. Most of the vehicles date from that era with a strong showing of Soviet built armaments and most have descriptions in English.

I was told that very few foreign visitors get to this amazing exhibition but those who do tear themselves away from the temples and markets will be welcomed.

Left: 1941 BM-13 multiple rocket launcher based on the ZiL 131. According to the note on the front, it was still being used on the Cambodian battlefields during the late 1970s. Below: Field guns used in the Vietnam conflict are dotted indiscriminately around the park and look ripe for restoration.







Right: MIG fighter and soviet helicopter provide added interest for the military enthusiast.







Above: Again, this Soviet tank needs restoring before it's too late. Above right: Heavy guns with rocket launchers lay abandoned.



Above: Doug Goodman handles an RPG, hoping it's deactivated. Below: This 1954 T54 wreck was also used in the Cambodian conflict before being destroyed by a mine.

Above: Another field gun in urgent need of restoration. Right: A haul of Soviet, Chinese and American weapons. We assume they're all kept under close lock and key.





Below: The museum guides usually speak good English which is probably just as well because you really wouldn't want anything to get lost in translation.



James Taylor seeks to clarify the history and roles played by the Special Forces' Land Rovers

riting about Special Forces vehicles is always fraught with problems, the biggest one being that details of these vehicles and their uses are rarely made public. The other major problem derives from the first: myths and legends grow up to fill the gaps in our knowledge. However, it is certainly possible to put together an outline history of the Land Rovers used by 22 SAS Regiment from available evidence. So here goes.

SHORT-WHEELBASE MODELS

From about 1955, the SAS began to use modified short-wheelbase Land Rovers drawn from standard Army contracts. Most were probably Mk3 86-inch models. The Regiment stripped them down in the style of

the SAS Jeeps used in the Western Desert in wartime, and added a long-range fuel tank. The passenger seat was raised so that twin Vickers mounted above the scuttle could be fired forwards, and a rear-facing gunner sat on top of the long-range tank with a pintlemounted Browning machine gun. Some of

these vehicles were supposedly used in SAS operations in support of the Sultan of Oman's forces from November 1958.

Meanwhile, SAS squadrons operating in Malaya during the Emergency in the early 1950s stayed behind after the main fighting was over to mop up pockets of resistance. It was probably to support them that the Regiment developed a standardised short-wheelbase Land Rover design in the first half of 1956. Like their predecessors, these vehicles were configured for a three-man crew. A prototype, 43 BR 70,



The prototype 'standardised' SAS short-wheelbase Land Rover was evaluated by FVRDE. It was converted from a standard 86-inch Mk 3 model.



Above: The 'production' examples of the short-wheelbase models were converted from 88-inch Mk 5 models. Below: It's the real thing. There are replicas about!



was converted in the Regiment's own workshops from a Mk 3 86-inch model, and was evaluated at FVRDE.

From mid-1956, Land Rovers had an 88-inch wheelbase, and the 'production' variant was based on this, which the Army called the Mk 5. The extra two inches of wheelbase were all at the front, so there were no differences to the body layout. Probably eight of these 'production' models were built, known as FV18006 types and all converted from standard Mk 5s delivered during 1957. Those so far identified are 66 BS 03, 66 BS 09, and 66 BS 14.

THE FIRST PINK PANTHERS However, there is not much room in an 88-inch Land Rover. By the 1960s, the



This is a unit-converted 'Pinky', dating from the mid-1960s. There are several differences from the later standardised models; note the absence of smoke grenade launchers, for example.

British Army was increasingly buying longwheelbase (109-inch) models, and the SAS followed suit. First of all they modified some Mk 9 (early Series IIA) models - the numbers are not clear but some have suggested six or eight - and some of these served in the Oman-Dharfur campaign from late 1964. One also went to FVRDE in 1965 for evaluation.

According to legend, the Regiment discovered by accident that dull pink was an effective camouflage in the Omani desert. A patrol came across the wreckage of a wartime Liberator bomber that had been

invisible from the air because sandstorms had scoured off the top coats of paint, leaving only the red oxide undercoat that blended into the colour of the sand. So they painted their Land Rovers dull pink, and the vehicles quickly picked up the nickname Pink Panther from the 1963 comedy detective film that starred Peter Sellers. These unit-converted vehicles, then, were the first Pink Panthers.

THE LEGENDARY PINK PANTHERS The modified Series IIAs persuaded the Regiment to call for some Series IIA 109s to



A unit-converted 'Pinky' on operations, but not exactly in action.



Above: This is the legendary Liberator wreck that gave the SAS the idea of using dull pink paint for camouflage in the desert. Below: Not every Pink Panther was pink! 10 FG 80 remained in Bronze Green, and was restored by Dunsfold DLR to that condition some years ago.



To give clearance for the large tyres, the Marshall's-built Pink Panthers had heavy-duty 'drop shackle' suspension.

be built to its own specifications, and these are the ones that most people recognise as the Pink Panthers. Specifically designed as Desert Patrol Vehicles, in the beginning they were certainly intended for operations in Oman. The SAS specification was improved (mainly for durability) by FVRDE and a prototype vehicle had been converted from a 1961 Mk 9 Land Rover, 18 DM 93, by January 1967.

The production contract for 72 vehicles went to Marshall's of Cambridge. They were built on the latest Rover 11 version of the





long-wheelbase Land Rover, still a Series IIA to its manufacturer but now with negativeearth electrics and other changes. The SAS versions also had uprated suspension. They had military serials 10 FG 30 to 11 FG 01, and were delivered during 1969.

All were delivered in standard Bronze Green, and nine retained that colour

throughout their lives – five that served in Belize, plus four retained in the UK for training. The rest were painted by

SAS workshops in pink, apparently a mix of white lead and red lead created by a local paint shop in Hereford.

The FG-series Pink Panthers were again configured for a three-man crew. They had sand tyres (when used in the desert), a front-mounted spare wheel, smoke grenade launchers front and rear, a 7.62mm GPMG on a bulkhead mount and another on a pedestal in the rear load bed. The observer's (front passenger's) seat was raised and there were jerry cans on either side of the driver and passenger.

The front wings carried gun holsters, and there were sand channels mounted externally on either side of the load bed. The passenger's side front wing carried a theodolite tripod, and there was a cargo bag on the rear supported by a drop-down flap. Most importantly, there were huge auxiliary fuel tanks either side of the rear load area, which gave them a range of some 1200 miles. The rest of the load area was generally stuffed with ammunition, weapons and whatever other supplies the crew chose to take on their mission.

These vehicles saw service in many parts of the world, including the Persian Gulf, BAOR and Northern Ireland, although all

were sold by 1986. Three went to Botswana and were left there by SAS units apparently seconded to train the local defence force. One has now returned to the UK and is owned by an enthusiast.

THE ONE TEN V8S

The Pink Panthers were replaced by One

tyres (7.50s were standard wear) and Land Rover's High Capacity Pick-Up (HCPU) body to give maximum carrying capacity.

The first-stage trials vehicle was 90 KB 62. A total of 33 vehicles were then delivered in November 1985 and acquired serials between 24 KD 32 and 24 KD 72. Again designed for a crew of three, they carried

> a forward-facing machine gun and a post-mounted machine gun in the rear. Safety considerations dictated a rollover

bar behind the cab, and a vertical grille or metal panel behind this was used to hang more equipment. The back body carried jerrycans as needed, ammunition boxes, additional weaponry for the operation in hand, and had a covered cupboard for food

"They painted their Land Rovers dull pink, and the vehicles quickly picked up the nickname Pink Panther."

Ten models with the 3.5-litre V8 engine. Based on a design by Glover Webb, these were also known as Pink Panthers although most were painted in desert sand camouflage after being delivered in standard green. They had big 9.00 x 16



This rear view of 10 FG 35 shows the drop-down shelf at the rear, the sand channels, and the sand tyres (on 15in wheels rather than the standard 16in size used on Land Rovers).



and other supplies. There were two spare wheels, one on the bonnet and one mounted on the side behind the driving

compartment. The One Tens had a front winch for self-recovery, and a Magellan GPS as well as the traditional sun compass.

