

MILITARY MACHINES

INTERNATIONAL



WORLD WAR ONE
GREAT WAR RESTORATIONS

What's being
rebuilt?

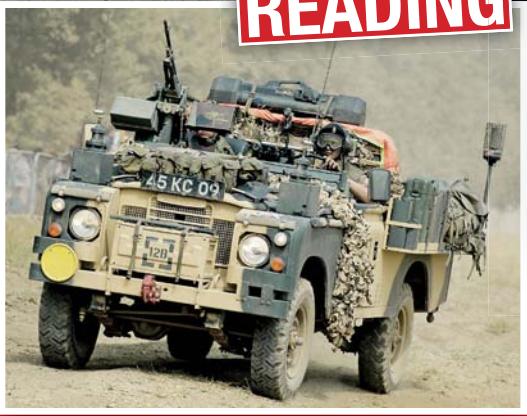
WARTIME WEEKEND

DIG FOR VICTORY
SHOW REPORT



ESSENTIAL
READING

- Tank versus Anti-Tank
- Exercise Cougar 12
- Tatra Kolos Trucks
- Wings over Wairarapa
- Plus all the regular features



BUYER'S GUIDE
WHICH LAND ROVER WOULD YOU BUY?



MODERN ARMOUR
CENTURION
Britain's finest MBT

AUGUST 2013 - VOLUME 13 NO. 3

KEY UK £4.25



SOLDIER OF FORTUNE

www.1944airborne.com

Europe's largest collection of military re-enactment clothing and equipment

Come and see our full range in our GIANT 2000 sq.ft stand at
THE WAR AND PEACE REVIVAL

Stands A136-A143, near the Jazz Bar.



MVT AND AIRSOFT

Members of the MVT can purchase Airsoft guns
on production of their valid MVT membership.

Visit us or go online for our range of historical
Airsoft guns.

CATALOGUE
Pick up a copy today

ONLINE

Browse and Shop online
securely with our new look
website!



IN STORE

Visit our 4000 sq.ft. store in
North Wales to try and buy our
full range of clothing and equipment



Search for [facebook.com/sofmilitary](https://www.facebook.com/sofmilitary) for the latest news,
promotions and products from Soldier of Fortune

Soldier of Fortune, 13 Tyn-Y-Llidiart Ind Est, Corwen, Denbighshire, North Wales, LL21 9QX

Email: sales@sofmilitary.co.uk Tel: 01490 412225

EDITORIAL.

Love them or loathe them the Land Rover plays a key role in the hobby of military vehicle collecting. It is sometimes important to remember that not everyone has a hefty budget with which to purchase what is essentially an expensive toy, and while many may like to own a WW 2 Jeep or vehicle, some have to make do with what they can afford - enter the Land Rover.

It's true that not all Land Rovers are cheap to buy, and some can even cost more than some WW2 vehicles, but on the whole they are an economical way of people getting started in the hobby and in this issue we're taking a look at some of the types available to collectors. I hope you enjoy the article and it may even bring in some new blood into the hobby - Ed.



Ian Young
Editor



MILITARY MACHINES INTERNATIONAL

EDITOR

Ian Young
Editorial Office, Bunks Hall,
Alcester Rd, Spetchley,
Worcester, WR7 4QD, UK
Tel: +44 (0) 1905 345898
ian.young@keypublishing.com

ADVERTISEMENT SALES

Jill Lunn
Tel: +44 (0) 1780 755131
jill.lunn@keypublishing.com

DESIGNER

Sally Sahingoz

EXECUTIVE CHAIRMAN

Richard Cox

MANAGING DIRECTOR/PUBLISHER

Adrian Cox

GROUP EDITOR-IN-CHIEF

Paul Hamblin

COMMERCIAL DIRECTOR

Ann Saundry

PRODUCTION MANAGER

Janet Watkins

AD PRODUCTION MANAGER

Debi McGowan

MARKETING MANAGER

Martin Steele

SUBSCRIPTIONS

Subscriptions Manager - Roz Condé
Subscriptions Department,
Military Machines International,
Key Publishing Ltd. PO Box 300,
Stamford, Lincs, PE9 1NA, UK
Tel: +44 (0) 1780 480404
Fax: +44 (0) 1780 757812
subs@keypublishing.com
www.militarymachinesintl.com

MILITARY MACHINES INTERNATIONAL

(ISSN - 1473-7906), is published monthly by Key Publishing Ltd. PO Box 300, Stamford, Lincs, PE9 1NA, UK and distributed in the USA by Mail Right International Inc. 1637 Stelton Road B4, Piscataway NJ 08854 Periodicals Postage Paid at Piscataway, NJ and additional mailing offices

POSTMASTER:

Send address changes to:
Military Machines Int.,
Key Publishing Ltd.,
C/o, Mail Right International Inc. 1637 Stelton
Road B4, Piscataway NJ 08854

DISTRIBUTED BY

Seymour Distribution Ltd.,
2 Poultry Avenue, London, EC1A 9PP, UK
Tel: +44 (0) 20 7429 4000
Fax: +44 (0) 20 7429 4001

PRINTED BY

Warner's (Midlands) PLC, The Maltings,
Manor Lane, Bourne,
Lincs, PE10 9PH
ISSN - 1473-7906
www.militarymachinesintl.com

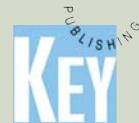
The entire contents of Military Machines International is © copyright and no part of it may be reproduced in any form or stored on any form of retrieval system without the prior permission of the publisher.

We are unable to guarantee the bona fides of any of our advertisers. Readers are strongly recommended to take their own precautions before parting with any information or item of value, including, but not limited to, money, manuscripts, photographs or personal information in response to any advertisements within this publication.

All items submitted for publication are subject to our terms and conditions. These are regularly updated without prior notice and are freely available from Key Publishing Ltd or downloadable from www.keypublishing.com

PUBLISHED MONTHLY BY

Key Publishing Ltd.
PO Box 100,
Stamford, Lincs,
PE9 1XQ, UK
Tel: +44 (0) 1780 755131
Fax: +44 (0) 1780 757261



CONTENTS

AUGUST 2013 VOLUME 13 ISSUE 3

REGULARS

6 UP FRONT

Our monthly round up of the latest news and views

66 LATIN AMERICAN NEWS

Juan Carlos-Cicalesti brings us a round up of defence news from Latin America

74 INTO THE ARCHIVES

Shaun Connors reveals Russian military machines from the archives

76 ON THE SHELF

The latest military book releases for this month reviewed

78 MISSION BRIEFING

The latest military show dates for your diary

80 QM'S STORES

Pick up a bargain from this month's adverts and advertisers

22 *Military Exercise*

EXERCISE COUGAR 12



14 *Modern Armour*

LECLERC MBT



EXCLUSIVE



32 *Classic Tanks*

CENTURION

26 *World War One*

GREAT WAR RESTORATIONS



**68****Show Report**
TYNTESFIELD 40s WEEKEND

FEATURES

WARTIME

26 GREAT WAR RESTORATIONS

Tim Gosling brings us details of a number of WW1 trucks currently undergoing restoration around the world

60 TANK VERSUS ANTI-TANK

Dick Taylor looks at how British tanks fared against anti-tank weapons during WW2

MODERN

14 LECLERC

Eric Cunat profiles the French Leclerc Main Battle Tank, currently in service with the French Army

32 CENTURION

Fraser Gray brings us a feature looking at the Centurion tank in British Army service

46 CZECH MATE

Shaun Connors looks behind the history of the Tatra truck maker and their range of military trucks

52 LAND ROVER BUYER'S GUIDE PT.1

In the first part of our Land Rover Buyer's Guide we look at the various military leaf sprung Land Rovers available

SHOWS

22 EXERCISE COUGAR 12

Geoff Fletcher reports from a major amphibious exercise held off the coast of Cornwall

40 WINGS OVER WAIRARAPA

Dave Hardaway attended this popular New Zealand show and reports on the military vehicles he found there

68 TYNTESFIELD 40s WEEKEND

We report from the 'Dig for Victory' show held at Tyntesfield House near Bristol

SUBSCRIBE & SAVE

MAKE GREAT SAVINGS WHEN YOU Subscribe to MILITARY MACHINES INTERNATIONAL
See pages 44-45 for details



UP FRONT

NEWS and REVIEWS...

Oz Land Rovers

I had this email recently from reader Dave McCallum, who's sent along some snaps of Australian Army Land Rover workshop vehicles to share with fellow readers in relation to our article 'Death Row Pardon' in our January issue in which we looked at the restoration of one of these workshop vehicles by a collector here in the UK.

Our thanks to Dave for getting in touch and this is what he had to say – Ed.

G.day Ian,

Thought you might be interested in some more Australian Army Land Rover workshop vehicles. When setting up, the trailer was reversed to the rear of the vehicle, about 6 feet apart, and a tubular frame was slid out from the roof of each. This was strapped together and the canvas laced, with the side canvas folded out and laced around upright aluminium poles. A flysheet was attached over the top, supported on upright extensions and an aluminium ridge pole.

There were various adaptations to these Land Rover type workshops, including welding, electrical, mechanical, instrumental, signals etc. and some had skirts that attached to vehicles and floors, which attached to the skirts to seal the workshop from dust and other elements. The idea behind it all was so they could be air portable such as in the Hercules transport. There was even a Land Rover wrecker called a 'Dinky Toy', the standard Diamond T wrecker being to big and cumbersome of course. The photo of the stripped down version of the Land Rover was of typical use in Vietnam.

Best Wishes - **Dave McCallum**
(Ex RAEME Recovery Mechanic)



A piece of History Comes Home...

An example of these locomotives, number 44656, has been fully restored to its war time configuration and now resides at the Leighton Buzzard railway (see below).



Hi Ian,

A couple of interesting military vehicles recently returned to the UK from India, namely two American-built Baldwin 4-6-0 PT steam locomotives. The British War Department purchased 495 of these locomotives, which were predominantly used to haul ammunition over 60cm tracks laid behind the trenches on the Western Front. At the end of the war fifty of these locomotives were dispatched to India many of which spent the rest of their days working for industrial users.

This particular (heavily modified) pair have come back from the Ryam sugar mill and will be fully restored when time allows. They have been positively identified as numbers 45190 manufactured in 1917 and 44657 manufactured in 1916. This is not the first pair to return from India. Two others were previously returned in the 1980's from the Daraula sugar factory. The second one is owned by the Imperial War Museum but requires a great deal of expenditure to return it to running condition.

Kind regards – **Tim Gosling**

Many thanks for the update Tim, it's always interesting to know that another piece of our history has come home to be preserved for future generations – Ed.

Lincolnshire Coast Light Railway

The narrow-gauge Lincolnshire Coast Light Railway, situated on the Skegness Water Leisure Park at Ingoldmells near Skegness, is home to a collection of historically important World War 1 trench railway vehicles running on tracks 60 cm wide. Having opened to the public at Skegness in 2009, it now plans to offer its first 'photo and video charter' on Friday 13th September 2013.

The line, which has a length of just under a half a mile, runs in the shape of a figure 7 from a storage shed to Lakeview passenger station, and from there to a run round loop, situated in a typically remote Lincolnshire fen countryside location, among flat but pleasant scenery of grassland and arable farmland, with young tree plantations along the way.

Normal operation of passenger carrying trains on summer Saturdays involves running the locomotive round its train at the passenger station and the end of the line. The public, including photographers, are not normally able to see it from the trackside as it runs beside Skegness Airfield, but Photo Charter Organiser John Raby, from nearby Sutton on Sea, says: "This event will give unique access to the whole running line for lineside photography including areas, at the south end of the line, that are normally off-limits to visitors because of the proximity of the grass airstrip".

Fellow LCLR volunteer Dave Enefer from Waltham, near Grimsby, who devised the photo charter, explained: "The event will include posed and moving trains from The Great War on all stretches of the line. Our aim is to listen to the requests of those interested in attending in order to make as many wishes as possible come true on the day. As far as possible we will be able to pose and operate trains exactly as the photographers wish – so they can create railway scenes not witnessed since 1918 on a battlefield, or on the agricultural railways in the Lincolnshire Fens for nearly 60 years".

Locomotives available for use are "Simplex" 4-wheel diesels, two of which date from the 1920s and are bow frame, 20hp types. One is restored to its 1926 condition, which would have been identical to the locomotives which went to the fighting to move men, machines, armaments, food and artillery to the fighting – and bring back the wounded. The plan is to have two sessions, one in the morning and one in the afternoon with a lunch break at the Barn Pub and Restaurant on site (at participants' expense) or with a bring-your-own picnic. The event will be limited to around 20 participants and a minimum of 10 are required to confirm this event can proceed. Participation will only be by advance booking. There will be no admission on the date to those who have not booked a place. The advance payment will be fully refundable if the event doesn't reach the required number to run but will otherwise be non-refundable. The event will run whatever the weather although, of course, all hope for a sunny, windless day. The price is £10 per person (excluding lunch), which will support the work of the Lincolnshire Coast Light Railway Historic Vehicles Trust.

The event will take place at the Skegness Water Leisure Park PE25 1JF, to find out more about the railway, please see:
<http://www.lincolnshire-coast-light-railway.co.uk/>

Photos copyright David Enefer (see: www.davesrailpics.bravehost.com/lclr/lclr50.htm)



Revell New Releases



Revell have recently released some new kits, including these military related items. First up is a 1/72 scale model of the German WW2 Stug 40 Ausf G (Ref. 03194), which is priced at £10.50 in the UK. The kit itself is moulded in sand coloured plastic and comes on three sprues, which includes the plastic 'link & length' type track. The suspension is somewhat simplified with the swing arms moulded to the hull, but this would be of benefit to less experienced modellers, despite the 148-piece part count. The surface detail is well moulded with fine lines and a good level of detail for an out-of-the-box model, which includes the mounting brackets for the side skirts, and while these are not supplied with the kit, could be added quite easily. A small decal

sheet completes the model, which overall is a reasonably priced, well-detailed model.

The second release this month is another addition to the 1/72 military vehicle range, and another WW2 German subject, namely the Sd.Kfz. 7/1 half-track (Ref. 03195). This particular model is something of a variation on a theme with the model representing the four-barrelled 2cm flak gun, armoured cab and accompanying two-wheel ammunition trailer. The model is more detailed than the Stug, comprising of five sand coloured sprues with a total of 156 pieces included, all of which are very nicely detailed with crisp, fine mouldings. While the model will present few problems for the seasoned model maker, newcomers may have difficulty with some of the finer aspects of



the kit, but this is reflected in Revell's Skill Level 4 rating, five being the highest. At £10.50 it's well worth the money and as you can see from the images, it builds into a fine replica.

Our final offering from Revell this month is a set of 1/76 scale figures representing British Paratroopers from the Falklands War. The figures are moulded in dark green



polythene type plastic and while the detailing is very good, there is a little fine flash to contend with on some of the figures. A variety of poses are provided with a total 42 figures supplied in the carton. Painting instructions are carried on the reverse of the carton in the form of colour illustrations keyed to the Revell Paint range.

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



D. C. R. R.

29TH



DOG COMPANY REPLICAS & RESTORATION
ROAD LEGAL REPLICA JEEPS BUILT TO ORDER WITH YOUR SPECIFICATIONS.