Unlike the Series IIA Pinkies, the One Tens had no long-range fuel tanks but just the standard twin underseat tanks that gave a range of about 200 miles. This gave more room in the body and was not a problem

because the SAS was now using helicopters and Mercedes-Benz Unimog 'mother ships' to deliver supplies to patrols in remote

"Wire mesh panniers on the rear sides helped to compensate for the smaller

> areas. The One Ten SAS vehicles were most famously deployed on Operation Granby, the operation to liberate Kuwait after the Iragi invasion, and are probably best known for their role in the Scud-busting operations

carrying capacity."

described in the book, Bravo Two Zero. The Regiment took delivery of ten more

desert patrol Land Rovers (78 KK 53 to 78

KK 62) in May 1992. Broadly similar to the KD batch, they were nevertheless powered by the 200Tdi diesel engine instead of the petrol

V8. Strictly Defender 110s (the utility Land Rovers were renamed as Defenders in mid-1990), they were the only operational Defenders purchased by the MoD with that engine - although some vehicles bought for service advisers may also have been diesel-powered.

THE DINKIES

The SAS found itself without enough vehicles during the First Gulf War because its One Ten V8s were away on special duties behind enemy lines. So in early 1991 it commandeered some standard diesel short-



. and these are the smoke grenade launchers, also seen on the Marshall's-built Pink Panthers.



This view shows the load area of a One Ten V8...



Like the 109s they replaced, the One Ten V8s were delivered in green. Here is 24 KD 33 when new, at Hereford. The back body could be covered with a tilt, either to help disguise the vehicles in transit or (says one story) so that they could be quickly converted to cargo carriers.

wheelbase military 90s and got Longline to turn them into smaller versions of its One Tens. Wire mesh panniers on the rear sides helped to compensate for the smaller carrying capacity. Intended for proposed operations by B Squadron SAS, they were later also used to protect re-supply convoys.

Numbers are not known, but some wag



Above and below: Few photographs of the SAS 'Dinky' models exist. This was 62 KF 44, shortly after return to the UK.

decided that they needed a special name and the name 'Dinky' stuck. It came from a combination of 'diesel' (the D) and 'Pinky' (the Pink Panther), and fitted rather well because these short-wheelbase models were smaller than the SAS's favoured One Tens. Most were probably rebuilt to standard configuration before returning to

the UK, although at least one (62 KF 44) did survive intact. Worth noting is that the vehicle which has been displayed at the IWM in Duxford was not in fact a real Dinky, but a former Land Rover demonstrator.

Since then, there have been no special Land Rovers for the SAS – unless you know otherwise...





MILITARY MARVEL

Andover-based Esarco's '80s legacy of versatile All-Terrain Vehicles (ATV) is remembered by John Norris



The water fording capabilities of the range were very good.

ugged and powerful the Esarco range of ATVs was available in leither 6x6 or 8x8 guise and each attracted interest from a variety of military forces at the time, the design influencing a number of similar vehicles, many of which remain in service around the world. Based on a Land Rover 110, it was developed by Major Michael Somerton-Rayner and early examples used Rover's 3.5-litre V8 engine. They went on to provide both military and civilian applications and while a number of similar vehicles were developed during the 1980s not all passed the field trials to meet the military's exacting standards.

The 6x6 version was usually completely open whilst the 8x8 could be fitted with an enclosed cab but a removable canvas roof. The 6x6 and diesel version of the 8x8 each had a wading depth of 31.5in and the petrol engine 8x8 was capable of fording 20in. An amphibious version of the cargo carrier 8x8 was available and propulsion in water would Left: The 6x6 cargo version demonstrating all terrain capabilities.



As an artillery prime mover the Esarco was capable of carrying crew as well.

have been through the forward driving motion of the wheels. Steering was through the wheels also and whilst not perfect it did mean the vehicle could go into deep water to deliver its payload of stores. However, operating in water was only one aspect of this all-round vehicle. Steering on roads was through a standard steering wheel with power assistance to the front axle on the 6x6 version. On the 8x8 this was provided to the front and rear axle.

The Esarco range was unarmoured with bodywork being fabricated from sheet steel which reduced the weight for air mobile operations. The chassis featured a box section ladder structure with an integral welded body. The 6x6 weighed 1.376 tons while the 8x8 weighed 2.455 tons which allowed the vehicles to be transported by air or as underslung cargo from helicopters. Typically, a CH-47 Chinook helicopter could carry two 8x8 either as an internal cargo or as an underslung load. Eight 6x6 versions could be carried inside a C-130 Hercules by stacking the vehicles two high and securing them. The payload capacity of this version was 1.25 tons which meant the bottom vehicle could be driven off the rear loading ramp of the aircraft transporting the stacked vehicle as a cargo load. The payload capacity of the 8x8 was 1.96 tons which gave it scope to be configured to operate in a wide range of duties. In addition, both types could be air dropped by parachute on a palletised frame for rapid deployment.

FLEXIBLE FRIEND

The vehicles were fitted with tow hooks which allowed them to pull trailers with a loaded capacity of almost four tons. They were also capable of towing pieces of artillery such as 105mm light guns and even heavy 120mm calibre mortars. The 6x6 version could tow trailer-mounted weapon systems such as anti-aircraft missiles and anti-aircraft guns such as 20mm cannons which could be sited on airfields as point defence weapons against helicopters. The 8x8 version, being longer, was more

Below: Towed missile systems were well within the Esarco capabilities as seen with this Rapier system.





The all-terrain capability of the Esarco allowed it to tow artillery directly into position.

versatile and it was proposed for a number of roles including a weapon platform for a

20mm cannon for air defence, light rocket artillery launcher as well as towing artillery. It could be fitted out to

serve as a maintenance support vehicle for servicing helicopters in the field. Other specialist roles proposed included

laying mines using a 'plough system' such as the British Barmine Layer and even

"Eight 6x6 versions could be carried inside a C-130 Hercules."

> 'scatterable' mines such as the 'Ranger' anti-personnel devices.

The 8x8 could be fitted with rigid

bodywork to permit it to serve as an ambulance and even as an armoured

personnel carrier with side doors and a lightweight turret armed with a machine gun for fire support.

In the logistics role this version could be fitted with a tanker body to transport liquids including fuel. This version could



The vehicle had a low profile which was useful in combat and easy to camouflage.

TECHNICAL SPECIFICATION

ESARCO 6x6

DIMENSIONS: 12ft 8in long, 6ft 6.7in wide and 5ft 3.4in to the top of the steering wheel. Width over the wheels – 5ft 2.5in Ground clearance: 12.2in PAYLOAD: Ten men seated, cargo bed – 6ft 6.7in wide, 7ft 9.7in long MAXIMO CLIMBING GRADIENT: 45 degrees and of approach and departure –

degrees, angle of approach and departure -50 degrees
TURNING CIRCLE: 8ft 6in

ENGINE: Water-cooled 2.5-litre diesel four-cylinder Land Rover engine Power: 70bhp

TOP SPEED: Road – 60mph (96km/h) Fuel consumption: 22mpg, standard fuel tank holding 16.75 gallons providing an operational range of 368 miles (589km). An optional 25 gallon tank gave an operational range of 550 miles (880km)

GEARBOX: Five-speed manual

ELECTRICAL SYSTEM: 12 volt negative earth system with a point boom 55W

battery, lighting – 60W main beam, 55W

SUSPENSION: Long travel coil springs with

three beam axles **WHEELS & TYRES:** Bulbous 10x15 wheels
with 31x15.5-15 8PR tyres. Runflat tyres optional

also tow a bowser trailer for water or extra fuel. Two fire tender versions were proposed for use on airfields. The first was equipped with hoses and the other type had a nozzle mounted over the driver's cab for spraying foam on crash sites. The fully amphibious version had a boat-like chassis which would have given it shape not dissimilar to the DUKW vehicle



The canvas cover provided protection during inclement weather conditions.

used during the Second World War.

The Esarco could be fitted with a winch, depending on customer requirement, and lightweight rubber caterpillar tracks could be fitted to the wheels. Ground pressure for the 8x8 version was 5.5psi empty and 6.4psi fully laden. The 6x6 was 4.1psi empty and 5.5psi fully laden. They could carry a one ton load, which made both types ideal for use in soft, boggy ground and even sandy conditions.

LOST LEGACY

So what happened to the Esarco range?

The design was versatile and promised so much, but it effectively faded out of sight. The Esarco concept was acquired by the American company of Stewart and Stevenson, based in Huston, Texas, which had experience in producing vehicles and heavy machinery for the military. During the war the company had built specialist power tools for the US Army and serviced vehicles. The design was changed and the new vehicle range (SS300) continued to be produced. In fact, one took part in the 1991 Paris to Dakar Rally.

Below: The Esarco 6x6 demonstrating its troop carrying capabilities with a full complement of ten men.





The vehicle could cope with very harsh terrain.

The changes made by Stewart and Stevenson produced a vehicle which was completely different from the original idea, but the influence from the Esarco design was very much apparent. Although still having a military application the new-look design was more for commercial use. The SS300 was much larger and heavier than the original and with a change in engine types it was really an entirely different design. All these changes were

design. All these changes were not for the best and the vehicle was severely criticised for its poor performance.

Another company to take up the Esarco range was the British-based MWG Group which made its own changes

to the design and, like Stewart and Stevenson in America, ended up producing an entirely different vehicle. This resulted in the Heavy Use Global Operation (HUGO) which looked more suited to commercial use. Manufacture stopped after only three prototypes and one production vehicle was built. Approaches were made to try and interest military forces around the world, but the edge had been lost and other designs taken into service. One small positive note for the MWG Group was to supply a limited number of the 6x6 version

"A few have been spotted at military vehicle shows."

to the Portuguese parachute force. After that, the project was halted and the design consigned to history.

Today, some Esarcos and their derivatives can still be found in private

TECHNICAL SPECIFICATION

ESARCO 8x8

DIMENSIONS: 15ft 7in long, 6ft 6.7in wide and 6ft 6.7in to the top of the cab doors. Width over the wheels – 5ft 2.5in **GROUND CLEARANCE:** 8.5in

PAYLOAD: 12 men seated, cargo bed – 9ft 1in long, 6ft 5in wide (options of fitting a rigid body to operate as an ambulance, fire tender or APC among other proposed roles) MAXIMUM CLIMBING GRADIENT:

45 degrees, angle of approach and departure – 50 degrees

TURNING CIRCLE: 9ft

ENGINE: Petrol or diesel engine depending on customer requirement. Power: Petrol engine – 3.5-litre water-cooled V8 – 114bhp at 4000rpm, six-cylinder diesel – 114bhp at 4200rpm

4200rpm
TOP SPEED: Road – 65mph (104km/h)
FUEL CONSUMPTION: Petrol engine –
12mpg, operational range of 210 miles
(336km) with 17.5 gallon fuel tank and
384 miles (614km) with the 32 gallon tank.
Diesel – 20mpg, operational range 350
miles (560km) and 640 miles (1024km)
respectively

miles (560km) and 640 miles (1024km) respectively GEARBOX: Five-speed manual ELECTRICAL SYSTEM: 12 volt negative earth with 65A alternator and 60Ah battery, lighting 60W main beam, 55W dipped SUSPENSION: Long travel coil springs with four beam axle and bevel-type differentials WHEELS & TYRES: Bulbous 10x15 wheels with 31x15.5-15 8PR tyres. Runflat tyres optional

ownership, often employed on farms, and a few have been spotted at military

vehicle shows. The vehicle looked good during field demonstrations and observers were genuinely impressed with its performance. It has to

be remembered, however, that there were a number of other similar designs being promoted at the time, and in view of this competition the Esarco became a victim of its own doing to an extent.

Below: Esarco could also tow battle radar systems such as this equipment for use with Rapier anti-aircraft missiles.

ESARCO

ESARCO

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PLASTIC SURGERY

lan Young looks at the various uses of plastic-based protection on military vehicles



Above: Numerous softskins were fitted with VPKs while serving in Northern Ireland, such as the Scammell Crusader recovery truck. The weave of the GRP matting used can be clearly seen.

Below: UK defence company **QinetiQ** developed the Advanced Composite Armour Vehicle Platform or ACAVP to see how an entire vehicle hull could be built using composite armour. Having served its purpose it's been retired and now resides at the Tank Museum.

he majority of those who think of armoured vehicles generally assume that the armour is constructed from some sort of steel or metal alloy. However, plastic-based protection systems for vehicles have been in use in one form or other for many decades. While steel generally offers excellent ballistic protection, depending on the thickness and how it is applied, it's heavy, which in turn can affect a vehicle's performance and put extra stress on the mechanicals.

An alternative was alloy armour, which has been tried and used successfully on a wide variety of vehicles, with the British CVR(T) family perhaps one of the better known applications. But there have been occasions where the use of alloy was deemed too expensive, and an alternative method of protecting vehicles has been sought.

SOFT TARGETS

The escalation of the 'Troubles' in Northern Ireland in the 1970s and '80s created an urgent need for additional protection for



the numerous softskin vehicles employed there at the time, vehicles such as the Land Rovers and 4-tonne trucks. While originally used in their standard, unprotected form, rising casualties and the use of new tactics and weapons by the terrorists led to a requirement to add some sort of protection to these vehicles.

The first attempt was an add-on kit of non-ballistic protective armour panels that could be fitted to the vehicles quickly and easily, taking around 32 man-hours to fit, and these are usually referred to as a Vehicle Protection Kit or VPK. The moulded panels were constructed from a compressed, interwoven type of GRP (glass reinforced plastic) matting often referred to - erroneously - as Makrolon. Makrolon is the ballistic clear plastic sheeting used to protect windows. At the time the GRP matting and resins used were not designed to be proof against high calibre weapons or large bombs, but merely protection against some of the lower level threats that faced the crews. However, the compressed and interwoven nature of the materials used in the construction of the panels meant that it would at least slow down, and in some cases prevent, some lower calibre weapons from penetrating the material and entering the vehicle. Moreover, it provided protection against low level shrapnel such as bricks, bottles and paint bombs.

The kits were developed for a range of vehicles, the best known of which was the Land Rover Series III, which gained the nickname 'Piglet', being a smaller versions of the conventionally armoured Humber Pig also in service in Northern Ireland at the time. The Land Rover half-ton Lightweight was also fitted with a VPK for patrol work, as were Land Rover ambulances. Bedford 4-tonne trucks and even Scammell Crusader recovery trucks. The ability to mass-produce these kits and then fit them in a workshop with a minimum of tools made the VPK an ideal solution at the time. That said, while vehicles equipped with the VPK were protected from general low level threats, they were not proof against the large calibre, high power ordnance that was starting to find its way into Northern Ireland.

This meant the basic VPK was later upgraded using a HVVPK, or High Velocity Vehicle Protection Kit, which saw armoured

steel panels replacing many of the GRP panels and armoured glass replaced the standard windscreen, previously protected by just a wire mesh

screen. However, the addition of all this extra protection also added weight and by the time it was phased out a fully laden Land Rover HVVPK weighed close to 3-tonnes!

NEW THINKING

The relative success of the VPK equipped Land Rovers in Northern Ireland indirectly led to the development of the CAV-100 or 'Snatch' Land Rover, which employed a



The combination of the GRP panels and steel mesh provided a reasonable level of protection for the crews, but only from low-velocity weapons, smaller blast bombs, bricks and bottles.

rear pod, side doors and other components constructed from S-2 Glass Composite Plastic armour developed by Courtaulds. It used the newer 110 coil sprung chassis and was powered by the venerable 3.5-litre V8 petrol engine to give more power, and was soon being used in Northern Ireland as a replacement for the ageing Piglets.

The development of this new 'plastic' armour technology had begun to be taken more seriously following its success in

conventional armoured steel body, though this was later supplemented with add-on composite armour panels to improve protection levels. It should be mentioned that many of the conventional armoured vehicles serving in Northern Ireland were also fitted with additional internal composite armour panels to further improve protection.

By contrast the Penman Tavern APV, which was based on a proprietary

American-built GMC Chevrolet truck chassis, used a rear body constructed from a classified form of plastic or GRP armour.