Why not take a look at our web site www.dogcompanyreplicas.co.uk or follow us on Facebook.

Our next open day is 17th August 2013 10am until 5pm so why not come along and join us for a test drive.

Daytime BBQ

Then In the evening why not stay and join us for our charity forties night in aid of Lupus Research.

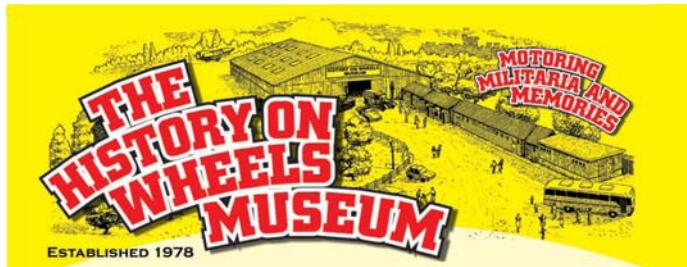
7pm until late

Food and entertainment £10.00

So join us 43C Albany Street Newport Gwent NP20 5NG

Limited Availability for Charity Night Tickets - Please call us on 01633 857006

SEE YOU AT WAR
AND PEACE



Situated in the South East of England, in Eton Wick, close to Eton College and within sight of Windsor Castle, History on Wheels is **more than just a motor museum**.

The Museum was first opened to the public in 1980, and as the name implies, within this Museum can be found a truly unique collection of **Motors**, both military and civilian, **Militaria**, from 1900 to the 1950's from all conflicting Nations, and **Memories**, illustrating artefacts of all types from both the civilian and wartime home fronts.

Originally constructed as an indoor riding school, the principal building was converted in the late 1970's to house the Tony Oliver private collection of Vehicles and Militaria.



REX WARD

UK'S LARGEST STOCKIST
OF WW2 G.M.C PARTS

FULLY EQUIPPED WORKSHOP
FOR UNIT REBUILDS TO TOTAL
RESTORATIONS BY EX R.E.M.E.
ENGINEER. DUKW SPECIALIST.

WORK UNDERTAKEN ON ANY
MILITARY VEHICLE



COME AND SEE ME AT THE WAR AND PEACE
REVIVAL STAND A55+56 ROW A



TEL: 0 (44) 1189 306300

Mob: 07768 684095

EMAIL: REX@DUKW.CO.UK



WWW.DUKWPARTS.COM

Throckmorton Airshow



The annual Throckmorton Airshow held at Throckmorton Airfield on the outskirts of Pershore, Worcestershire has long established itself as a great fund raising event with the local West Mercia Police force organizing the event in support of various charities, including SSAFA, Midlands Air Ambulance, The Royal British Legion, ABF, RAFBF and Help For Heroes. While it is primarily an airshow, with fixed and rotary wing aircraft visiting, and performing for the crowds, there's always plenty to see and do on the ground, which always includes a selection of military vehicles brought along to the event by staff from the local MoD Ashchurch storage depot near Tewkesbury.

This year the event raised more than £21,000 for the chosen charities and shown here are some of the vehicles in attendance. If you want to find out more about the event check out their website, which you can find at: www.throckmortonairshow.com





Wickstead At War...

John McVan, Project Co-ordinator for GDR Public Relations, sent us this brief report from the Wickstead at War event held over the weekend of June 8th/9th.

The sights and sounds of the Second World War were brought to life at Wickstead Park at their third annual 'Wickstead at War' event.

Incorporating the Military Vehicle Trust National Show 2013, the event also included a 1940's themed 'Blitz Ball', tank displays and a mock WWII battle. Highlights included the display of the rare M41 Walker Bulldog light tank, the first time that one has been displayed in the UK outside of Bovington Tank Museum.

Battle of Britain Memorial Flights took place on both days, with the Spitfire circling overhead on the Saturday afternoon, before the Lancaster Bomber thundered overhead on the Sunday. For the first at the event, Wickstead Park's lake was used to showcase the abilities of a selection of amphibious vehicles, including the German Volkswagen Schwimmwagen, American Ford GPA 'Seep' and Russian BMP OT-90 infantry fighting vehicle. This was followed by an unscheduled addition to the weekend's entertainment after the BMP began taking on water and threw a track, and was recovered from the lake through a joint effort from a Scammell Recovery Vehicle and the British Army.

Modern vehicles were also on display, with a demonstration from the Alvis Fighting Vehicles Society showcasing the impressive speed and manoeuvrability of the Scorpion, Sabre and Scimitar reconnaissance vehicles.



Make Sure You Have The Right Cover

Adrian Flux Insurance Services know how much your classic military vehicle means to you. That's why we are dedicated to finding you a policy, tailor-made to your own personal requirements and driving history. Call us today for a free, no obligation quote.



0800 081 8989
adrianflux.co.uk

Authorised and regulated by
the Financial Conduct Authority

Insurance for Military Vehicles



Policy benefits can include:

- Agreed Value
- FREE Legal Cover
- Modified Cover
- Limited Mileage
- Q-plates Cover
- Club Discounts
- Collections Cover
- Rally And Event Cover

www.mod-sales.com



EPS Springer ATV LHD 1.1 ton payload, 2 seater left hand drive configuration, 4x2, fitted Lombardini 1.4 litre diesel engine and 2 speed forward and 2 reverse CVT, 1.4 litre Lombardini diesel engine, etc. Year 2009, Mileage from 100 kms, Excellent Condition, Price £10,500 (75 Available)



Combat engineer tractor (CET), Fitted Rolls Royce Diesel engine, 2x Driving positions, Front bucket, Winch Etc. Very good condition, Price P.O.A (5 Available)



Alvis CVRT Shielder, Tracked Armoured load carrier with flat bed platform, The flat bed can be adopted for a wide range of roles such as logistic carrier, bridge layer repair / recovery and towing. Built to a high specification the vehicle hull is composed of aluminium armour to protect the crew, etc. Mileage from 500, Excellent condition, Guide price from £15,000 (20 Available).



Roush 6x6 All terrain Load Carrier, Permanent 6 wheel Drive, Fully Automatic with Torque converter, Aluminum Honeycomb construction for lightweight and strength, McPherson Strut front Suspension, etc. Mileage From: 130km, Hours from: 60hrs, Year 2006, Excellent condition, Guide price from £12,500 (6 Available)



Land Rover 110 CAV 100 Enhanced Protected Vehicle, Land Rover Defender 110 is constructed of composite armour to defeat munitions up to B4 spec, 300 TD Diesel Engine, 880 Gearbox, Uprated Heavy Duty Front Ventilated Disc Brakes & Rear Disc Brakes, Salsbury Front and Rear Axles, Power Steering, etc, mileage from 58,000km, Excellent condition, Guide price from £25,000 (10 Available)



Reynolds Boughton RB 44 Truck Cab Pickup R.H.D, Permanent 4x4, 5 speed gearbox, power steering, carries 2250 kgs, Perkins Phaser 110T T/Diesel engine, Mileage from 37,000, Guide price from £3,750 (10 Available)

WITHAM(SPECIALIST VEHICLES) LTD



UK Sales and Marketing Agent for all Ministry of Defence Vehicles and Mobile Plant.

Address & contact details: Honey Pot Lane, Colsterworth, Grantham NG33 5LY. TEL: 01476 861361 - FAX: 01476 861441

EMAIL: sales@mod-sales.com





Leclerc

Eric Cunat takes a closer look at the Leclerc, France's current in-service Main Battle Tank

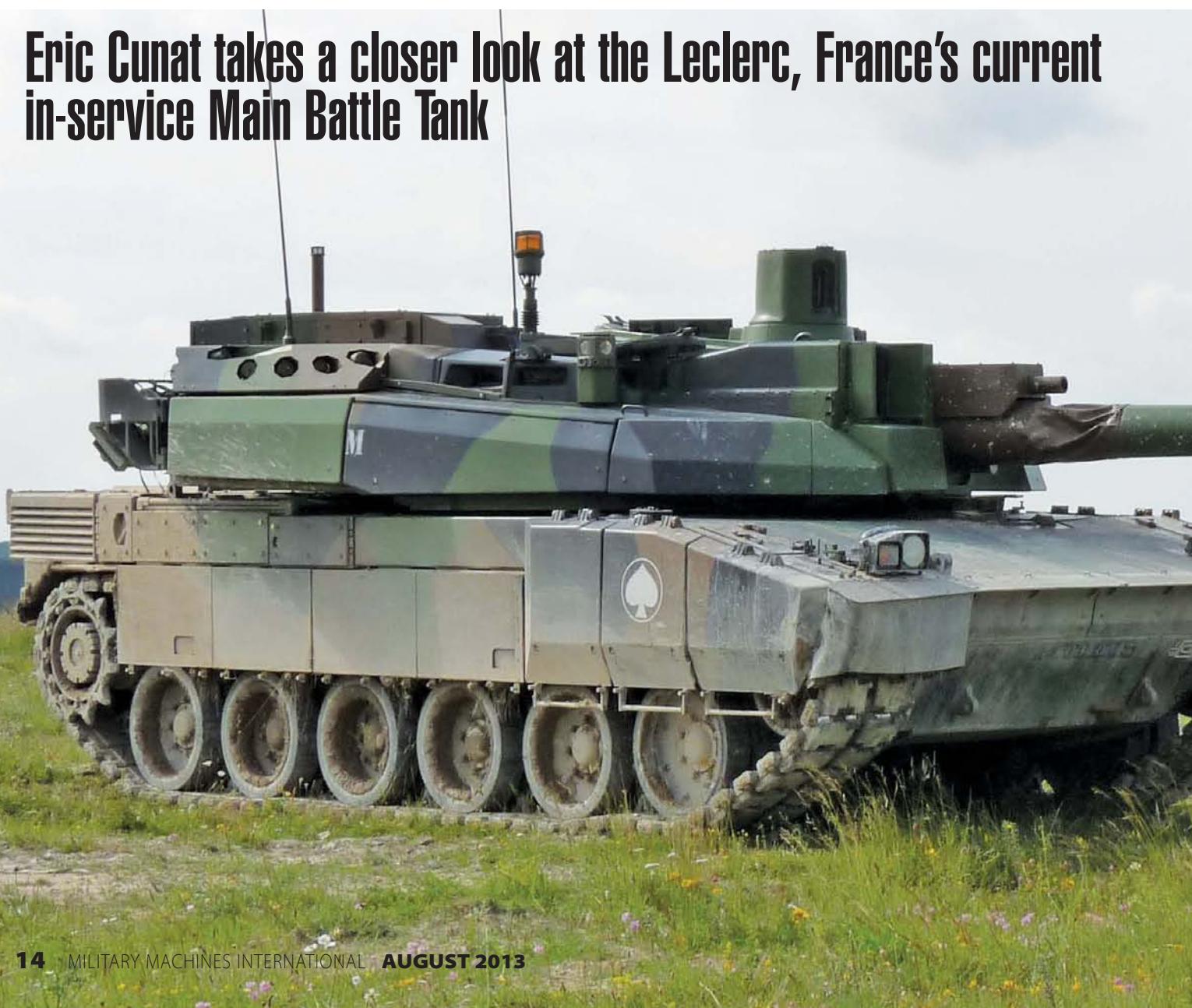


In 2013, the French Army currently has 254 Leclercs tanks in service of the 406 received. In the French Army the Leclerc is known as the "XL" for "AMX Leclerc" with 240 deployable tanks intended to provide all of the operational requirements of four regiments of 60 tanks, while 14 vehicles are assigned to the school of Cavalry in Saumur and to the 1er Régiment de Chasseurs d'Afrique, the training unit based in Canjuers. The four heavy cavalry regiments of the French Army are the 501e Régiment de Chars de Combat stationed in

Mourmelon, the 12e Régiment de Cuirassiers stationed in Olivet, the 1er Régiment de Chasseurs stationed in Thierville-sur-Meuse and the 4e Régiment de Dragons stationed in Carpiagne use Leclerc together with 20 ARVs and 9 MARSS.

TECH SPEC

The Leclerc is capable of destroying seven moving targets at 3000 metres whilst moving at 50km/h off-road in just 1 minute! This is made possible by exceptional mechanical and electronic





Leclerc MBTs parked up during a rest halt whilst on exercise.

The Leclerc is a fine battle tank and more than a match for any of the current generation MBTs fielded by other armies around the world.



systems that make the Leclerc a stable platform that is both agile and fast. The low-profile design of the tank provides the smallest target area possible, which, combined with the agility and protection of Leclerc, make it a very difficult target to acquire and destroy. Its evolutionary modular armour is one of the strongest types of armour in current use, with the frontal arc able to resist all existing anti-tank projectiles and anti-tank missiles.

The turret has been designed to provide as small a front visible surface as possible with steeply sloped armour to reduce impacts and increase the chances of deflection, however, because of the design the volume of the turret is reduced in comparison to Western counterparts but uses an automatic loading system for the 120mm 52 calibres main gun carrying 22 shells ready to fire with 18 others stored to the front right of the tank to ensure fighting performance is not reduced. The tank is equipped with a 12.7mm coaxial machine gun and a 7.62mm machine gun ANF-1 can be mounted either on the commander's station or the gunner's station. The tank

ABOVE...

Leclerc MBT seen here moving at medium speed raising the dust during an exercise. The Leclerc is surprisingly quick for an MBT.

"The armour of the Leclerc is designed to be able to stop current anti-tank projectiles or missiles..."



TOP LEFT...

Here we see a Leclerc's crew of 501e RCC at rest during training at Mourmelon.

ABOVE...

Rear three-quarter view of a Leclerc bogged down in a mud hole. Note the empty cradles at the rear of the hull that would normally carry additional fuel drums.

commander sits to the left of the gun and the gunner to the right. The tank commander and gunner each have a sight with a telescope complete with day optical path and light intensification path, a day camera, a thermal camera and a laser rangefinder.

The chassis and suspension of the Leclerc was designed to transfer the power supplied by the powertrain V8X hyperbaric while ensuring excellent stability whilst aiming and firing the main weapon. To give this exceptional mobility while retaining ease of operation and repair, reliability and robustness, the Leclerc uses hydropneumatic suspension developed by United Technologies Corporation Aerospace Systems.

The hull of the Leclerc tank is shorter by about one metre than

comparable Western tanks like the German Leopard 2 or American M1 Abrams. It has a classic layout with the driver at the front, two cockpits in the turret and storage for 18 shells protected by a casing of composite armour. In the centre is the turret basket and at rear the powertrain. Weighing 38-tonnes (the same as an AMX-30B2B), it is designed to exploit the power provided by the 1500-horsepower hyperbaric V8X engine, giving an exceptional power-to-weight ratio. The undercarriage is characterized by its simplicity and low maintenance and is composed of a sprocket, six pairs of rollers, five supporting rollers and a tensioner on either side. The tanks are equipped with 635mm NATO-standard tracks, made for the first time with aluminum to save 800kg,

but are actually being replaced by new, more durable steel tracks.