Interestingly, the slab-sided nature of the Tavern led to the nickname 'Postman Pat's' van! The exact make up and construction of the rear body on the Tavern remains classified, so much so that when they were retired from duty and sold off through disposal agents Witham Specialist Vehicles, the rear bodies and armoured panels were removed.

By now the new thinking was that add-on armour panels such as those used in the

"It provided protection against low level shrapnel such as bricks, bottles and paint bombs."

Northern Ireland and a number of vehicles were developed over the following years that incorporated this new type of armour. Meanwhile, the traditionally armoured vehicles such as the Humber Pig, Alvis Saracen and Saxon Patrol vehicles were joined on the streets of Northern Ireland by the Glover Webb APV (Armoured Patrol Vehicle), a similar vehicle to the CAV-100 Land Rover that was also based on a standard Land Rover chassis, but using a



VPK should have a higher level of ballistic protection. The original kits had no official ballistic protection, though the very nature of the material and construction methods did at least reduce the effectiveness

of some smaller calibre ordnance. The new generations of plastic armour being developed would take the concept a stage further, providing real protection at a fraction of the weight of traditional

steel armour. Later, it would be found that this type of 'plastic' armour had the added advantage of reducing the magnetic signature of the vehicle, which was beginning to be used as a way of setting off IEDs (Improvised Explosive Devices).

More recently the increased level of operations in both Iraq and Afghanistan led to a new wave of development work to create add-on armour protection for the more vulnerable vehicles operating there. Amongst the various add-on, plastic



The Tavern Armoured Patrol Vehicle was used in Northern Ireland as a replacement for the older VPK Land Rovers. It had a much higher level of protection, but the base vehicle used was not ideal.



The exact makeup of the composite armour used on the Tavern remains classified and when they were retired from service all the bodies were removed before the chassis were sold off.



Open top vehicles being used in Iraq and Afghanistan required additional protection. These are the composite armoured door panels on a Supacat Jackal.

or composite armour systems that were tried and used during this period was MAPIK armour (Modular Armour Protection Installation Kit). Looking more akin to a gym floor mat strapped to the side of a vehicle, it was in fact a semi-flexible, composite, plastic/Kevlar-based woven armour that could be used in panels and added to vehicles where necessary. In reality, it was a step up from the unofficial use of flak jackets and body armour being hung over the doors and bulkheads of vehicles by crews in an effort to at least offer some form of protection. The Land Rover WMIK (Weapons Mount Installation Kit) was one of the prime users of the MAPIK armour system, but it was also used on a number of other softskins, including trucks and tank transporters.

FIRMING UP

The war in Afghanistan turned out to be a very different war to those previously fought by the Western forces serving there. The widespread use of IEDs and sniper tactics led to a rapid development programme of both vehicles and armour types in an attempt to thwart attacks and prevent loss of life. Because of this rapid development the use of the soft MAPIK panels gave way to hard armour panels with improved ballistic protection.

The exact make-up of the new hard plastic armour panels that went on to be employed on a wide variety of British vehicles such as the Supacat Jackal, Supacat Coyote and the EPS Springer is classified, but experts believe it to be some form of ceramic/plastic based composite armour that can be moulded into panels to suit the particular requirement. Vehicles that had entered service without any form of additional protection were quickly retrofitted with add-on armour packages, and while they didn't offer complete protection to the crews, they did at least

offer more protection than they had previously, with systems designed primarily to upgrade lighter, open top vehicles such as the Land Rover WMIK, the Jackal MWMIK and latterly the Coyote. Further development of the Land Rover WMIK by Ricardo resulted in the RWMIK+, the most recent Land Rover-based WMIK vehicle, which incorporated numerous hard armour



Here, a Bedford 4-tonne truck has been fitted with a protected rear cargo area.

panels within the design from the outset.

Of course the development of add-on armour packages is all well and good, but some defence manufacturers have taken the concept a stage further and attempted to create armoured vehicles constructed almost entirely from 'plastic' or composite armour. The advantages of reducing the overall weight of a vehicle while retaining a good level of protection could open up possibilities in terms of airtransportabilty. Currently, heavy armour has to be transported either by land, sea or large cargo plane, but should a lightweight

Below: The CAV-100 was developed by Courtaulds and used a new type of moulded GRP armour. It went on to serve in Northern Ireland as a replacement for the VPK Piglets.





Above: Close-up of the composite armour door panel on a Springer. Additional panels were positioned behind, in front of and below the crew compartment.

Left: Developed as a run around to ferry supplies from supply helicopters to Forward Operating Bases (FOB), the EPS Springer also incorporated composite armour panels around the crew compartment.

thanks to the weight saving, which in turn reduces the frequency of fuel refills. The use of the plastic composite armour in its construction is said to have increased the levels of survivability for the crew thanks to a reduced visibility to radar and infrared scanners, a reduction in the risk of

shrapnel inside the hull and better protection against bullets, mortars and land mines.

Another advantage of using plastic in the construction rather than

steel is the fact that it is less susceptible to corrosion, which made it ideal for use in salt water conditions, therefore making it ideal for the construction of fully amphibious vehicles or vehicles regularly

tank or armoured vehicle be developed it could, in theory, be air dropped by parachute or lifted into theatre using a transport helicopter. That in turn could lead to all sorts of strategic opportunities to see how this new technology could be adapted to suit mechanical components and weapon systems.

QinetiQ's Advanced Composite Armour Vehicle Platform weighed just 24 tons,

that enable heavy armour to be dropped into 'hot spots' to provide much needed firepower. The extensive use of plasticbased materials can also be used to reduce a radar

or heat signature of a vehicle, therefore creating a so-called 'stealth' tank, and as mentioned previously, the use of plastics rather than steel helps to reduce magnetic signatures, which can set off roadside IEDs.

PLASTIC TANK?

One such example of a so-called 'plastic tank', which in reality wasn't entirely plastic nor was it a tank, was the Advanced Composite Armour Vehicle Platform (ACAVP), created by UK defence company QinetiQ. Based around the suspension and running gear from a standard IFV (Infantry Fighting Vehicle), the ACAVP used a composite hull and acted as a test vehicle

DRS DE

Earlier attempts to provide some sort of crew protection on the WMIK came in the form of MAPIK armour, which took the form of soft panels strapped to key areas of the vehicle.

"It is less susceptible to corrosion, which made it ideal for use in salt water conditions."

which was around four tons lighter than a similar vehicle constructed using conventional steel or alloy armour. It had a top speed of 40mph (64km/h) over rough terrain, but a decreased fuel consumption

"It is less susceptible to corrosion, water conditions."

steel is the fat to corrosion, was in salt water conditions."



As the paramilitary factions started to use higher velocity weapons the VPK Land Rover was developed further. This is the HVVPK or High Velocity Vehicle Protection Kit Piglet, which saw many of the GRP panels being replaced by armoured steel panels.



Softskins are always going to be more vulnerable to attack and the MAPIK armour system saw several development phases before being introduced on a wide range of vehicles, including this Oshkosh HET tractor unit fitted with MAPIK panels.



Prior to the application of officially developed and purpose-built add-on armour, some vehicle crews attempted a few DIY fixes using MAPIK panels to give themselves a little extra protection while serving in Iraq and Afghanistan.

exposed to a salt water environment, such as those belonging to amphibious units like the Royal Marines, who, by the very nature of their operations, expose their vehicles to salt water on a regular basis.

Since being replaced by newer vehicles and the very latest innovations in composite technologies, the ACAVP was retired by QinetiQ and now resides at the Tank Museum as part of its extensive collection of pre-production and prototype vehicles, and is often seen performing at Tankfest.

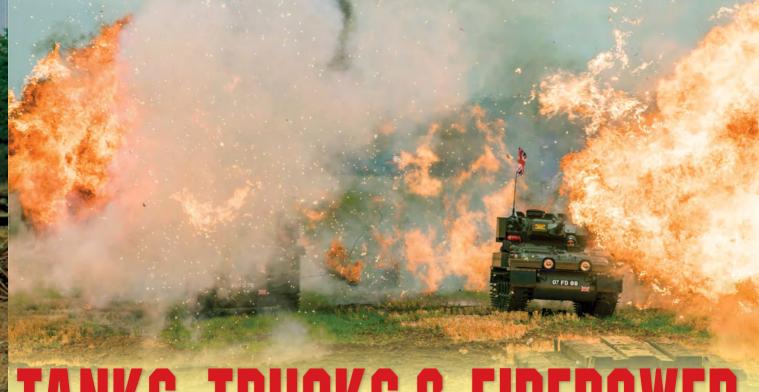
As to whether we will ever see a fully plastic tank or armoured vehicle is debatable. However, the development of new plastic, composite and ceramic armour continues by defence manufacturers right across the world, and these new developments when combined with new construction methods such as 3D laser printing and plastic bonding could see so-called 'plastic' tanks becoming a reality in the future.



Above and below: The Bedford 4-tonner was also fitted with a VPK. The Bedfords were sometimes referred to as 'Wendy Houses' after a popular toy tent available at the time! (Photos courtesy – Bob Morrison – Military Scene)



OUT AND ABOUT WITH CMV ...



TANKS, TRUCKS & FIREPOWER SHOW - 27-29 AUGUST, 2016

Ann Evans reports on the 2016 Warwickshire spectacular, Photos: Rob Tysall

■lames, explosions, gunfire and a cavalcade of military might. The Tanks, **Trucks & Firepower show held over** the August bank holiday weekend was everything it promised to be and more. Military vehicle owners from all over the UK along with some overseas enthusiasts brought their treasured tanks and trucks to the event, the furthest making a five-week journey from West Africa.

Organised by the Alvis Fighting Vehicle Society (AFV Society) it brought together around 260 tanks, armoured vehicles, Jeeps, field guns, recovery vehicles, fire engines and trucks, alongside re-enactors from the Tommy Atkins Society, the Warwickshire Land Army, Warwickshire Home Guard Living History Group and others who all helped to create an authentic wartime atmosphere - in a good way!

There were charity stalls such as Troop Aid

where visitors could try their hand at firing British and American rifles; other stalls had army surplus for sale. There were mini tanks for the children along with a funfair, and plenty of delicious food stalls and a beer tent. Together it created a great day out for all the family.

This was the AFV Society's seventh year of running the show and it was bigger and better than ever with 5000-6000 people attending. The atmosphere over the three-day event held in fields at Dunchurch, Warwickshire, was a happy mix of relaxation coupled with the thrills of the action-packed events that were lined up.

The show was a great opportunity for getting up close to a huge array of military machinery





Above: A treat for Chelsea Pensioner, John Honey. Left: An armoured car passes through the crowds







Above: Visitors could fire American and British rifles on the Troop Aid stall. Right: Drivers of these Army Reconnaissance track vehicles, Andrew Baker and Mick Browning, pass so close they have chance for a chat!

and chat to the owners who painstakingly restore and maintain their vehicles. The AFV Society's 68-ton Challenger tank was getting lots of attention. The tank is still being restored by members of the AFV Society including co-organiser of the show Andrew Baker.

Andrew said: "A group of us are restoring the Challenger. So far it's been four years work.

When we got it from the MVEE at Chertsey it had no engine, gear box or electrics. We meet every Saturday to work on it. This is the only one in the world in private hands."

For some visitors to the show there was a golden opportunity to have a tank ride. Two very special guests given rides around the main field arena to the appreciative applause of the









Above: Andrew Baker, co-organiser of the show and of the Alvis FVS. Left: Simulated aftermath of an enemy attack.





audience were veterans Sam Cameron and John Honey from the Royal Hospital Chelsea Retirement Home.

A host of events took place in the small arena, with parades of AFV Society vehicles, post-war Land Rovers, recovery (winch/tow/ drop) vehicles, fire engines, and the Royal British Legion motorbike riders who, it was proudly announced, had now raised £1 million for the Poppy Appeal.



Above: Chelsea Pensioner John Honey on an Alvis Fighting Vehicle Society tank.

The final event in the small arena each day was an opportunity for all of the military vehicle owners to bring their pride and joy into the arena for all to see.

Over in the main arena, which is a large open field, there was some dramatic action going on throughout the three days. It began with midday guns compered by AFV Society member, Tim who did a great job in explaining everything that was going on, what guns,

bullets and shells were being fired, and most importantly - when and how we should cover our ears!

Starting small, Andrew Baker who was also the pyrotechnic master, fired off rounds from various guns, beginning with a 50 calibre 762 hand gun, then getting successively bigger and louder. A 25 pounder gun used in both world wars and still in service was fired by Chelsea Pensioner John Honey. Then a 76mm canon boomed across the Warwickshire countryside, followed by an even more powerful 90mm shell, each explosion being louder than the one before.

The CVRT driving and pyrotechnic display was a real crowd pleaser. With Andrew at the wheel of an 8-ton Army Reconnaissance Track Vehicle and co-founder of the AFV Society Mick Browning driving another, they displayed absolute brilliance in the control of these powerful vehicles. Reaching speeds of 50-60mph they raced around the field, sometimes with Andrew travelling backwards, the vehicles nose to bumper a few inches away from each other. Then coming closer to the

The AFV Society (www.afvsociety.co.uk) was formed in 2005 after the founding members decided to pool resources and knowledge to benefit anyone seeking to collect, renovate and show these vehicles. Since then the society has gone from strength to strength as the popularity in military vehicles and armoury has increased. They now have around 60 or 70 Alvis vehicles and boast the only collection of all the 10 CVR(T) margues, including some rare variants such as the Scorpion 90 and the Streaker.

The AFV Society welcomes new members and their website also provides a place to buy and sell parts and vehicles. It also has an international register of Alvis fighting vehicles and owners, providing an insight into where these Alvis made vehicles are ending up. They are always pleased to know of other privately owned vehicles which can be added to the register.









Above: Mick Browning in his 8-ton Alvis Reconnaissance vehicle. Left: The force of the blast sends oil drums spinning into the air.

MAKE A DATE IN YOUR DIARY

The next Tanks, Trucks & Firepower Show takes place on August bank holiday (26-28) 2017. The showground is situated one mile from Dunchurch Village Centre on the A426 in Warwickshire (five miles from Rugby). There is easy access off the A45 and M45. For more information visit www.tankstrucksandfirepower.com

audience, they performed what was practically a ballet of military might as they pirouetted around each other, only inches apart with such grace and agility that it could have been put to music.

A truly dramatic finale saw the results of Andrew's pyrotechnic genius, as the ARVs roared towards the crowds amid massive

Below: The Alvis FVS tank – the only Challenger in private ownership.



explosions. There were flames, smoke, and oil drums thrown 30ft into the air by the force of the explosions, resulting in an awesome spectacle of fire and metal.

It was no surprise to learn that the AFV Society with its wealth of military machinery is often approached by the TV and film industry

to help by providing vehicles for films and programmes. Naming just a few, they've assisted on the 2006 sci-fi thriller *Children of Men* starring Clive Owen; *Armoured Speed* for the Discovery Channel; *Top Gear, House of Cards* and are currently providing vehicles for a zombie movie being filmed locally.

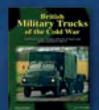


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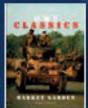
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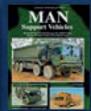
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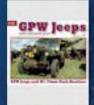
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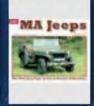
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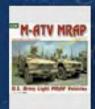
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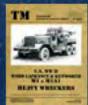
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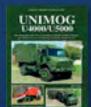
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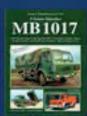
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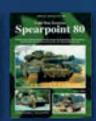
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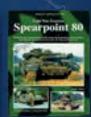
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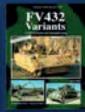
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WHAT AN EXPERIENCE! YWE - 1-3 JULY, 2016

Marking the 75th anniversary of the Diamond T, this year's Yorkshire Wartime Experience proved more special than ever, as Scott Smith explains



Jon Phillips is the proud owner of this original Sturmgeschütz III Ausf D which was captured in North Africa by allied forces during WW2. After Jon completed a mammoth restoration, the vehicle was making its very first public outing at the 2016 YWE.