The Leclerc has been designed to facilitate maintenance operations on the battlefield. Automatic systems permanently provide information on the technical condition of the tank, and the modular design allows the main components to be changed over quickly, with 45 minutes typically needed to change the powerpack in the field. Suspension units are mounted outside the hull by only eight bolts, the support rollers are mounted on hubs without adjustment, and the autoloader is an easily removable unit. Maintenance is organized into three technical levels of intervention: NTI1 is the crew task who controls, cleans and maintains the vehicle with the single vehicle's tool kit, NTI2 is the regimental maintenance and NTI3 is provided by technicians assigned by suppliers.



DIGITAL TANK

The Leclerc was designed in a quite revolutionary way using the application of aeronautical technology, which included the system Digibus used on the Mirage 2000. The computers and devices are all connected to Digibus, which is the key element of the tank and ensures all data transfer between the turret and chassis computers, while the fire control computer coordinates and transmits information to the terminal information system ICONE (ergonomic interface of communication).

The extraordinary mobility of Leclerc tank is due to several factors, which include the hydropneumatic suspension using 12 independent units (whose principle of operation is the same as on Citroën cars). Manufactured by United Technologies Corporation Aerospace Systems, these units are located outside of the hull

and also contribute towards the protection of the lower sides of the vehicle, while the hydraulic power steering is able to turn the tank on the spot by manipulating the steering wheel with fingertips and can even slalom between traffic cones with little effort for the driver!

The engine is a hyperbaric V8X direct injection diesel producing 1500 horsepower with a helicopter turbine replacing the turbo. This increases the rate boost to 7.5 (standard rate between 2 and 3) maintaining a capacity of 16.47-litres and reducing consumption. The turbine provides acceleration from 0 to 32km/h in 5.5 seconds, with all the power available from the start. The turbine also operates as the auxiliary power unit, providing electricity to the tank systems when the engine is stopped and facilitates cold weather starting. The Leclerc was designed to go far and

fast in order to counter any offensives by the Red Army and has internal tanks of 1300-litres and two drop tanks of 200-litres each, giving a range of 500km without its drop tanks and 750km with.

GUNS & ARMOUR

The Leclerc is designed to fire whilst on the move, which requires perfect stabilization of the turret and its gun. This is obtained by aligning the centre of gravity of the turret and of the gun with their axes of rotation in azimuth and in elevation. The turret, which weighs 18-tonnes, has been designed to be low in profile and with increased protection. The turret assembly is made in Tarbes, its electric motor is supplied by Sagem, and the stabilization is continuously monitored by a stabilization calculator manufactured by Thales and

MAIN PHOTO...

Leclercs of 501e RCC in UAE desert for Gulf 2012 exercise between April 15 and May 2, 2012.
(Photo - 501e RCC)

INSET LEFT...

Leclerc MBT of 501e RCC at speed in the UAE desert during the Gulf 2012 exercises.
(Photo - 501e RCC)





The crew of this Leclerc Main Battle Tank pose for the camera in between training sessions at Mourmelon.

BELOW..

Close-up of the three sections of armour protecting the forward portion of the Leclerc.

BELOW CENTRE..

Head on view of the Leclerc showing the gun and optical sights.

BOTTOM LEFT..

Rear view of the Leclerc showing the exhaust outlet to the left.

BOTTOM RIGHT..

The Leclerc's hyperbaric V8X direct injection diesel engine.



incorporates ball bearings to prevent any movement of the barrel in the vertical axis. The 120mm smoothbore chrome barrel with vertical breech is manufactured and designed in Bourges. The barrel is 52 calibres long, which gives a high initial velocity of 1800m/s.

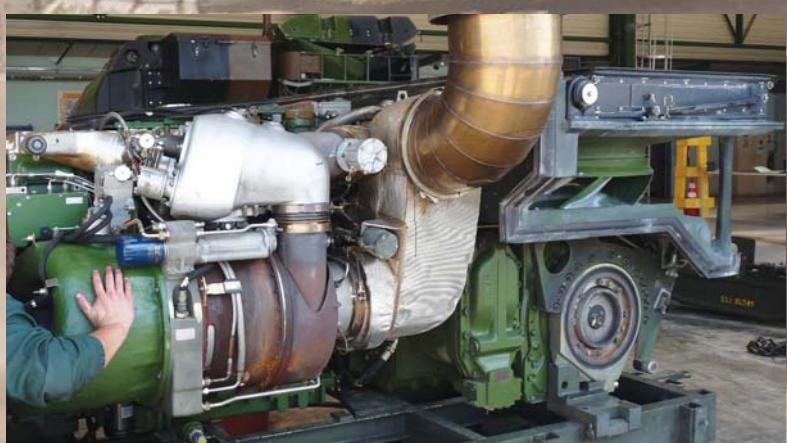
The protection of the Leclerc is based on versatile, modular, compact and lightweight armour produced by Arcelor who supply the different types of armour used in the Leclerc. Its reputation for quality steels is internationally recognized, for example the French company develops all steels used in the manufacture of the Merkava.

The modular type armour provides the ability to adjust the protection level in line with technological developments and the nature of the threat encountered. Thanks to the compact nature of the tank, the level of protection has been increased compared to his contemporaries, which helped to increase the protection of the frontal arc and the sides of the turret against infantry anti-tank projectiles, as well as the sides of the hull. At 56-tonnes, it is

significantly lighter than the M1A2 Abrams, Leopard 2 A6M and Challenger 2, which weigh 63-tonnes or more. Maintaining a relatively low weight was an essential attribute in the eyes of the French Army whose modes of engagement favour agility and speed of tactical deployment.

The hull and the turret are made of welded sheets of armour steel, while the frontal arc of hull and turret is protected by boxes of a laminate of multilayered composite armour. This armour is effective against heavy anti-tank missiles and large calibre, armour-piercing ammunition. On each side, three further elements of forward armour provide protection for the sides of the hull and contribute to the protection of the frontal arc.

Boxes comprising of multilayer composite armour provide protection to the sides of the turret against light anti-tank weapons such as the hand held RPG-7. Armour to the rear of the tank provides protection against medium calibre projectiles, and the latest type of armour used on the Mk XXI tanks is based on titanium with reactive armour floors.



Turret Details...

Below from top to bottom; the Gunner's sight of a Mk XXI Leclerc tank; here we see the Commander's sight which can turn at 360°; the Atmospheric probe on the rear of the Leclerc's turret; the Commander's hatch, the machine gun support mounting can be seen to the left.



COMMUNICATIONS

The commander's sight is the Sagem HL-70, which has optic filters, image intensifier for night vision, day camera and thermal camera and has the priority control over the gunner's sight for aiming and firing, giving the tank the "hunter killer" capability. The gunner's sight is the Sagem HL-60, which has a day camera, laser rangefinder, thermal imaging and stabilized aiming unit, which allows it to fire on the move giving it a 95% hit rate. The digital fire control system allows the gunner or commander to select a total of 6 targets in 30 seconds. With all these features, it can boast a fire rate of 12 rounds per minute from its main cannon.

The IRIS thermal imager replaced the ATHOS camera gunner's sight in 2003. In 2004, the last production series called Mk XXI, which comprised of 97 tanks, includes a new commander's sight with a second IRIS thermal camera and a 8000 metres range laser rangefinder. This camera detects up to 15,600 metres, allows recognition at 6000 metres and identification at 3000 metres.

Communication systems of the Leclerc tank made it a precursor of digitalization of the battle space. It has a version of the terminal information system of the army called ICONE (acronym for ergonomic interface of communication). The UAE version has a land battlefield management system called FINDERS. SIT ICONE provides real-time transmissions of information to regimental headquarter that allows a snapshot of the state of the tanks and of the targets identified by the cameras.

The Leclerc is equipped with PR4G Radios, namely the ER 315 VHF (13kg, 40W, 4W, 0.4W), which have a built-in digital cipher against eavesdropping, a frequency hopping system, which prevents the location and interception and a free channel search against jamming.

UAE VERSION

The military partnership between France and the UAE dates from the 60s, and has been reinforced by several military defence agreements, the training of UAE officers in French schools and large land, naval and air arms contracts. In 1993, after a severe international competition, the Leclerc tank was chosen by the UAE army to equip its armoured units. This version has some differences from the version of the French army and was developed from the version originally known as "tropicalized".

The engine in the UAE Leclerc is the 1500hp MTU 883 Europowerpack diesel engine (2) coupled to a Renk HSWL 295 TM automatic transmission with five forward and three reverse gears. A powerful cooling system for the crew and electronics is installed in the hull and an Auxiliary Power Unit is installed at the rear of the chassis under armour. The auxiliary power unit (APU) is a turbo generator for generating energy necessary for supplying the various tank systems (electrical voltage, pneumatic and



LEFT...

Close view of one of the hydropneumatic suspension elements that make up the suspension system on the Leclerc MBT.

Vehicle Interior...

Below; view looking down inside the Commander's station to the left of the gun within the Leclerc's turret.

Bottom; another interior view, this time looking down into Gunner's station to the right of the gun.



RIGHT..

During the tank training course the Leclerc is brought to a halt in order that the commander and gunner can observe the terrain and pin point potential targets that may be hiding.

BELOW..

There is also a Leclerc based armoured recovery vehicle capable of performing a number of tasks, including the changing of the powerpack whilst in the field, as demonstrated here during a display. More on the Leclerc ARV in a future issue of MMI.



hydraulic pressure, air) when the main engine is stopped.

The commander's sight HL-70 is replaced by a HL-80 equipped with a Sagem ALIS thermal camera. The gunner's sight is itself identical French tanks with an ATHOS thermal camera. The roof machine gun is replaced by a MAG machine gun in a remote weapon station with day and night sight system installed behind the gunner's door and controlled by the commander's sight.

The forward armour boxes of side skirts extend over two thirds of the length of the tank up to the engine compartment. Other new equipment includes a telephone to communicate

with the infantry, several storage baskets at the rear and on the sides of the turret, a drive system with 3D map and a location system to give the exact position of the tank both derived of the FINDERS system. Based on this combat version, the recovery vehicle is equipped with all the means necessary for emergency repair tanks (30-tonne crane, winch, generator, tow bars...) and armed with a 12.7mm machine gun mounted on the circular with armour shield of the vehicle commander. This is a French version of this ARV that equipped the French Army. The army of the United Arab Emirates has also received 388 main battle tanks (delivered by 2003), two training tanks and 46 armoured recovery vehicles (ARV).

THE FUTURE

The Leclerc is expected to remain in service until at least 2025, but it will undergo a number of changes to meet new threats, including a 140mm gun and new armour assets that are currently being tested. Some upgrades are planned in the "Scorpion" program with the update to "F1 standard", which will include a hardware upgrade for the 254 tanks of the operational fleet by 2018, unless there is a change in priorities...

The successor to the Leclerc has already been given the name of V2C for "Fighting Contact Vehicle" a hypervelocity vehicle equipped with laser and microwave weapons, drones and robots, but it's a long way off yet!

"The Leclerc is capable of destroying any tank currently in service out to 4000 metres..."



DIRECT FROM THE MINISTRY OF DEFENCE



SALE BY ONLINE AUCTION
7 Days a Week / 24 hours a Day

New Items Added Daily

Visit: www.mod-sales.com/auction/



TO BID NOW

- Compasses
- Binoculars
- Pocket Watches
- Military Watches
- Trailers
- Tools & Equipment
- Vehicles Spares
- Tyres
- Motorcycles
- Land Rovers
- Armoured Personnel Carriers
- Camouflage Netting
- Etc

WITHAM (SPECIALIST VEHICLES) LTD

The UK Sales & Marketing for all Ministry of Defence Vehicles & Mobile Plant

Address : Honeypot Lane, Colsterworth, Grantham , Lincs , NG33 5LY

Tel : 01476861361 Fax : 01476861441 Email : sales@mod-sales.com

MEMPHIS EQUIPMENT Company

→→→ Complete Military Truck & PARTS Inventory →→→



ENGINES ♦ TRANSMISSIONS ♦ AXLES ♦ BRAKES ♦ ELECTRICAL ♦ TIRES ♦ SHEET METAL

DODGE M37 4 X 4 — KAISER JEEP M715 4 X 4 — GMC 2 1/2 TON 6 X 6

REO / KAISER JEEP / A M GENERAL 2 1/2 TON 6 X 6

IHC / MACK / KAISER JEEP / A M GENERAL 5 TON 6 X 6

A M GENERAL M915 / M916 / M917 / M920 — OSHKOSH M911

CAB TOPS ♦ DRIVELINES ♦ CLUTCHES ♦ RADIATORS ♦ ACCESSORIES ♦ PARTS BOOKS

Contact our Parts Department for expert assistance

766 South Third Street, Memphis, TN 38106, U.S.A.

901/774-0600 FAX: 901/774-1172

Visit our Web Site at: www.memphisequipment.com or contact us at info@memphisequipment.com



SHIPPING DOMESTICALLY & WORLDWIDE



Exercise... COUGAR 12

Geoff Fletcher attended a major amphibious exercise, which took place on Carlyon Bay near St Austell in Cornwall



More than 3,000 sailors and Marines took part in a three-month training deployment to the Mediterranean, a key workout of the UK's high-readiness task force. For Exercise Cougar 12 Royal Naval warships, Royal Marine commandos and naval airpower, which make up the Response Force Task Group (RFTG), trained with the French and Albanians. The RFTG was created under the 2010 defence review and is a rapid reaction force that deals with unexpected world events that require military intervention. The deployment

is the second test for the RFTG, which was called upon in anger in 2011 to support operations off Libya. The force stands at five days' notice to deploy anywhere in the world should the government require it; in theory the task group can take up station off the coast of 147 nations –three out of four countries in the world.

The various forces took part in two large-scale exercises, interspersed with various smaller exercises and training and goodwill, however, Cougar 12 started in spectacular style with beach assaults by the Royal Marines in the

A BV206 with Personnel Carrier rear car speeds up the beach. The tubes at either side of the cab are part of the 'morph frame', which preserves the shape of the fibreglass cab in the event of a rollover.





"The force stands at five days' notice to deploy anywhere in the world..."



The Hippo BARV demonstrates its ability to push the LCU Mk 10 back into deeper water. The Hippo can also be used to recover swamped vehicles and can wade to just below the windscreen on the 'bridge'. (AB)

ABOVE RIGHT..

A Medium Wheeled Tractor (MWT) carries a Class 30 Trackway Dispenser. This is a JCB 436EHT that, like other Commando Brigade vehicles it is winterised and waterproofed. (AB)



ABOVE..

A BV206 Tracked Carrier with flatbed rear car comes ashore from a LCT Mark 10. (AB)

ABOVE LEFT...

A BV206 Tracked Personnel Carrier in the markings of 45 Commando speeds across the beach.

COLUMN LEFT...

A MAN Light Support Vehicle rolls down the front ramp of the Mexeflote; When loading the Light Gun on to the Mexeflote use is made of the front towing hook on the Steyr Daimler Puch Haflinger's nose. (AB); The LCU Mark 10 has the bridge offset and loading ramp at the stern to permit roll-on roll-off operations, greatly simplifying handling inside the mother vessels; A Land Rover Truck Utility Medium (TUM) makes its way ashore from a Mexeflote. Note the large snorkel by the driver, which enables it to wade in deep water if necessary; The Griffon 2400TD LCAC (L) can travel from ship to shore in minutes! It is capable of carrying loads up to 2.4-tonnes but the load is normally 12 Marines.