The fifth Yorkshire Wartime Experience will certainly go down as one of, if not the, most memorable to date. Not only did it attract a record number of vehicles, close to 450 including a dedicated area to celebrate 75 years of the Diamond T, but it left all who attended once again looking forward to more of the same.

Since those humble beginnings in 2012 the show has grown to become the largest in the North of England – attracting a number of rare and interesting military vehicles year in year out.

The 2016 event would be no different as again, record numbers of armoured and tracked vehicles were on display – some

possibly for the last time in England with them due to be heading to the continent before the summer was out.

One vehicle that was a newcomer and will be very much staying in the UK though is Jon Phillips's StuG III D – you can read about it on pages 22-27 in this issue. It was making its first ever appearance on the show circuit

>>>



Above: Martyn Tasker, from Lincoln, brought along his 1943 Universal Carrier. He has owned it since 2007 and undertook a full restoration, managing to find its original T number along the way during the rebuild which was completed in 2009. Right: Chris Till takes his Diamond T 969A Wrecker for a spin around the arena.





Above: The 1945 Mk III Daimler Dingo belongs to Alistair Scott who made the short journey down the M62 from Huddersfield. Alastair has owned the vehicle for the last three years and believes the vehicle spent most of its time in reserve until the 1960s when it was demobbed.



following a three-year restoration from a wreck into a fully restored running version which Jon is more than happy to allow to be featured in almost any battle re-enactment!

Another one-off vehicle, featured last issue, came in the form of a 1947 Atkinson Alligator which Chris Camps had just managed to finish restoring in time for the show. This machine is the lone survivor of just three built to be used in the development of the British Blue Streak missile system.

It wasn't just on the tracked front where there were new attendees though - with a number also being in seen in the post-war section of the show, while organiser Stuart Wright provided what is believed to be the only full collection of United States Army WW2 handcarts in private hands.

This year also saw a special celebration of all things Diamond T - with it being the 75th anniversary since the famous American WW2 heavy rolled off the production line.

After almost two years of planning by Adrian Mason, who owns a T that featured earlier this year in CMV, the specially dedicated area of the

Above: After being demobbed military vehicles became a popular choice for a number of commercial outlets. Wynns Heavy Haulage was famed for its fleet of Pacifics and Diamond Ts such as this 1943 981 example. Left: You don't see too many 1 ton Humber Wireless Trucks around. The FV1604(A), as it was categorised, was basically a standard 1 ton Humber Truck fitted with a two speed generator but no winch, along with the wireless truck body.

showground saw 25 Diamond Ts from all over the UK coming together to celebrate the anniversary. Special mention should go to Jason Jefferies who drove his 981 and Rogers Trailer, complete with Jim Clark's Sherman on board, over 200 miles each way over the course of 12 hours in each direction just to take part in the memorable event.

And that is very much what the YWE has become - memorable. It is now one of the mainstays on the show circuit, attracting more, and new, military vehicles each year. Who knows where it could end up? One thing for sure is that it will happen all over again in 2017, with the dates for the show already set for 7-9 July.

Check out the pictures over the following pages to take in just a small taste of what the Yorkshire Wartime Experience had to offer,

Left: The M36, more commonly known as the Jackson, was an American tank-destroyer. This example, owned by Phil Wood, dates from 1944 and only came onto these shores in 2013 after spending a number of years in Bosnia. The M36 is basically an up armoured M10 with the tank carrying a 19mm gun turret, Below: These re-enactors looked the part on their motorcycles.







Above: Despite being a popular vehicle when first leaving military service, the Alvis Stalwart has turned into somewhat of a rare machine on the rally field. Below: This unusual vehicle is a M578 Tracked Armoured Recovery Crane and is owned by John Riley from Stockport.





Above: Nearly 30,000 examples of the T34-85 were produced between 1941 and 1945, with this example being one of the later models rolling off the production line in Gorki as the war drew to a close. Following WW2 it spent time in Eastern Europe, being found in Czechoslovakia and imported into the UK in January 2013. This example of the T34 carries a 85mm gun and is powered by a 38-litre V12 engine. Below: Another vehicle that hadn't long been finished before making its debut at the event was this Scammell Pioneer which had undergone a six-year restoration. Below left: Blink and you may have missed it but it was good to see this Austin K6 flatbed tucked away in a corner of the show field. Bottom: Making one of its last appearances in the UK before being purchased by an Eastern European collector was Rick Wedlock's 1944 MK6 Cromwell. Rick started the restoration in 2011 and spent just 18 months transforming it from a wreck to show-stopper. He decided to sell it in order to finance new projects.



Below: One of the rarer pieces of post-war armour are vehicles such as this Abbot FV433 Self-Propelled Gun. Dating from 1966 this example spent time with the British Army on the Rhine before being sold out of service in the 1980s. Current owner Tim Dickinson purchased it in 2013 and has had to carry out some light maintenance since that time to make it ready to rally. The Abbott carries a 105mm gun and is completely road legal.









Above: This Ward La France M1A1 Heavy Wrecker is owned by Graham Booth and 2015 was the first time that it had been out on the circuit following restoration. Introduced in 1943 in order to supersede the earlier M1 series, the 5-tonne boom swing crane was installed in order to recover tanks and most heavy vehicles. Right: This may well be a post-war Czechoslovakian OT810 version from the 1950s but in essence it is the same design as the German built Sd. Kfz 251s that were produced in over 20 different varieties. The post-war version, such as this one, was fitted with a diesel engine and had other subtle changes.









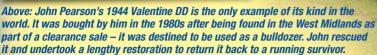
Above: Another vehicle which was making its first appearance on the show scene was this Austin Champ which had undergone a four year restoration. Again it differs somewhat from the norm, although it did start out life like many others, and is believed to have been shipped to help with the Suez Canal crisis. Once it arrived back in the UK the wooden body was applied in civilian life to give it a new lease of life. Above left: Another British built tank that also changed ownership during the course of 2016 was this 1944 A34 Comet which at the time of the event was owned by Ian Galliers before going into auction in September. Ian purchased this vehicle, which is fitted with a Meteor Mk 4 (Centurion) engine, from the Geneva military museum when it closed down. Left: In order to help with the troubles in Northern Ireland a number of Humber armoured 'Pigs' were modified - like this one which was known as the 'Flying Pig' and offered extended riot screens either side of the vehicle.





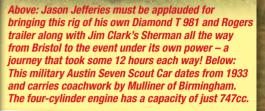
Above: Charles Brittain-Jones has owned his 1942 Diamond T 968 cargo body variant for around six years.







Above: The Berna 2VM was built between 1964 and 1976 for the Swiss Army and several different variants were offered. They are certainly a rare sight on the rally scene with this one having been on the circuit for a number of years now.







Above: Probably one of the most recognisable German military vehicles from WW2 is the Kubelwagen - with over 52,000 being built. This example dates from 1942. Below: Stuart Wright, who is one of the show organisers, oversaw the restoration of his 1943 M16 White half-track.



Above: Pickfords was another heavy haulage outfit that employed the services of Diamond Ts. This 1942 example belongs to Graham Booth who has owned a number of the vehicles over the years.



Below: Bob Fleming, who once again helped provide excellent coverage on the microphone throughout the arena programmes, takes his SdKfz 2, better known as the Kleines Kettenkraftrad HK 101 or Kettenkrad for







Above: One of the show organisers, Nelz, hitches a ride around the arena on this Diamond T hard cab 969 variant. Left: The M3A1 tank was first used in November 1941 in North Africa, being known as the Honey by British forces and the Stuart by the US Army. It is powered by two Cadillac V8 engines.



Above: These re-enactors looked the part on their motorcycles. Right: Steve Rodman is well known among Diamond T circles having owned a number of different examples over the years. His latest acquisition has been this 1943 variant.





Above: Steyr built some 12,450 examples of the Steyr 1500 A from September 1941 to March 1944. It was able to carry a crew of eight men and due to its high ground clearance proved to be popular for both desert and off-road use. Right: Various battle scenarios took place at the end of both days. Below: Among the differing and interesting variants of Diamond Ts on show was this 972 Dump Truck.