"In 2003, the new Hippo BA

Dock (LSD(A)) RFA Mounts Bay and MV Hartland Point, one of a class of six Ro-Ro sealift ships procured under a Private Finance Initiative and available for use as naval auxiliaries.

Once any beach has been determined suitable for a landing, Holyhead Marine Offshore Raiding Craft (ORC) are used to approach the beach and land up to 8 Marines and can remain near the beach to provide fire support. These craft are operated by 539 Assault Squadron, which provides the Brigade with an integral amphibious movement capability, delivering them on to land from water and also patrolling waterways. The Marines that are landed secure the area of the beach where the landing craft would bring other elements of the force ashore. Sea King helicopters can also be used to land and each can carry a further 12 Marines to assist with this task. In practice amphibious assaults may use troops in either helicopters or ORCs or both as the situation dictates.

BEACH LANDING

One of the planned exercises involved honing the troops' ability to secure a beachhead and to land the logistic support vehicles necessary for a sustained campaign ashore. This exercise took place at Carleton Bay near St Austell in Cornwall. Various vessels were lying offshore including the Landing Platform Dock HMS Bulwark, the Bay class Auxiliary Landing Ship

The JCB 436 EHT carries the empty spindle of a Class 30 Trackway after laying it.





RV was introduced based on the Leopard 1A5 Main Battle Tank..."

Since 2010 539 Assault Squadron has also operated four Griffon 2400 TD Hovercraft, which replaced the earlier Griffon 2000TDX (M). These are known as Landing Craft, Air Cushion (Light) or LCAC (L) and they are numbered C21 to C24. Each is capable of carrying up to 2.4-tonnes of men and stores and the load is normally 12 Royal Marines, although larger numbers can be carried when under pressure.

These are particularly effective in carrying raiding forces inland over marshy or flat areas of terrain and the 2000TDX Hovercraft were used successfully during operations in Iraq on the Al-Faw peninsula south of Basrah in March 2003.

VEHICLES

Four BAE Systems BV206 Tracked Carriers were regularly landing from and then reloading onto a Landing Craft Utility (LCU) Mark 10. The LCU Mark 10 is used with the assault ships Albion and Bulwark and the Bay Class landing ships, yet are capable of operating independently for up to 14 days. The Mark 10 has the bridge offset to permit roll-on roll-off operations, greatly simplifying handling inside the mother vessels because vehicles can be driven on prior to any beach assault rather than having to be carefully reversed aboard.

The BV206 serves alongside the BAE Systems Viking Armoured All-Terrain Amphibious Tracked Carrier, which can swim from a landing craft some distance offshore to assault a beach under armour protection. The Vikings are scheduled for 'regeneration', where BAE Systems are to regenerate the Royal Marines' fleet of BvS10 Viking all-

terrain tracked carriers under a £38m (\$61m) contract. The contract, signed with the UK Ministry of Defence, covers the refurbishment of 99 vehicles and brings them all to a common Mk 2 mine-protected amphibious standard. The regeneration programme is expected to be completed by the end of 2014, with a further mid-life improvement towards the end of the decade is expected before its current out-of-service date of 2031.

On the beach were two JCB 436EHT Medium Wheeled Tractors. Both were Winterised and Waterproofed versions for operations in the arctic and both carried a Class 30 Trackway Dispenser although they can also operate a bucket or forklift. The trackway was laid out on the beach to permit wheeled soft skin vehicles to land.

In 2003, the new Hippo BARV was introduced based on the Leopard 1A5 MBT with the conversion work undertaken by Alvis Moelv. Since then Alvis has become part of BAE Systems and the vehicles are now marketed by BAE. As with earlier BARVs, the turret of the MBT is effectively the bridge of a small vessel that drives on the seabed! The original 634 kW diesel engine was retained but the gearing has changed reducing the vehicle's maximum speed to 32kph but increasing its tractive effort to 250kN.

The vehicle also has a nosing block, raised air intakes and an auxiliary power unit; giving an overall weight of 50 tonnes. With the nosing block and the huge tractive effort it has the ability to push landing craft up to the size of a LCU Mk 10 back into the sea, but it can also be used to drag tanks and other vehicles off the beach. Currently, four Hippo BARVs are in

service, one each on HMS Albion and Bulwark, with two based at the Amphibious Testing and Training Unit, Royal Marines (ATTURM) at Instow in Devon.

A Mexeflote unloaded various logistic vehicles on to the beach including two MAN Support vehicles and a Steyr Daimler Puch Pinzgauer towing a Light Gun. Mexeflote is a versatile system from which rafts, jetties and causeways can be built. When used as a raft it is powered by propulsion units from Sykes Hydromaster and such a raft can operate in seas of up to 1.5 metres. Mexeflote can carry up to 200-tonnes and is carried on the Bay Class LSD (A) such as Mounts Bay.

As part of the exercise a Chinook HC.2A lifted a Class 70 Medium Girder Over Bridge (MGOB) for assembly by a field section of 24 Engineer Regiment, Royal Engineers over an existing bridge on the beach judged potentially too weak to carry some of the Logistic Support Vehicles. The MGOB was carried in three underslung loads of which the final load was the bridge frame weighing almost three tons.

The final phase of the exercise was to drive a number of Logistic Vehicles down the narrow track to the beach road over the MGOB and over the beach to a waiting Mexeflote for transport to a waiting ship.

My thanks go to the Royal Navy and Royal Marines and particularly Lieutenant Isabella Marriott, Media Officer of COMUKTG based on HMS Bulwark. I also wish to thank Andy Brend (AB) and Mike Sweeney (BAE) for their help with information and photographs.

TOP RIGHT..

A Field Section of 24 Commando Engineer Regiment begins the task of carrying the MGOB components to the bridging site. The Regiment is to be disbanded as part of the current reductions in the Armed Forces and is expected to be replaced by an independent squadron.

TOP LEFT...

A Westland Sea King HC.4 of 848 Naval Air Squadron approaches the beach. It can carry 27 fully equipped troops or a 3-tonne underslung load. Under current amphibious warfare doctrine these aircraft deploy ashore to self-contained secure bases.

ABOVE RIGHT..

Troops of the Commando Brigade practise disembarking from a LCVP. The LCVP Mk 5 is powered by Volvo Penta diesels, which propel the boat via Type 170 water jets at speeds up to 24 knots. (AB)

GREAT WAR RESTORATIONS

Tim Gosling looks at some of the restorations of WW1 trucks going on around the world

MAIN PHOTO RIGHT...

Now fully restored, this Daimler Y Type was purchased at the sale of a private collection.

INSET ABOVE RIGHT...

Not looking particularly military is this British Army Riker truck dating from 1917 on which sits a 1913 London bus body. It was sold at auction and ended up in a Norfolk car museum where it looks rather forlorn.

In the summer of 1989 my brother Steve took delivery of the remains of a World War One Thornycroft "I" type army truck. This particular truck had had a hard life. Its last journey had been up a Welsh mountain where it had been driven into a shed to spend the rest of its days pumping water. Unfortunately the back half of the chassis did not fit into the shed so had been cut off and scrapped (along with the rear wheels, and back axle) and the engine had expired and had been replaced with one from a Studebaker, so what Steve got for his money was the front half of the chassis (with an axle and wheels), scuttle, gear change mechanism and a gearbox with a smashed lid!

At the time Steve had what he thought to be an "entry level" restoration project, but having spent over 20 years searching for replacement parts, the restoration is only now commencing, however, that

time has not been wasted and while searching for these parts four other restorations have been completed, a great deal of documentation, drawings, photographs and manuals has been collected, and many useful lessons learned. As Steve regularly says when asked about the Thornycroft "If I knew then what I know now I would never have bought it" and that would have been a shame as no one else (being of sound mind) would take on such a project.

What the purchase of the Thornycroft had inadvertently done was to spark a great enthusiasm for vehicles from the Great War, make us plenty of friends, force us to learn new skills as well as give up a chunk of the garden for a big shed. As with all enthusiasms there is the danger of getting carried away. One truck



Napier...



Mark Harvey obviously likes a challenge and purchased a WW1 Napier chassis that had been converted into a trailer. With amazing good luck he then found a second chassis, which still had the differential in place. Shown left is what the Napier should look like so I'm sure you can see that there's a fair bit of work needed to restore it to its former glory!



becomes two, which becomes three, which becomes seven and before you know it you are knee deep in wheels, axles, spare chassis and other assorted lumps of metal. The big shed is no longer big enough, the loft is creaking under the weight of bits of truck stacked within it and the spare chassis that were temporarily stored in the neighbours field are now so well grown in that they look like part of the hedge. Buying a restoration project really is the easiest part, assuming you can find one to buy that is!

WHAT REMAINS?

It is often discussed how many surviving Great War trucks we think there are within the UK. My current estimate is about 80, although every now and again this number tends to rise as another one comes out of the woodwork. Out of this number I can

count 27 that have been restored back to their military configuration, however, this number is set to rise as there are several vehicles currently being restored in anticipation of the centenary of the start of the Great War and the commemorative events that are being planned.

Ideally what any restorer would prefer to start with is something that is just about complete but was parked up in a shed and forgotten about. These are rare, but they do occasionally turn up. I was recently surprised to see an incredibly original 1918 US army Dodge "Light repair truck" in its original markings appear on eBay and I was even more surprised to see that it failed to reach its reserve of about £2,500. As we already have seven trucks from this period common sense and the threat of an unhappy wife prevented me from adding another to the collection. I do hope it has found a good home and

BELLO...

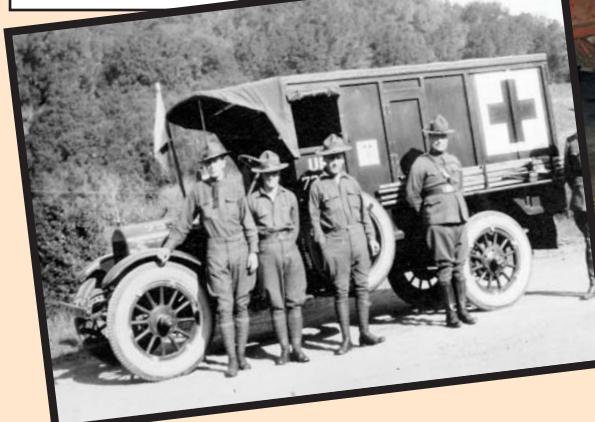
Recently offered for sale in Portugal is this four wheel drive Latil TH. The type were used by the French, American and Portuguese forces during World War One. It is remarkably complete despite first appearances and surprisingly, at the time of going to press, it was still being offered for sale at 6,000 Euros.



GMC...

BELOW...

Restoration projects don't often turn up like a model kit in a box. This Crossley tender is perhaps the exception. It has now gone to New Zealand where it will receive a full restoration.



Recently turning up for sale in France were three American GMC ambulances (only two shown here). Obviously missing the bodywork but apart from that mostly complete. Shown left is what they would have once looked like.

that it will be given the sympathetic restoration that it deserves.

The official history of the Ministry of Munitions states that by December 1918 59,490 trucks, 41,050 motorcycles, 1,154 steam wagons, 3,441 tractors, 1,569 miscellaneous vehicles and 33,800 cars, vans and ambulances had been purchased for military use. Within a few years the majority of these would have been sold off to the general public where they would face another 20 years of hard use. With the outbreak of the Second World War many of these worn out trucks would have been taken for scrap. Newer vehicles became available as surplus following the end of the Second World War and this combined with the difficulty in maintenance or obtaining spares was the final nail in the coffin for most of the survivors of the Great War.

A SECOND LIFE

Now that their life as vehicles was coming to an end a second life was found. Stripped of all bodywork and

with the running gear going for scrap the chassis made an ideal and very durable farm trailer. An alternative to converting the chassis in to a trailer was to turn it in to a "shepherds hut", this being a living van that would be parked in a field for a shepherd to live in while he tended a flock of sheep during the lambing season. Some chassis were put to an even more novel and final use. In some locations where it was impossible to get planning permission to build a house, an old chassis would be parked in a hole and then used as the foundations for a "mobile home". We do still occasionally come across truck chassis, which are in remarkably good condition because they have been dry stored in this manner for the last 70 years. Unfortunately, although the chassis may be in good condition they have generally been robbed of almost every other part and if the wheels have been sitting in damp ground they may be ruined. Sometimes these chassis can prove to be a good source of spare parts. A Locomobile chassis was recovered from beneath a house

Maudslay...



The Coventry Transport Museum purchased this 1916 Maudslay truck in 2000 for restoration. It had been used as a showmans living wagon up until 1932 and in the 1970's as a holiday home. The plan is to have it restored by 2016. Shown above is what it should look like when completed!



BELOW...

Photographed shortly after being recovered in North America is this FWD Model B. Unfortunately the engine had been robbed out, but the new owner has sourced a replacement.





ABOVE...

If you can see past the rust, rotten cab and gas generator equipment this is actually a very complete and highly desirable Packard truck dating from World War One. Although it looks quite daunting, it is at least almost all there.

demolition in 2010 and although robbed of many parts the wooden wheels were in superb condition. The new owner was delighted, giving him a good set of wheels to replace a very tired set, which he had on another Locomobile.

Our own stroke of good fortune occurred during our 1918 Dennis restoration. We initially purchased the remains of five vehicles (including two chassis which had been incorporated in to a garage to support a mezzanine floor), which apart from a missing differential gave us enough parts to rebuild one truck. We commenced the restoration hoping that we might find one later on. A sixth chassis gave us some more parts but still no differential. Then as an amazing stroke of luck we received a phone call saying that a Dennis chassis had been found

BELLOW...

This remarkably complete ex US Army Packard turned up in Yugoslavia where it had been running a water pump for a farm. (Photo courtesy - D. Lockard).



TOP RIGHT...

Recovered from half way up a Welsh mountain was this Thornycroft "J" type, our first introduction to trucks from the Great War. As you can see it is missing a few parts.

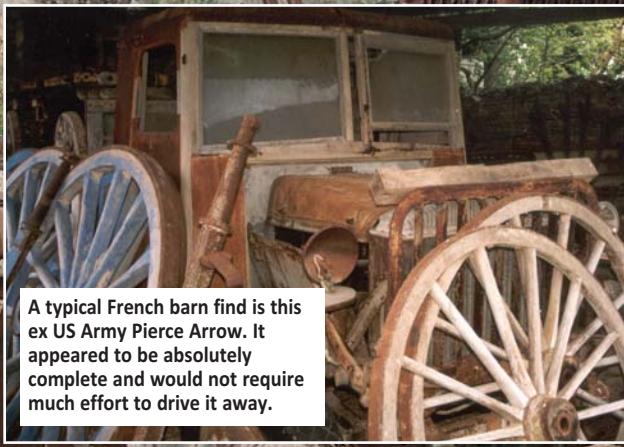
LEFT...



Literally grown in to a hedgerow is this AEC "Y" type. Unfortunately the engine and gearbox were removed in the 1940's for which the new owner is seeking a replacement.

ABOVE RIGHT...

More common on the other side of the pond is this Liberty B truck, which was recently offered for sale. Despite looking a bit rough and having the tyres held on by wire it still drove very well.



A typical French barn find is this ex US Army Pierce Arrow. It appeared to be absolutely complete and would not require much effort to drive it away.



Not easy to make out are these two ex British army Peerless truck chassis. Saved, but missing just about everything. One may form the basis for a cosmetic restoration.

Thornycroft...

This Thornycroft "J" Type truck is probably the most original truck from the Great War, which was donated to the East Anglian Transport museum back in the 1960's. Apart from the red paint it is totally original and there are plans to return it to wartime configuration, as shown below.



This 1918 Dennis was recovered off a Cornish beach where it had been used as the foundations for a bungalow! Once recovered it could be seen that the rare bronze differential was still present.

OVERSEAS

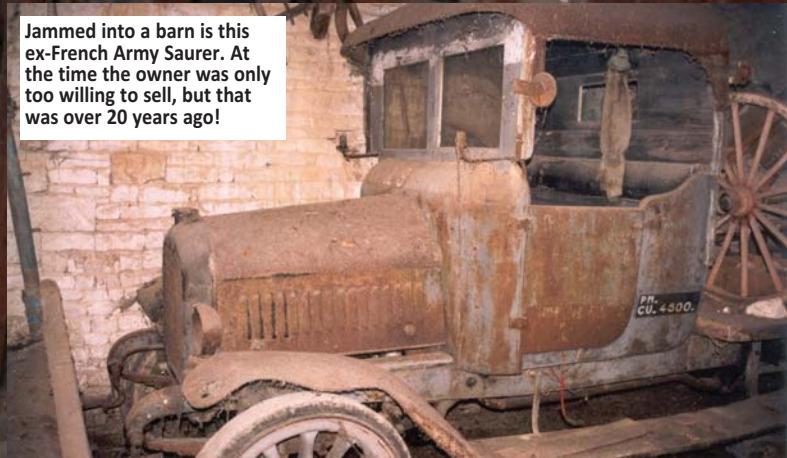
Although Great War vehicles turn up in the USA, Australia and New Zealand the best place for finding a complete and original vehicle is probably within France. At the end of the war the US Government sold en masse all of their trucks still in France to the French Government who then sold them off by auction to the general public. This policy ultimately resulted in a large number of ex US army trucks surviving in France today.

Despite having a similar sized population to the UK, France does have large amounts of space and it seems fewer of the officious local planners who demand that scrap yards be cleared of "eyesores" for the sake of natural beauty and public health. There is a very strong French mentality of just collecting old vehicles and tucking them away. This was generally not done with any intention of treating

them as an investment or of establishing a museum, but to just save them as they were thought to be interesting. At least eight of the restored WW1 trucks in the UK owe their survival to those French collectors who thought that they were worth keeping. The interest within France of restoring these early trucks is beginning to grow and the days when they could be purchased at just above scrap value are sadly gone. This is a good news and bad news story as although I am pleased that more restoration projects are coming on to the market the prices have risen accordingly (in some cases to absurd levels), although some reasonable priced trucks can still be found.

Next Month – in the second part of I'll be looking at the difficulties in restoring a WW1 truck and giving an update on the Thornycroft restoration.

Jammed into a barn is this ex-French Army Saurer. At the time the owner was only too willing to sell, but that was over 20 years ago!



Paul Meekins

MILITARY & HISTORY BOOKS

Arnhem A Few Vital Hours

SS-Panzergruppen-Ausbildungs- und Ersatz-Bataillon 16
at the Battle of Arnhem, September 1944

NEW
OUT!

Arnhem A Few Vital Hours

by Scott Revell
with Niall Cherry and Bob Gerritsen

SS-Panzergruppen-Ausbildungs- und Ersatz-Bataillon 16 at the Battle of Arnhem, September 1944

R.N.Signmond Publishing 2013. Hardback. 155 pages.
14 colour maps. 100 b&w pictures. Order of Battle.

£29.95 including UK P&P
www.paulmeekins.co.uk



phone/fax 01789 722434
email paul@paulmeekins.co.uk



M.R.ARMY SURPLUS

EAST YORKSHIRE'S LARGEST
BRITISH MILITARY CLOTHING WAREHOUSE

UNIT 8 CRANSWICK IND EST
BEVERLEY ROAD
CRANSWICK
DRIFFIELD
YO25 9PF

TEL: 01377 267620 / 07786 468297

SPECIAL OFFERS

British Army Warm Weather Sleeping Bag
Only £12

New British Forces Desert Trousers
Only £10

RETAIL AND TRADE
CUSTOMERS WELCOME

RETROFESTIVAL



WINGS • WHEELS • SPEED • STEAM • MUSIC • DANCE • BANDS

FRIDAY NIGHT /
SATURDAY/SUNDAY 9/10/11 AUGUST 2013



FEATURING
HUGE MILITARY ZONE
SPITFIRE FLYPAST
PARADE FOR HEROES
MILITARY VEHICLE DISPLAY
ASSAULT COURSE
+ MUCH MORE

Enter your Vehicle or Display. All Welcome. Go online for Entry Form or Call 01235 538134

THE BLACK HANGAR STAGE incorporating the RICKY TICK SOUL REVIVAL & THE ROCK N ROLL STAGE
THE SPITFIRE PAVILION with the SCARLETT BALLROOM STAGE & BLITZ BAR
HUGE SHOW ARENA & STAGE + THE AEROBATIC DISPLAY RUNWAY

www.retrofestival.co.uk

RETRO SHOPPING VILLAGE. FLYING DISPLAYS. CLASSIC & VINTAGE CARS ARENA, CARAVANS,
HOT RODS, BUSES, MILITARY VEHICLES & STEAM ENGINES. AUTO JUMBLE. HUGE KIDZ ZONE.
FOOD & BARS. CAMPING & GLAMPING VILLAGES. SOUNDS, MUSIC & DANCE from the 40's to 70's.



CENTURION

FRASER GRAY EXAMINES THE CENTURION TANK IN BRITISH ARMY SERVICE

The Centurion is a thoroughbred amongst tanks and has the longest service history of any British tank participating at the end of WWII and finally the 1991 Gulf War. There are 21 variants of the Centurion, 13 of these being gun tanks.

The Centurion story began in 1943 with the development of the A41, designed to address the inadequate performance of British tanks during WWII. The A41 (later named Centurion 1) at last gave British tank crews a tank with decent armour, and firepower, to

match the German Panther and Tiger tanks. The Centurion 1 was a departure from the usual British Cruiser tank design, replacing the Christie suspension with a modified version of the Horstmann suspension, with six pairs of medium sized road wheels, with four full and two half return rollers supporting the top run of track. The majority of the drivetrain was protected by side skirts providing protection from hollow charge anti-tank weapons, such as the Panzerfaust. Centurion 1s were



equipped with a 17pdr canon and a ball mounted 20mm Polsten gun cannon or Besa machine-gun. The first six prototypes were rushed to Germany and served with 22nd Armoured Brigade in North West Europe for combat evaluation, but arrived too late to see action.

The A41A had a cast turret replacing the fabricated turret of the prototype, and the armour thickness was increased. The A41A became the first production model, and thereafter known as the Centurion Mk 2.



LEFT & BOTTOM...

There are surprisingly few Centurion tanks in private ownership, but this fine example has been a regular at the War & Peace Show.

BELOW...

The Centurion was a great export success and served with a number of armies around the world, including the Swiss Army. Shown here is a Swiss Army Centurion Mk5, essentially similar to the British Army Centurion.

MECHANICALS

The Centurion is powered by a Rolls Royce Meteor water-cooled 24-litre V12 engine and a small Morris engine to provide power from an auxiliary generator. The Meteor engine is in fact a compact version of the Merlin aero engine that powered the Spitfire fighter. Unfortunately the Meteor has a heavy fuel consumption giving the tank an operational range of about 60 miles, this was poor when compared with the Comet's 123-mile radius of action. Various attempts were made to remedy the problem with jettison tanks mounted on the rear of the vehicle, but after several serious accidents, a towed



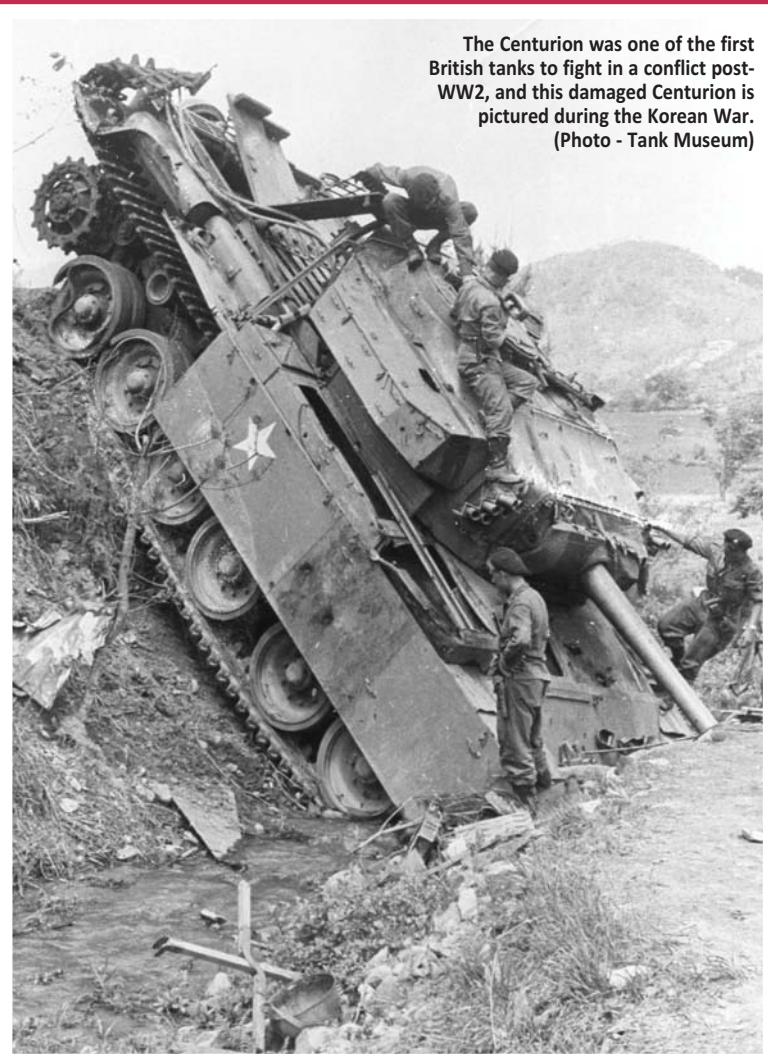
In Service



BELOW...

Centurion Mk10s of A Squadron RTR head for the beach during an amphibious exercise.
(Photo - Tank Museum)





The Centurion was one of the first British tanks to fight in a conflict post-WW2, and this damaged Centurion is pictured during the Korean War.
(Photo - Tank Museum)

mono-wheel trailer replaced the fuel cells, which also was extremely dangerous. Apart from the vulnerability of the fuel external junction box, it was prone to jack-knife when working cross-country and on one occasion the trailer ended up on the engine deck!

Other hazards encountered were rupturing the trailer, when reversing the tank. The solution to the fuel consumption problem was solved in Centurion Mk. 7 hulls, with a third fuel tank mounted at the rear of the transmission bay in addition to the two primary fuel tanks that held respectively 62 and 59 gallons. The driver is stationed to the starboard of the vehicle's centre line, and he operates manual gears, with five forward gears and two reverse gears which require careful handling due to

BELLOW RIGHT..

Later in life the Centurion was fitted with a different type of track that featured rubber track pads and was usually referred to as the 'Hush Puppy' track after a well-known brand of comfortable shoe!

BOTTOM..

A repair team conduct an engine change on a Centurion at the REME School, Bordon in June of 1962. Note the modified half-track with front gantry being used to lift the engine.
(Photo - Tank Museum)





"The essential design of the Centurion's hull has remained unaltered throughout all thirteen marks of the tank...."

ABOVE...

The Centurion was used in a number of roles and here we see a Mk12 fitted with a mine plough. (Photo - Tank Museum)

RIGHT...

The Tank Museum has several variants of the Centurion within their collection, including the BARV shown below left.

BELOW RIGHT...

Centurion of the Queen's Bays, Tripoli, May 1957, commanded by a Lieutenant Franks. (Photo - Tank Museum)





A Centurion AVRE receiving assistance from a Centurion ARV (FV 4006).

the heavy clutch. The tank has a top speed of 22mph when travelling across rough ground.

The Centurion's cast turret is crewed by the Commander, Gunner and Loader. The turret has distinctive stowage bins attached to the sides providing further protection from hollow charge anti-tank weapons. The essential design of the Centurion's hull has remained unaltered throughout all thirteen marks of the tank. The significant modifications have been to the turret's weapon system. It is a tribute to the flexibility of the original A41 design that the tank has, retrospectively, increased its firepower from the original 17pdr (77mm) to the

105mm L7 A1 cannon that arms the American M60 and German Leopard tanks. The Centurion Mk. 3 was the first British tank that could fire accurately on the move using its gyroscopic controlled Ordnance Quick-Firing 20pdr gun. The turret is also relatively comfortable, providing the crew with an electric boiling vessel to prepare a 'brew' and hot meals when the hatches are 'buttoned' down.

The Centurion first saw combat in Korea on the 3rd January 1951, in its Mk. 3 version, serving with the 8th King's Royal Irish. The Centurion was able to deal with Soviet T-34/85s and SU-100s, as well as demonstrating its agility against the American M47.



The Conway Tank Destroyer (FV 400) was a stopgap defence against the threat of the IS-3 until the issue of Conqueror. It was armed with a 120mm L1A1 gun in a tall turret mounted on a Centurion Mk 3 hull.



Centurion AVRE...



ABOVE CENTRE...

A disadvantage of the Centurion was the limited radius of action. An armoured mono-wheeled trailer was developed with a fuel capacity of 200-gallons. The trailer was soon abandoned due to operational problems.

ABOVE RIGHT...

Centurion Mk 5 'Horatius' stood as gate guardian at the entrance of British Army Vehicle Depot at Ludgershall, photographed in 1995.

LEFT...

The Centurion Mk 5 AVRE (FV 4003) replaced the Churchill AVRE, which were coming to the end of their service life.

Centurion Variants...

One of the more unusual Centurion variants was this moving target tank, one of three built and now displayed at the Tank Museum Bovington.



The Centurion bridgelayer is based on a Mk 7 hull, and was faster and could carry a heavier class of bridge than its predecessor.



Mounted at the rear of the Centurion ARV is a large spade or ground anchor, which can be lowered to stabilise the vehicle during recovery operations.



ABOVE CENTRE...

The battered remains of a Centurion AVRE at the British Army Vehicle Depot at Ludgershall.

ABOVE...

A Centurion ARV photographed at the Royal Engineers Museum, Chatham.

RIGHT...

The Centurion ARV was developed from the Centurion Mk 2 and features a new upper superstructure.



This example of the Conway Tank Destroyer is now exhibited at the Tank Museum.