Above: The Gaz 67 was a Soviet manufactured vehicle which was influenced by the American built Bantam and Willys Jeeps and a development of the earlier designed Gaz 64. Only 718 Gaz 67s were built between September 1943 and January 1944 before the Gaz 67B was introduced.

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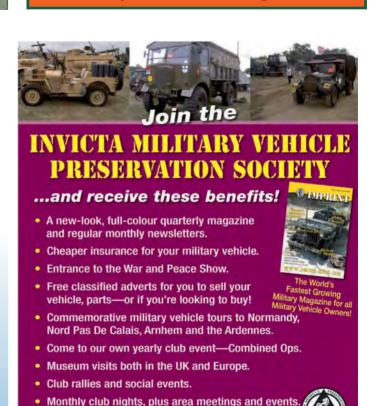
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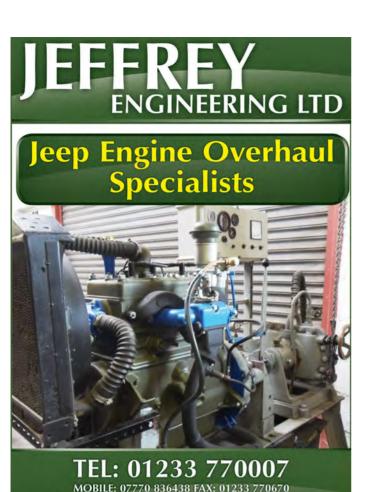
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IT'S SHOWTIME!

The major military-vehicle and militaria events in the UK and around the world...

There are many military-vehicle rallies held in the UK and elsewhere; only the larger events are listed here but more appear in the major club magazines – or look at www.milweb.net, www.mvpa.org, or www.mvt.org. It is always wise to ensure an event is still on before setting out on a long journey.

CMV can accept no liability for errors or omissions in this list.

Show organisers, please send details of your event to the editorial address at least eight weeks in advance. Unfortunately we have space only for shows with significant military-vehicle content.



MILITARY-VEHICLE EVENTS 2017

ON TRACK MILITARY MODELLING SHOW

Date: Sat 25 Feb 2017

Location: Leas Cliff Hall, Folkestone, Kent

Contact: www.ontrackshow.co.uk

TIGER DAY

Date: Sat 29 April 2017

Location: The Tank Museum, Bovington, Dorset

Contact: www.tankmuseum.org

MILITARY MOTORCYCLE RIDE (ARMY BENEVOLENT FUND)

Date: Sat 6 May 2017

Location: Theale to Hungerford, Berks

Contact: 07748 310996

TANKFEST 2017

Date: Sat/Sun 24-25 June 2017

Location: The Tank Museum, Bovington, Dorset

Contact: www.tankmuseum.org

YORKSHIRE WARTIME EXPERIENCE

Date: Fri/Sun 7-9 July 2017

Location: Cockleshaw Beck Farm, Hunsworth

Lane, Hunsworth, Bradford BD4 6RN

Contact: Stuart Wright, stuart.wright@hotmail.co.uk,

website www.ywe-event.info

WAR AND PEACE REVIVAL

Date: Tue/Sat 25-29 July 2017 **Location:** Folkestone Racecourse

Contact: www.thewarandpeacerevival.co.uk.

COMBINED OPS MILITARY & AIR SHOW

Date: Sat/Sun 19-20 Aug 2017

Location: Headcorn Aerodrome, nr Maidstone, Kent

Contact: www.combinedops.co.uk

MILITARY ODYSSEY

Date: Sat/Mon 26-28 Aug 2017

Location: Kent Showgrounds, Detling, Maidstone, Kent

Contact: 07595 511981

TANKS, TRUCKS & FIREPOWER SHOW

Date: Sat/Mon 26-28 Aug 2017

Location: A426, 5 miles from Rugby CV22 6NR Contact: www.tankstrucksandfirepower.co.uk

MILITARIA EVENTS, AUCTIONS, ETC Government surplus sales Witham Specialist Vehicles

Regular auctions of military vehicles and equipment are held by Witham Specialist Vehicles throughout the year at its Colsterworth, Lincolnshire site. Visit www.mod-sales.com, or call 01476 861361 for more details.

Ramco IIK

Ramco UK is one of the largest outlets for the sale of miscellaneous and government surplus. The company holds tender sales each month from its

premises in Croft and Burgh – both in Lincolnshire. Visit www.ramco.co.uk. or call 01754 880880 for more details.

FORTHCOMING MILITARIA EVENTS 2016

December

GHQ MILITARIA FAIRS

Date: Sun 18 Dec 2016

Location: The Maltings, Farnham, Surrey

Contact: 07919 455799. www.ghg.uk.com

EVENTS 2017

January

CLIFF'S CLEAR OUT - UNIVERSAL JEEP **SUPPLIES**

Date: Mon 2 Jan 2017

Location: Marsh Farm, Station Lane, Milford,

Godalming, Surrey GU8 SAE Contact: 01483 860403

CROYDON AIRPORT AVIATION & MILITARY COLLECTORS FAIR

Date: Sun 8 Jan 2017

Location: Hallmark Hotel, Purley Way, Croydon,

Surrey CR9 4LT

Contact: David Sutton: 07973 885754.

davidsutton16@aol.com

DALLAS DIG OUT

Date: Sun 8 Jan 2017

Location: Dallas Autos, Cold Ash, Long Lane,

Hermitage, Newbury RG18 9LT Contact: 01635 201124

MILITARIA 2017

Date: Sun 29 Jan 2017

Location: Exhibition Centre, Stoneleigh Park,

Coventry

Contact: 01743 762266

March

MALVERN MILITARY FAIR

Date: Sun 19 March 2017

Location: Three Counties Showgrounds, Wye Hall (Brown Gate), Malvern, Worcs

Contact: 01743 762266

November

MALVERN MILITARY FAIR

Date: Sun 19 Nov 2017

Location: Three Counties Showgrounds, Wye Hall (Brown Gate), Malvern, Worcs

Contact: 01743 762266

In Next Month's New Look Issue on sale January 19th



Back in the USSR A visit to Patriot Park in Kublinka, Russia - a Cold War theme park



Don Rs remembered The Second World War's mighty military Matchless and Jameś profiled



Tacla Taid A museum on Anglesey in North Wales in a new regular museum feature



Plus book reviews, archive photographs, event calendar, military market round up, collectable kit and redesigned news pages



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THE MILITARY-VEHI

ver the last 15 years of *CMV*'s price guides and market reviews, we have seen many interesting vehicles come up for sale and some distinct patterns emerge. Some vehicles have waxed while others have waned, but the really consistent benchmark of our hobby has been – and I imagine will continue to be – the price of Jeeps. Which is understandable as the Jeep, either wartime or Hotchkiss, is by far the most prolifically owned military vehicle.

With the advent of the Defender, there has been a real decline in the level of Series Land Rovers coming onto the market, but 15 years ago Series 1, 2 and 3 were omnipresent in Milweb's adverts.

Wolf prices have come down by around 30%, because they are now released in volume and accessible to the private buyer. There is now a noticeable lack of Wolf replicas being offered for precisely the same reason – the cost of building a replica is pretty much the same as buying the real thing.



French found Kettenkrad at €80,000 is a good investment.

NEW ARRIVALS

The ex-French Army Marmon Simca Sumb, popular some years ago, are rarely advertised these days. Many of them ended up as Gun Buses in the UK with some inevitably ending up in the hands of collectors - they were always an entry level vehicle. But with the vast majority of these 40 year-old leviathans reaching the end of their useful life the gas guzzling V8 petrol engines are being stripped out before scrapping to carry on life under the bonnet of a hot rod. Step forward the Reynolds Boughton RB44, released in good numbers from the MoD and now offering a practical alternative to the Sumb and a cheaper alternative to the Unimog at around £6000-£8000.

For many years the Bedford RL, MK and TK ranges were the mainstay of the British Army and had a good afterlife in the civilian market, and a firm collector fanbase. With the release of vast quantities of the Bedford's replacement, the Leyland Daf 4x4, these trusty Bedfords have also faded into the background.