During the Indo-Pakistani conflict over Kashmir, Indian Centurions reputedly destroyed Pakistani M47s and M48s while the unfortunate crews of the latter were attempting to acquire Indian Centurions in their sights. In the Six Day War the Centurion was equally effective at destroying Soviet T-54s at surprisingly great ranges.

The Centurion became one of the world's most successful tanks and has been exported to many armed forces and has been fought in many conflicts, from Korea, Middle East Vietnam and finally the 1991 Gulf War, as the Centurion AVRE. When the Centurion ceased production in 1962, a total of 4,423 tanks had been built.

Military Vehicle Insurance

“We love Military!”

Some of the Benefits and Discounts Available

- ✓ Members of Approved Military Vehicle Clubs
- ✓ Insured Only Driving
- ✓ Age of Vehicle
- ✓ Special Rates for Multiple Vehicles

Graham Sykes Insurance No. 1 to be with

Call us on 01395 255100

or visit our website at

www.graham-sykes.co.uk

Wings over Wairarapa

Dave Hardaway reports from one of New Zealand's premier air shows



Two years ago when I wrote about the last Air show we were lamenting the lack of the usual fine weather and an over abundance of rain, thankfully the 2013 show began with temperatures of over 30 degrees and an excess of blue sky! This year's event was looking be an absolute ripper with the final New Zealand appearance of the recently restored

De Havilland Mosquito. Personally I'd not managed to see any of its previous appearances and was looking forward to seeing this magnificent aircraft in action, and added to this was another recent restoration, an Avro Anson, but these were only part of the aircraft on show, which included two Spitfires, two Kittyhawk's, a Mustang, a Corsair and a whole host of Harvards, making up the WW2 portion of the show.

The WW1 portion was represented by the Vintage Aviators world class collection of Aircraft from Manufacturers such as Sopwith, Bristol and Nieuport, all waging combat with such well known names like Fokker, Albatross and Pfalz. The Jet age was represented by a trio of De Havilland aircraft, namely two Vampires, and a Venom plus an ex-RNZAF Strikemaster.

MILITARY VEHICLES

Of course it's the military vehicles that you're all interested in and on the MV side we had brought along over 30 vehicles ranging from two wheeled machines, which included a BSA Paratroopers bicycle, a Matchless G3L and a Triumph 3HW, as well as a





LEFT: the Mosquito was undoubtedly the star of the aviation exhibits at the show.

BELOW: it is hoped to have more room for the military vehicles in 2015.



LEFT...

The off-road course provided a few challenges for those wanting to try out their vehicles.



Carriers...



The ex-RAF Bedford MW lends a hand with the Mosquito.





TOP RIGHT...

Peter Jackson's replica WW1 Mk IV Tank "Spring Chicken" was an impressive sight.

ABOVE LEFT...

A pair of WW2 Dodge Command Cars, needless to say the one closest to the camera has yet to be restored!

ABOVE RIGHT...

Nice example of a 109" Series II Plant Repair Vehicle Land Rover, complete with a selection of tools and repair equipment.

BELOW...

The event did well to attract such a good collection of armoured vehicles, which this year included these five carrier variants.



selection of Ford and Willy's Jeeps plus a range of Land Rovers covering Series 1, 2 and 3 and included examples of a Series 2 Fitted For Radio (FFR) and a Series 2 Plant Repair Vehicle. A nearly finished restoration of a Series 3 Lightweight (One of about only 10 in New Zealand) was complemented by a pair of Stage 1 V8 Land Rovers along with a selection of trailers including a 0.5-ton GS made by Walker Trailers NZ, a Sankey 100-Gallon water trailer, a Ben Hur trailer and an FV2692 Rubery Owen recovery trailer.



Moving up in the size stakes and we had five different examples of Bren Gun Carriers, which comprised of a Sentinel-built 3" Mortar Carrier, an early model LP2 MG Carrier, a later LP2a MG Carrier, a post-war NZ conversion LP2a MMG Carrier and an LP2a 6-Pdr AT Tractor (The New Zealand built LP Carriers remain the only Ford powered machine assembled by General Motors NZ).

Of the trucks on show there was a Bedford MW, two Chevrolet C8AX's, a Dodge Weapons Carrier, and a pair of Dodge Command Car's, one fresh from the farm and one restored, plus a Bedford RL and an M818 Tractor unit. The heavier tracked armour was provided by a Valentine Mk5 an M3 Stuart Hybrid (NZ) and an Abbott SPG.

BATTLEGROUND

The afternoon's battle sequence saw the German's attacking a convoy of soft skins with a pseudo Jagdpanther (The Abbott), which saw a response from the allies in the form of a trio of carriers backed up by the Valentine and the Stuart and after numerous explosions and various balls of flame etc. the Allies were once again victorious much to the delight of the massive crowd in attendance.

Not to be left out we also had Peter Jackson's WW1 Mk IV Tank "Spring Chicken" with us for the weekend, while also located in our area were displays by the Wellington Rifle's re-enactment group and the National Army Museum.

The Army Museum's display consisted of an Austin staff car and a Mk 2 Ferret while they took the public for rides around our arena with an M548 Tracked Load Carrier, though unfortunately this had to be shut down late in the day due to the excessive amounts of dust being kicked up (Apparently an Air Force type didn't approve of dust in his cucumber sandwiches!).

Planning is already under way for the 2015 event although if this year is anything to go by our arena area will need to increase in size to accommodate the number of vehicles attending as our numbers will be boosted by a couple of recent arrivals from Canada and Australia and some restorations that are under way at the moment.

Aircraft parking may also need to expand as there are a number of very interesting aircraft under restoration including a pair of Spitfire's, a Hawker Tempest and yet another Mosquito all waiting to take to New Zealand skies.



MILITARY & FLYING MACHINES

2, 3 & 4 AUGUST

10AM TO 5PM EVERY DAY



paintings by Tim O'Brien GAvA
www.timobrienart.co.uk

ADMISSION PRICES ADULTS £10 | CONCESSIONS £8

CHILDREN £5 (under 5 Years FREE)

FAMILY TICKET £25 (2 Adults + 2 Children)

TICKETS AVAILABLE ON THE GATE OR IN ADVANCE
FROM TICKETWEB.CO.UK



FLYING DISPLAYS ★ 'SALLY B' B17 FLYING FORTRESS ★ TANK RIDES
LIVING HISTORY DISPLAYS ★ KIDS ACTIVITIES ★ TANK PARADE ★ CLASSIC CARS
"PRESENT ARMS" MODEL SHOW ★ MILITARY & COLLECTORS STALLS

www.militaryandflyingmachines.org.uk

DAMYNS HALL AERODROME, AVELEY ROAD, UPMINSTER, ESSEX RM14 2TN

FREE BINDER*

WHEN YOU TAKE
OUT A 2-YEAR
OR DIRECT DEBIT
SUBSCRIPTION
TO

**MILITARY
MACHINES**
INTERNATIONAL



3 EASY WAYS TO ORDER

THIS FANTASTIC SUBSCRIPTION OFFER!



ONLINE

SIMPLY REGISTER
ONLINE AT:

WWW.MILITARYMACHINESINTL.COM



TELEPHONE

UK 01780 480404
OVERSEAS +44 1780 480404
FAX UK 01780 757812
OVERSEAS +44 1780 757812



POST

COMPLETE THE FORM AND POST TO:
MILITARY MACHINES INTERNATIONAL
KEY PUBLISHING LTD
PO BOX 300, STAMFORD
LINCS, PE9 1NA, UNITED KINGDOM



Czech Mate

SHAUN CONNORS TAKES AN IN-DEPTH LOOK AT TATRA'S MILITARY TRUCKS STARTING WITH THE T 813 KOLOS . . .

TATRA can trace its origins back to Austria and 1850, the company building its first car in 1897, and its first truck a year later in 1898. As a result of the First World War the part of Austria TATRA originated from became part of the then Czechoslovakia. The TATRA brand first appeared on vehicles in 1919, and TATRA's unique tubular backbone-style frame was introduced in 1923.

Perhaps the best-known of all TATRA trucks is the T 813 (8x8) Kolos, this developed in the former Czechoslovakia in the early 1960s. The T 813 continued TATRA's preference for an air-cooled diesel engine, this time a V-12 unit of its own design. The first T 813 production examples were completed in 1967.



Above: A Cold War-era image of TATRA's T 813 Kolos, the first production examples of which were completed in 1967. *Below:* Slovak Army T 815 in Afghanistan; the T 815 replaced the T 813 in production in 1983, and for a while the name Kolos was applied to both.

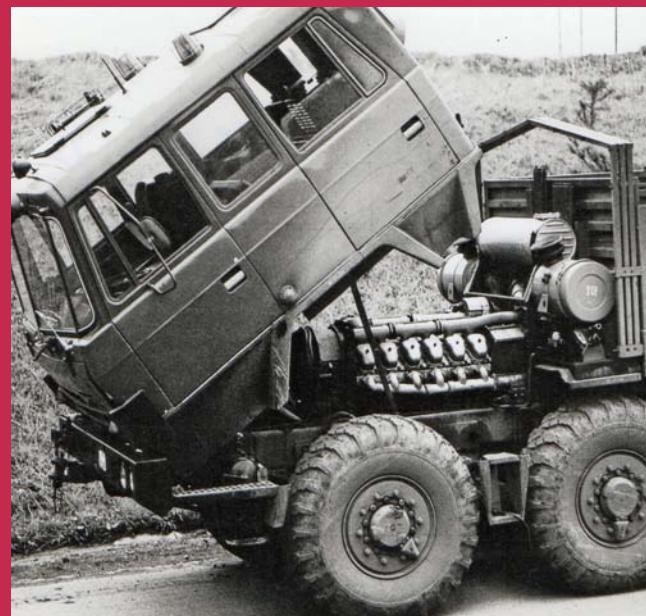


COMMERCIAL BASED

The T 815 ARMAX family, which is no longer available, was introduced in 1998 and based around commercially available designs, militarised as required, and constructed to comply with all relevant legislation including emissions, noise and axle loadings, although in a number of cases vehicle payload capabilities exceeded allowable peacetime maximums.

The T 815-6 FORCE family was introduced by TATRA in 1996 and comprises purpose-designed, no-compromise trucks for tactical military applications, these fitted with automatic transmission as standard and a range of water-cooled engines (usually Deutz or Cummins) all producing in excess of 400 hp.

The overall layout of the ARMAX and FORCE families follows closely that of earlier TATRA truck designs. The torsionally rigid tubular backbone-type chassis is retained, as is the swinging half-axle independent wheel suspension system. The front steer-drive axle on the (6x6) chassis is sprung by the combination of torsion bars and telescopic shock-absorbers, the front steer-drive axle pairs on the (8x8) chassis by the combination of telescopic shock-absorbers and leaf springs shared longitudinally. The rear drive axles can be sprung by the conventional TATRA set-up of leaf springs shared longitudinally by axle pairs, or by TATRA's combination suspension that uses the commercial name KING FRAME. The so-called light version of this combination suspension system uses airbags with internal coil springs



The T 813 was replaced in production by the T 815 series of (8x8) trucks in 1983, and for a while the name of Kolos was applied to both. By 1989 the original (8x8) and (6x6) versions of the T 815 had been joined by a (4x4) version. The T 815 followed the same general lines as the earlier T 813, but there were many overall improvements. The TATRA T 816 G3 LIWA (8x8) which was developed in the early 1990s to meet the specific requirements of the United Arab Emirates (UAE) may outwardly resemble the T 815, however, there are numerous automotive differences. For the first time a number of driveline components of western origin were employed in a TATRA truck, these including a KHD Deutz diesel engine and Twin Disc fully automatic transmission.

Following extensive repeated trials held between 1992-1995, in February 1996 it was announced that the UAE had awarded TATRA a \$180 million contract for 1,127 T 816 G3 LIWA in various configurations, including cargo/troop carriers, and fuel and water tankers. Deliveries were carried out between 1996 and 1998.

"Perhaps the best-known of all TATRA trucks is the T 813 (8x8) Kolos..."

Over time the T 815 series was developed into the commercial TERRN®1 family and military T 815 ARMAX, T 815-6 FORCE (originally designated T 816 FORCE) and T 815-7 families. The T 815 series remains in production in India where vehicles are licence-produced by BEML using components supplied by TATRA in the Czech Republic, the former TATRA in Slovakia, and local content.

and telescopic shock-absorbers on each half-axle, the airbag units being mounted above the axle housings to protect from impact or damage while operating off-road. Maximum individual axle loadings for the light version are 11,500 kg. The heavy version of this combination suspension system combines the use of airbags on the individual half-axles with leaf springs shared longitudinally between axle

pairs. Although in excess of peacetime legislation in many countries, the heavy version allows for individual axle loadings of 15,000 kg.

FORCE family chassis are also available in five-axle (10x10) and six-axle (12x12) configurations, these effectively being the modular addition of swinging half-axle assemblies and backbone tube sections.

TOP RIGHT...

Over time the T 815 series was developed into the commercial TERRN®1 family and military T 815 ARMAX, T 815-6 FORCE and T 815-7 families. The ARMAX family (Czech Army example shown), which is no longer available, was introduced in 1998.

ABOVE...

The T 815 was originally offered with either a 15.8-litre V10 or a 19-litre V12 air-cooled diesel engine.

LEFT...

Czech Army T 815 configured as a transport/launch vehicle for the upgraded PMS pontoon bridge system.



RIGHT..

Small numbers of T 813 remain in service with the Czech Army.

BELOW...

The T 815 series remains in production in India where vehicles are licence-produced by BEML using components supplied by TATRA in the Czech Republic, the former TATRA in Slovakia, and local content.

BOTTOM...

TATRA's current military-focused design is the T 815-7, development of which commenced in 2004, this image clearly showing the workings of the swinging half-axle suspension set-up.



The procurement includes a combination of cargo trucks (some with material handling cranes) that have replaced ageing M35 series trucks. Contract work commenced mid-2004 and was scheduled for completion by June 2008. By late-2006 TATRA had delivered all 302 trucks. A contract option for 10 additional trucks was exercised during 2008.

TATRA's current military-focused design is the T 815-7, development of which commenced in 2004. The T 815-7 series is available with varying levels of legislative compliance, tailored to suit individual user requirements. T 815-7 models have

been supplied to the Czech Republic, India, Indonesia and Slovakia.

The overall mechanical layout of the TATRA T 815-7 truck series follows closely that of earlier TATRA truck designs. The torsionally rigid tubular backbone-type chassis is retained, as is the swinging half-axle independent wheel suspension system. The suspension is however revised, and a 3-D frame is now formed by connecting the backbone tube with a conventional ladder frame via cross-members. Air bellows-type height adjustable (+90/-105 mm) suspension units are located between the half-axles and ladder frame, these supplemented at each wheel station by hydraulic shock-absorbers, and where required, anti-roll bars for axle pairs. This design revision further improving vehicle mobility in a difficult terrain.

Motive power for the T 815-7 series may be provided by either a TATRA air-cooled or a Cummins or Deutz water-cooled unit. All engines can be supplied to meet current emissions requirements, but if required TATRA's T3-928 V-8 engine can be supplied to meet EURO 2 or 3 emissions requirements, and without an electronically controlled injection system.

TATRA developed a specific cab for the T 815-7 series, and one that meets current requirements in areas of C-130 transportability and ballistic protection. In connection with height-adjustable air-suspension the basic T 815 series is air-transportable by C-130 Hercules aircraft. The cab has also been designed to accept appliqué protection kits. The standard version of this cab is an extended two-door with bunk.





BELOW...

Polish Army T 815 mounting a RM-70 multiple rocket launcher.



TATRA also produces a military truck that is somewhat more conventional in its configuration than those with a T 813 legacy. The T 810-1R0R26 13 177 6x6.1R (6x6) is expected to be the eventual replacement for the Praga V3S (6x6) 3-tonne truck in Czech military service. The original intention was that the ROSS (Roudnické strojírny a slévárny a.s.) R210 would be the successor of the Praga V3S. The R210 was developed in the late 1990s, however, the replacement programme stalled after Roudnické strojírny a slévárny a.s. became bankrupt, after producing just 21 vehicles between 1997 and 1999.

It was announced in December 2006 that following budgetary driven delays, the Czech Republic's Ministry of Defence (MoD) had finally signed a \$124 million contract with TATRA for 556 TATRA T 810 - 1R0R26 13 177 6 x 6.1R (6x6) medium trucks to be delivered between mid-2007 and 2009. The contract award includes options for

a further 247 trucks in six specialised variants. By October 2009 all 556 trucks had been delivered, 530 in flatbed configuration and 26 in specialised configurations. Further orders have been placed, and by early 2013 approaching 600 T 810 had been delivered to the Czech Army.

The overall layout of the T 810 is different to that of earlier TATRA truck designs in that TATRA's trademark torsionally rigid tubular backbone-type chassis and swinging half-axle independent wheel suspension system is replaced by a conventional ladder-type C-section chassis and TATRA designed and produced portal beam axles with disc brakes. The front steer-drive axle is sprung by the combination of coil springs and telescopic shock-absorbers, the rear drive axles by leaf springs.

Motive power is provided by a Renault Dxi7 diesel engine developing 237 hp. This drives the rear four - or all six wheels - via a ZF manual gearbox

BELOW...

Romanian Army T813 8x8 cargo truck.



BELOW...

The T 816 G3 LIWA 8x8 truck was developed in the early 1990s to meet the specific requirements of the United Arab Emirates (UAE) and while it outwardly resembles the standard T 815, there are numerous automotive differences between the two trucks.



BELOW...

Czech Army T 815 tractor truck coupled to a twin axle trailer.





NEW GENERATION

Most recently, TATRA has introduced a new range of trucks, the T 158 (Phoenix) family. The first example, T 158-8P5R33.391 6x6.2, was shown publicly for the first time at Eurosatory 2012. The T 158 mates a DAF commercial cab and Paccar engine with TATRA's unique tubular backbone-type chassis and swinging half-axle set-up, and is a direct result of the late-2011 announcement that DAF had acquired an option for 19 per cent of TATRA. In common with all other TATRA truck families, the T 158 will be available in (4x4) or (8x8) configurations, and with single tyres all round.

As the Cold War thawed, TATRA was privatised and became a joint stock company in 1991. Throughout the 90's TATRA saw the collapse of its principle markets and the company went through the hands of several owners, before ending up under the umbrella of the Czech government again. In November 2001 it was announced that the Czech government had approved the purchase of a 92% stake in the company by SDC International of the US. Following a brief period of difficult-to-follow ownership reorganisation, in September 2003 it was announced that Terex Corporation of the US had acquired 70.51% of TATRA shares. Vectra (a London-based Indian-owned company) owned 21.11% of shares, the remaining 8.38% being privately

owned. The company became known as TATRA, a.s., a Terex company, with products continuing to be branded TATRA. In October 2006 it was announced that Terex Corporation had sold its 81% holding of TATRA, a.s., to a consortium of Czech and US investors. The Czech registered Blue River s.r.o. (now TATRA Holdings) consortium is made up of Belgium-based KBC Private Equity, Vectra Ltd, a US investor, plus Meadow Hill. Vectra Ltd - a construction equipment, bus and truck maker - folded its existing 11.1% stake into Blue River.

In August 2011, DAF Trucks (owned by Paccar of the US) announced it had signed an agreement with TATRA to acquire an option for a 19% share in the company. As part of the arrangement, DAF also supplies engines and cabs to TATRA. TATRA also has a strategic alliance with Navistar of the US.

As this piece was being compiled it was disclosed that TATRA, a.s., had been sold at auction, its new owner, Truck Development taking over all assets, rights, commitments, liabilities, contractual obligations, etc., of the original TATRA, a.s. All operations of the original TATRA, a.s., including the subsidiaries, remained in place and functional with their production running. To reflect the traditional trademark of TATRA products a name-change to TATRA TRUCKS has since occurred.

"...it was revealed that TATRA a.s., had been sold at auction..."

TOP LEFT...

The overall layout of the T 810 is different to that of earlier TATRA truck designs in that TATRA's trademark torsionally rigid tubular backbone-type chassis and swinging half-axle independent wheel suspension system is replaced by a conventional ladder-type C-section chassis and TATRA designed and produced portal beam axles with disc brakes.

ABOVE LEFT...

The T 158 mates a DAF commercial cab and Paccar engine with TATRA's unique tubular backbone-type chassis and swinging half-axle set-up, and is a direct result of the late-2011 announcement that DAF had acquired an option for 19 per cent of TATRA.

ATC was selected mid-2003 as preferred bidder to supply the Ministry of Defence of Israel with approximately 315 MTs plus associated support.





Pre War Post War all types of military Vehicle catered for

A+S specialise in the restoration, repair & servicing of Pre-war and Post-war, allied & axis vehicles. Workshop facilities enable us to cater for any size vehicle

The following services are Offered:

- ★ SALES OF SPARE PARTS
- ★ ONSITE WORK-WORLDWIDE
- ★ EXPORT INCLUDING ALL PAPERWORK & SHIPPING
- ★ PRE PURCHASE INSPECTIONS
- ★ PROCUREMENT OF VEHICLES



PLEASE CONTACT ME FOR MORE DETAILS

Unit 24, Roundham Park Ind Estate, East Harling, Norwich, NR16 2QN

Tel: +44 (0)1953 714958 Mob: +44 (0)7711516152

Email: sammy@arm-soft.com

WWW.ARM-SOFT.COM

LAND ROVER BUYERS' GU

WITH THE LAND ROVER TAKING OVER FROM THE JEEP AS THE VEHICLE OF CHOICE FOR NEWCOMERS TO THE MILITARY VEHICLE HOBBY, WE TAKE A LOOK AT WHAT'S AVAILABLE...



Series I...



Series IIa...



Series III...



Lightweight...



FC 101...

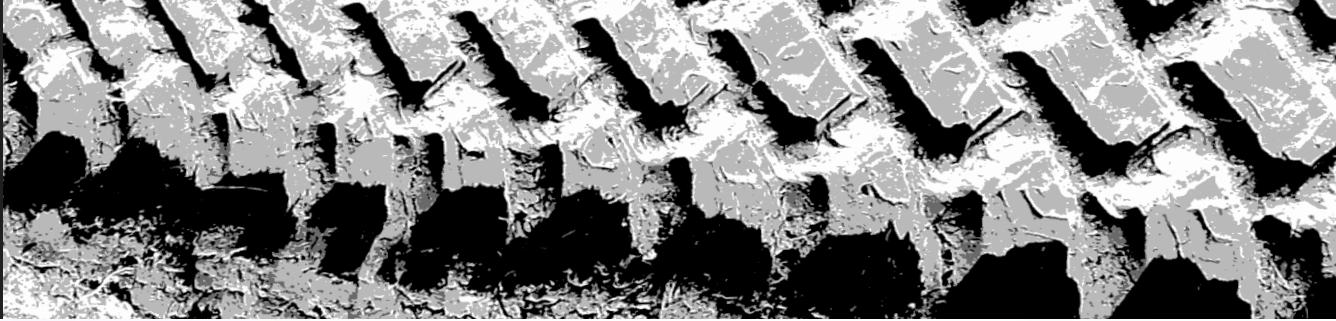
Less than a decade ago the Jeep was often the first vehicle people thought of buying when starting out in the hobby of military vehicle collecting, however, their popularity has resulted in a rapid rise in prices in recent years and has pretty much put them out of the reach of most newcomers to the hobby that are working to a limited budget. Whereas an on-the-road Jeep could be picked up for around £3,500 a decade ago, now it will cost you in excess of £12,000 for an on-the-road Jeep and around £6,000 for a complete wreck in need of a total rebuild, far more than it will cost you to pick up a second hand Land Rover.

That said, Land Rover prices haven't exactly been static, and while you could once pick up a Series III project for less than a £1,000, indeed I recall a time where you buy virtually complete examples for £500, today you'll struggle to get anything for that sort of money and once common types such as the Lightweight and Forward Control can command Jeep-like prices so you need to be careful what you choose if you have a limited budget. However, every so often the odd bargain does come onto the market, and at the moment at least, batches of redundant Land Rovers are regularly disposed of by the MoD that are at the cheaper end of the market, and the Snatch armoured Land Rovers released a couple of years ago, made very little money at the time.

WHERE TO START?

The type of Land Rover you decide to buy will depend a lot on what you want of the Land Rover and all of the references in this item refer to ex-military Land Rovers, though much of the information will apply to civilian types too. If you're planning on doing high mileages to and from shows or using it on a day-to-day basis, the older petrol engined Series 1, 2 and 3 are probably not the best choice, with





The standard Series I Land Rover is getting close to Jeep-like prices, but special variants such as this SAS Series I patrol vehicle are hard to find and cost a fortune.



LAND ROVER SERIES I



Left: for years people took little or no notice of the Series I Land Rover, but a recent growth in interest has seen prices go through the roof. The Land Rover Series I is comparatively scarce compared to other types and original military variants are ever scarcer!

Below: while most Series Is were used for menial tasks, some were used in specialist roles and this example reflects use by the Royal Military Police in Germany.



the diesel powered coil sprung 90 and 110 being a better bet because of their better fuel consumption and more comfortable ride, however, if the budget will stretch, the later XD (Xtra Duty) Wolf Land Rovers are much better for cruising at motorway speeds thanks to the more powerful 300Tdi engine they were fitted with.

If you're looking for a restoration project you'll find plenty to choose from and while most Land Rovers are little more than glorified Mecanno sets, with the majority of items bolting on to the vehicle, they do have rust issues and there are some areas where you will either need to make welding repairs or replace with new parts, the chassis and bulkheads being particularly prone to corrosion. Thankfully the Land Rover, like the Jeep, is well provided for in terms of spare and replacement parts and you can purchase just about anything from a new chassis to a new engine and everything in between.

Budget will play a large part in the make and model of Land Rover you choose with prices ranging from a few hundred pounds for a restoration project to tens of thousands of pounds for the more exotic and specialised types, and your level of mechanical know-how will also play a part, after all if you don't know one end of a spanner to the other there's little point in buying a vehicle that needs restoring.

LAND ROVER SERIES II

BUYERS' GUIDE Part One



Above: the Series II and Series IIA were available in both a long (109") and short (88") wheelbase, with the shorter wheelbase version shown here. Mechanically they were essentially very similar to the later Series III, but the easiest way to tell the two apart is the positioning of the headlights, which on the Series II and IIA were located in the front grille, and on the Series III were moved outboard to the front wings to meet new lighting regulations.

Right: like the Series I, the Series II was mainly used in general service roles, but they did see service in Northern Ireland where they were fitted with mesh to protect the windows.



DUNSFOLD LANDROVERS Ltd.



(Dunsfold DLR)

Alfold Road,
Dunsfold, Surrey.
GU8 4NP

Family Run Business,
Established in 1968



We carry the largest stock of parts in the South (We supply the suppliers)

OE & Genuine parts for most models. Some second hand parts available.

Collectors, Rare and Unusual vehicle sales.

See you at War and Peace Revival this year

www.dunsfold.com

Tel: 01483 200567 – Fax: 01483 200738

Email: dlr@dunsfold.com

Everything for your Land Rover...

For over 30 years, through our worldwide network of distributors, Britpart has been helping to keep Land Rovers of all ages & models going - both on and off-road.

Britpart stock an ever increasing inventory of parts and accessories for the entire Defender range, from a complete new chassis right down to replacement nuts and bolts and everything else in between.

With 100's of accessories suitable for the Defender, you can be sure your vehicle is as unique as you. The list includes exterior and interior protection, all the latest equipment for off-roading right through to the latest accessories to give your vehicle a smarter new look.

Britpart offer a 24 month guarantee on all* parts & accessories.

Visit the Britpart website for the full range of accessories and to find your nearest stockist.



*Terms & conditions apply



BRITPART

The quality parts for Land Rovers



facebook.com/britpart

www.britpart.com

RIGHT...

The Series III was once popular with enthusiasts and collectors, but since the widespread release of the coil sprung 90 and 110 Land Rovers they have diminished in numbers at shows.

BELOW RIGHT...

There was a time when the Series IIIs were released by the MoD that you could find them everywhere, but nowadays they're a little less plentiful.

BELOW...

The Series Ia and III ambulances are popular as they can be converted into camper vans by their owners.

BELOW...

A decent Series III in need of restoration is still going to cost in excess of £1,500.

LAND ROVER SERIES III



WHAT'S AVAILABLE?

To try and simplify matters I'm going to split this article into several parts, and this month I'm concentrating on the Leaf Sprung Land Rovers, following on next month with Coil Sprung Land Rovers, and Exotica. In each section I will provide details of the sorts of typical vehicles available and a rough guide to the prices you might expect to pay. Obviously there will be exceptions to the rule and market prices do fluctuate so these prices are merely a guide and not to be taken as gospel

and with the huge number of variations and specialist types built over the years this is by no means a comprehensive guide, but there are masses of books and specialist magazine out there that can offer further advice and guidance, such as the new title 'Classic Land Rover' recently launched by Key Publishing.

LEAF SPRUNG MODELS

The Series I Land Rover, the first production Land Rover, was primarily aimed at the civilian market, however, the Army also used the type, albeit in limited numbers compared to later Land Rovers such as the Series II and III. The Series I used a leaf spring type suspension with a live axle and steel ladder type chassis with steel bulkhead (some very early types were aluminium but are as rare as hen's teeth) aluminium bodywork and a 'pick and mix' approach to the particular layout available to customers, which included soft and hard tops plus different length wheelbases, number of doors, etc. and the same basic recipe continued to be used on all leaf sprung Land Rovers right up until the introduction of the coil sprung 90 and 110 and even today there's a huge range of options available to Land Rover buyers.

The shorter wheelbase Series I is more desirable in terms of ownership and consequently command a higher price, with the very early types with the headlamps behind the front grille the most sought after. Limited numbers of genuine ex-military Series IIs are to be found on the market, but in comparison to the more numerous Land Rover Series II and III they tend to fetch very high prices just like their civilian counterparts and £10,000 plus is not an unusually high price for fully restored examples.