During the 1990s there was a large following for US M Series vehicles. Reos were arriving in the UK on a weekly basis from US disposal sales in Germany and there were always plenty on the market. The DRMO (Defence Re-utilisation Marketing



RB44 - a viable option for civilian afterlife.

CLE MARKET Compiled by Nigel Hay

Organisation) sales in Germany were like our legendary Ruttingdon sales and many of these trucks had minimal mileage. Indeed, I remember driving a water tanker truck back for a friend with just 470 miles on the clock that sold for \$1200. It was like new and had cost the US taxpayer over \$60,000 to buy. The aluminium tanks appeared to have never been filled and even had an antiicing system. The famous Rolling Thunder re-enactment group brought the Vietnam conflict to the shows with their spectacular arena events and whilst they have never lost the impetus, the M35 and M54 range are less popular now. Pretty much the only UK specialist for these trucks (and of course the more recent version releases) is Marltrax.

BRITS ON THE UP

Perhaps the most noticeable trend in the last 10 years, beyond the prices of WW2 armour, has been a long overdue increase in interest and value of British and Canadian wartime vehicles. For a long time the poor relation in a market dominated by Dodges and GMCs, the Bedford QL consistently outsells the GMC and a whole new collector's genre has sprung up. This is good for our hobby and it has brought a

whole stable of new restorations onto the show circuit.

The Universal Carrier had a 12 month surge in

prices, with some owners asking up to £70,000 and most selling for around the £40-£50,000 mark. The price of Carriers has now come back down to the pre-surge level and you can find a good one for around £30,000 making it affordable and practical.

One vehicle that has upped its value and held onto it is the Ford GPA amphibious Jeep. You won't get a fully restored one that is any good for less than £100,000 and restoring a GPA is a whole new and expensive skillset. Even viable restoration projects are now rarely found for under £50,000.

Now repeat that same statement about the NSU Kettenkrad which is the other consistently high priced vehicle. Reis Groenwoud is currently offering a running but unrestored one for €80,000 - as found in France.

REGISTERING INTEREST

When we all started in this hobby, it was pretty easy to register ex-military vehicles, even with only minimal paperwork and a degree of bluff. That has all changed now, and buyers will expect a keener price for



Bedford QL at £12,000 is typical of the recent upsurge in interest in British wartime vehicles.

an unregistered vehicle, unless all the necessary paperwork comes with it.

A new tank restoration service has hit the ground running with Gavin Barlow's Kent

the best individual buy on Milweb? It has to be the running and driving M5A1 Stuart, albeit with a replica turret and one of the V8s running a bit rough. Just 10 years

> ago it sold for under £7000. It is now fully restored with a proper turret

- but you can be sure it hasn't cost more than £50,000 to do. Fast forward to 2016 and you would struggle to find a restored M5A1 Stuart for less than £150,000 and you should expect to pay more.

"...a long overdue increase in interest and value of British and Canadian wartime vehicles."

based Armoured Engineering Ltd taking delivery of its first ground up WW2 tank restoration, a M24 Chaffee - more of that in a future issue.

And finally, in the last 15 years what was



M24 Chaffee assembly line - Dien Bien Phu, Indochina. You will be lucky to find one for much less than £150,000 today.



THE MILITARY-VEHICLE PRICE GUIDE

Compiled by Nigel Hay

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	VEHICLE	COUNTRY	YEAR	ENGINE: CAPACITY; CYLINDERS; FUEL	APPROX	ASKING PR	ICES: HIGH	AVERAGE	TDEND
		OF ORIGIN	OF ORIGIN	CYLINDERS; FUEL	PRODUCTION	LOVV	піоп	AVERAGE	IKEND
1	SOFT-SKIN VEHICLES	110 4	1004	0000	(000 000	000 000	0.47.005	
	AM General HMMWV	USA	1984	6200cc; V8; diesel	(on-going)	£32,000	£68,000	£47,365	_
	Austin Champ, FV1801	UK	1952	2838cc; 4; petrol	12,150	£550	£6200	£3008	_
	Bedford MK/MJ, FV13800	UK	1970	5420cc; 6; diesel	50,000	£1850	£5000	£3615	_
	Bedford RL, FV13100	UK	1952	4927cc; 6; petrol	73,150	£4500	£9000	£7250	_
	Dodge WC51, WC52	USA USA	1942	3770cc; 6; petrol	141,075	£5750	£13,180	£10,215	_
	Dodge WC54 ambulance		1942	3770cc; 6; petrol	26,000	£7950	£15,500	£8835	-
	Dodge WC55-WC58 command Dodge WC62, WC63, WC64	USA USA	1942 1942	3770cc; 6; petrol	37,000	£10,450 £6500	£16,300	£13,570	¥
	GMC CCKW	USA	1942	3770cc; 6; petrol	43,000	£6500	£25,400 £18,000	£16,580 £9555	X
		USA		4416cc; 6; petrol	562,750			£8525	
	Jeep M151	France	1960 1957	2319cc; 4; petrol	175,500 14,500	£9000	£13,000 £15,000	£13,200	
	Hotchkiss Jeep M201	USA	1957	2199cc; 4; petrol	100,000	£12,000 £8500	£15,000 £9750		
	Jeep M38, M38A1 Jeep MB/GPW	USA	1932	2199cc; 4; petrol 2199cc; 4; petrol	627,000	£6000	£33,000	£9355 £20,950	
	Land Rover Defender 90/110	UK	1983	· · · ·	027,000	£4500	£7995	£5972	-
	Land hover Detended 90/110	UN	1903	2506cc; 4; diesel; and others	_	24000	£1990	13972	•
	Land Rover 101 forward-control	UK	1971	3500cc; V8; petrol	2675	£4500	£9000	£6083	_
	Land Rover Lightweight	UK	1966	2286cc; 4; petrol	14,000	£4750	£8750	£7855	•
	Land Rover Wolf (incl replicas)	UK	1996	2506cc; 4; diesel	_	£8500	£16,000	£13,687	=
	Land Rover Series II/IIA	UK	1958	2286cc; 4; petrol;	858,051**	£3495	£10,000	£4632	À
				and others	000,00	20.00	2.0,000	2.002	_
	Land Rover Series III	UK	1971	2286cc; 4; petrol;	510,276**	£4000	0008£	£5315	\blacksquare
				and others	,				·
	M35 (etc) 2½-ton 6x6, G742	USA	1951	5425cc; 6; diesel	15,000	£6000	£17,500	£11,450	
ļ									
	WHEELED ARMOURED VEHICLES								
	Daimler Ferret, FV700	UK	1952	4255cc; 6; petrol	4500	£7000	£18,000	£10,300	
	TRACKED ARMOURED VEH								
	Alvis CVR(T) series, FV100	UK	1971	4200cc; 6; petrol*	3500	£13,500	£14,500	£14,000	
	GKN FV432 (Mk 2), FV434	UK	1962	6570cc; 6; diesel	3000	£8000	£20,000	£13,700	_
	Vickers Abbott (Mk 2), FV433	UK	1966	6570cc; 6; diesel	500	£8000	£15,000	£11,550	-
	MOTORCYCLES								
	Harley-Davidson WLA, WLC	USA	1939	740cc; V2; petrol	78,000	£12,950	£23,000	£16,290	_
	nancy Davidoon WLA, WLO	JUA	1000	7 1000, ¥2, politi	70,000	212,000	220,000	210,200	•
	TRAILERS								
	1/4-ton (for WW2 Jeep)	_	-	_	_	£650	£1200	£1080	\blacksquare
	3/4-ton British (for Land Rover)	-	-	_	_	£350	£650	£500	
	,								

^{*} Engine capacity figure refers to vehicle as introduced; other engine capacities used during production run. ** Includes civilian production.

This guide is not intended to be comprehensive – at present it covers only the most popular collectors' vehicles. Similarly, the figures given are not valuations and do not necessarily reflect condition – they have been derived from the asking prices for vehicles recently advertised in Classic Military Vehicle magazine and on MILWEB. But remember that the price at which a vehicle was advertised is no guarantee that it sold at this price... or that it sold at all.

The effect of VAT on prices has been excluded so if you are buying from a dealer you must ensure that you understand what you will pay in total.



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