Interestingly the SAS also used the Series I as the basis of an early patrol vehicle, which was the start of a long association between the marque and the most famous British Army Regiment. The vehicle was essentially a replacement for the older WW2 Jeeps, performing the same sort of role, but before you add it to your wanted list you'll probably need to take out a second mortgage to purchase one, assuming of course you can find a genuine example in the first place!

One quick way of identifying a Series I between the later Series II and III is to look at the side of the body, which doesn't have the 'roll top' shoulders running down the side of the body, which are characteristic of later models, and is instead flat sided.

Having 'bigged up' the Series I, in terms of typical retail prices, don't think the Series II will be much



cheaper, yes bargains can be found, but I've seen them range in price from a couple of thousand pounds to in excess of £6,000, and if you look carefully you'll find quite a few Series IIs on the show circuit, but as 'Classic Land Rovers' they're rising in price all the time.

Mechanically the Series II was very similar to the Series III, using the newer and larger 4-cylinder petrol engines (except for some foreign users) that replaced the earlier engines introduced with the Series I, and was generally available in two lengths of wheelbase, the shorter 88" and the standard 109", but externally the simplest way to tell the two apart is the position of the headlamps. On the Series II and IIA the headlamps were positioned within the front grille, which was set back in between the front wings, whereas on the Series III the headlamps were moved to recesses in the wings themselves.

The Series II, IIA and III were built in huge numbers in a wide variety of types across a number of wheelbases and saw widespread use across all branches of the UK armed forces not to mention numerous foreign armies, so there are plenty on the market and it's not unusual to find good, restorable examples for a thousand pounds or less. Obviously nicely restored and rarer variants can command a whole lot more, with asking prices of four and five thousand pounds not being unusual these days, and three or four times that for the really rare types.

LEFT...

The Land Rover Lightweight has always been popular with enthusiasts, due in part to the rugged, military appearance. It was available in a number of variants, but the right or left hand drive GS (General Service) variants are the most widely available, especially the Series III variant shown here.

BELOW LEFT...

The Series IIA Lightweight is harder to find, especially in original condition with the headlights in the grille. Many Series IIA Lightweights were updated to Series III specification with the addition of the new headlight boxes mounted under the front wings.



MILITARY SPECIFIC

The Series I, II and III were essentially 'militarised versions of the civilian Land Rover, with improvements and changes to certain components to improve their ruggedness for military use, but even so there is a good cross over in commonality of parts, however, some Land Rovers were only built for the military and that included the Air Portable or Lightweight Land Rover and the Forward Control FC101.

The Lightweight Land Rover came about due to a requirement for a Land Rover that was capable of being air transported by both transport aircraft and helicopter with the design



RIGHT...

Another once popular model with enthusiasts was the 101 Forward Control Ambulance, which was a great candidate for a camper conversion. Today they're still around, but less numerous than they once were and even harder to find should you want to buy one.

LAND ROVER 101FC



ABOVE...

Rare 101 FC variants include the Vampire, however, they were built in very small numbers and can command very high prices.

RIGHT...

The General Service 101 is the most common type built and the most widely available too.

incorporating a number of easily removable sections to reduce the overall weight. These sections include a two-part tailgate, the upper sections of the rear body, the doors, windscreens and even the upper portion of the bulkhead, but even with these all removed the Lightweight was still close to the maximum weight the helicopters of the time could lift!

By the time the half-ton airportable 'Lightweight' was introduced newer helicopters and larger transport aircraft had been introduced that were capable of carrying a standard Land Rover so the Lightweight was effectively redundant and resigned to more standard roles within the military and saw widespread use with the Royal Marines in particular. The vehicle was based around the 88" short wheelbase Series IIa initially, soon followed by the Series III and used the same engine and drivetrain, but narrower axles that gave a reduced width, although the same basic leaf spring suspension was used. The bodywork was unique to the Lightweight, consisting of largely flat panels, but this rugged look has given it great appeal amongst Land Rover enthusiasts.



The Lightweight is not without its problems, corrosion being the key issue, and while most of it is easily repaired or replaced, the upper section of the bulkhead is a hard part to find. The Lightweight wasn't the only military specific Land Rover to be introduced to the British Army, the 101 One-tonne Forward Control Land Rover was also purpose-designed for the military to fulfil the role of a lightweight, airportable artillery tractor. Like the Lightweight it drew on existing Land Rover components, but was powered by the V8 petrol engine. The suspension was again a leaf spring set up, albeit heavier duty than any of the other Land Rovers in existence, and the bodywork could again be stripped down to reduce the weight and the overall dimensions of the vehicle for air transport or air dropping utilising a purpose-built platform.

At one time the 101FC or One-Tonne as it often referred to, was in plentiful supply and relatively cheap, however, like most things it has risen in price and there are fewer of them available. It is still possible to find them for two or three thousand pounds, but £5000 plus is nearer the norm and even more for the various specialist variants.

All were produced on a 101" wheelbase chassis specific to the type and most were built as soft top gun tractors in either right or left hand drive. Some hard body ambulances were also built, as were a variety of hard-bodied radio and specialist variants, but these were built in far fewer numbers and as a result are harder to find and command higher prices. While some parts were generally available following the disposal of the spares for the 101 after it left military service, some parts were hard to find, however, the 101 Owners Club came to the rescue and many of the hard-to-find parts have been reproduced and are now more readily available.

In terms of choice of leaf sprung Land Rovers I've owned examples of most types and of those I've owned the Lightweight and 101 were probably my all time favourites.

Obviously the choice is a personal one, but with a fantastic parts availability through the many Land Rover dealers specialising in spare and reproduction parts, you shouldn't have any trouble restoring and running any of the Land Rovers mentioned here, but before you make your decision, next month I'll be looking at some of the different coil sprung Land Rovers available to you as well as some of the more exotic types to have seen the light of day.

key SHOP

For a great selection
of books, DVDs,
magazines and
models visit:



www.keypublishing.com/shop

429/13



Build your own
Vehicle

DIY or All parts available
Uses Electric drive & Wood body



Buy the BUILD MANUAL for £40
Contains full instructions & photos.

Mention **Military Machines** to get
£5 off the Manual price

www.toylander.com
01767 319080

283 Persimmon Tree Lane
Dover, DE 19901 U.S.A
Phone: 302-736-1790 - Fax: 302-674-5172
Email: murco@tnjmurray.com

TNJMURRAY.COM

WORLDWIDE SERVICE



WE'VE GOT A PART FOR THAT



Tank U Anti-Tank

In the first of a two-part feature Dick Taylor looks at the British Tank versus German Anti-Tank weapons



ABOVE..

The German 88mm Anti-Aircraft gun was first used against armour during the Spanish Civil War. Despite this warning, western armies were surprised by its use in this role in France and North Africa.

I was lucky enough recently to be shown a number of bulging files dealing with the armour performance of British tanks in various theatres of war, not only North West Europe but also with some references to Italy, North Africa and even Burma. The purposes of these reports in these files were to try to understand what caused tanks to be hit, to be penetrated, to catch fire, and to cause the distribution of casualties. There was a lot of information about the emerging German

Panzerfaust threat, attempts at defeating this new threat, and some very interesting photographs. Due to the amount of information I have

broken the subject down into two parts, in which I will attempt to present this information with both the general reader and the armour historian in mind, as I thought that there were a lot of gems in the reports that I simply had to share. In the article I use the term armour as in the method of protection, rather than as a general term for AFVs.

Rolled Homogenous Armour or RHA is a term often encountered in reports dealing with armour. It was sometimes called more grandly "rolled homogeneous armour of machineable

quality", meaning that the high hardness armour steel was of the same quality throughout – homogenous – and was produced by being rolled in flat plates of the required thickness. These could then be machined by being cut, drilled, tapped, shaped and even curved to form the boxes of which an AFV was made.

Cast armour on the other hand was made by pouring melted armour steel into large moulds, often made of sand, to form complex shapes, with any excess metal ground away once it had cooled. By 1944 both types were in common usage in allied armies, and both possessed roughly equal abilities at keeping out the nasty stuff: it was more about the amount of metal between you and the enemy than whether your tank was a Sherman II or III, diesel or petrol.

LEFT...

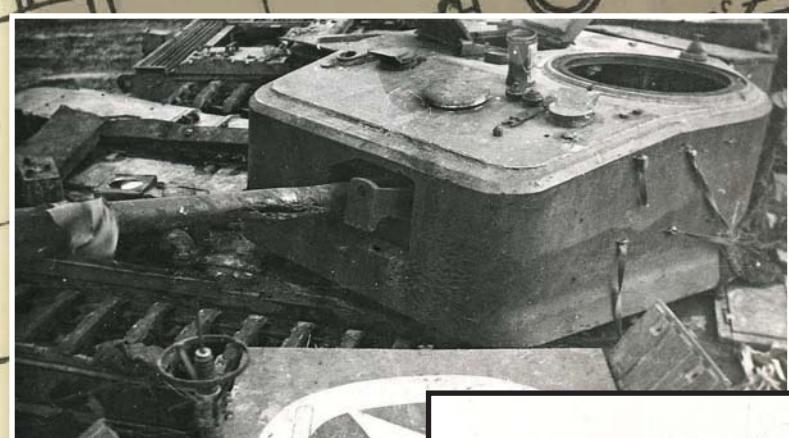
The 88mm Pak 43 was a logical step for the Germans to take, having realised the potential as an anti-tank gun capable of knocking out Allied tanks at long range. The Pak 43 was dedicated to the AT role, and had a low silhouette and a well-designed cruciform platform allowing rapid switches of arc.



Below; the side skirts fitted to some early British infantry tanks, such as this Matilda II prototype, were not an attempt to provide added protection, but were a carry-over from WW1 conditions and were in fact designed as mud chutes, meant to reduce the clogging effect of mud on the tracks and running gear.
(Photo - Tank Museum)

LEFT...

Churchill Mk III T68723B was the only example found in which the actual armour plate was thought to be of suspect quality, as it had cracked on impact.
(Photo - Tank Museum)



Below; 'Nortonville' of 153RAC was hit by a large calibre HE shell, assessed as 150mm, on 28th July 1944. The whole nose plate was pushed in, prompting the recovery of the hulk to FVPE in UK, an investigation into quality control, and subsequent strengthening of the welds.

BELOW LEFT...

T251667H was thought to have been hit by a 105mm (or larger) HE round that knocked the turret back off the ring, and split the gun barrel.
(Photo - Tank Museum)

BELOW RIGHT...

T187826 belonged to the 3 Troop Corporal in C Sqn 1RTR, and was named G.U.T.S. It was used to illustrate a 'scoop' on the turret front corner, from a 75mm shot near Bayeux. The turret had wire mesh over it to allow camouflage to be attached.



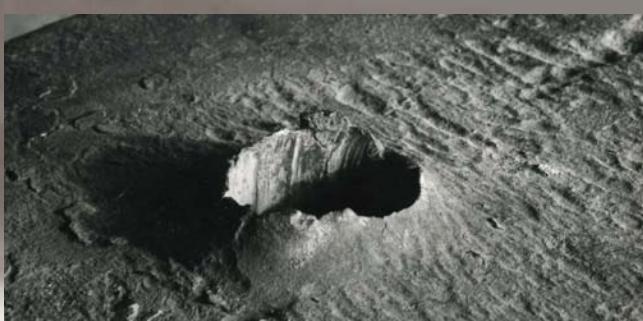
TOP RIGHT..

This Churchill IV turret was modified in the field by adding a rectangular steel plate over the whole of the front mantlet, presumably to protect a perceived weakness in the mantlet design. The ORG thought that it would do little save affect the balance on the gun, making it difficult to elevate. (Photo - Tank Museum)



RIGHT..

This Churchill crew had added a spare or recovered air inlet armour plate to the front (arrowed). The ORG considered that the crew had simply created a shot trap. (Photo - Tank Museum)



The Allied designers realised very clearly, in a way that the Germans had maybe lost sight of, that a tank simply could not be made totally immune from all types of attack. A balance had to be struck between mobility and protection, and that for a tank to achieve a respectable level of mobility, there was a finite limit to the amount of armour that could be carried, known as the 'weight budget'. The trick was distributing this budget in the more effective way.

Once a particular design of tank was being used in action, it was of great interest to the military staff how well (or not) it was performing. Within the British War Department, at

ABOVE..

The ORG researchers took some photographs with which to illustrate their reports, some of which are reproduced here. They clearly did not photograph everything (more's the pity!), but tended to record those items that were unusual or thought to be particularly illustrative of a problem. (Photo - Tank Museum)

ABOVE LEFT..

An internal view showing a typical entry hole following a Panzerfaust penetration (Cromwell T189479). (Photo - Tank Museum)

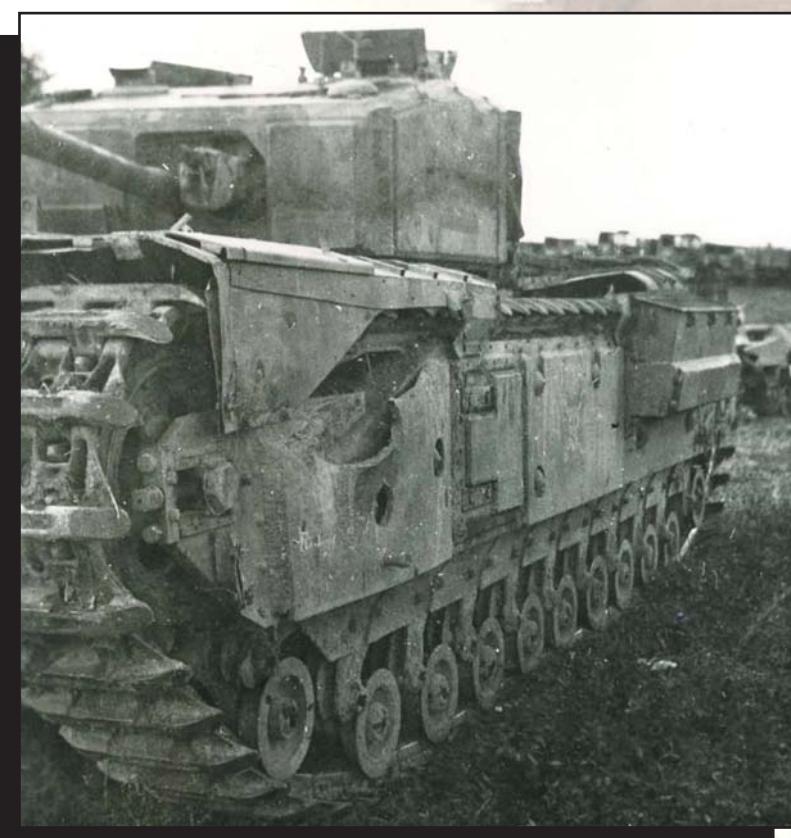
LEFT..

This is Churchill Mk III T31896B near Le Havre. The photograph was used to illustrate the effectiveness of the side appliqué design, which successfully resisted a hit from 88mm AP with no internal damage. (Photo - Tank Museum)

different times, a number of organisations carried out research in operational theatres in order to find this out, and these included the Army Operational Research Group (ORG), the Medical Research Council (MRC), the Fighting Vehicles Proving Establishment (FVPE), and the Department of Tank Design (DTD). All these organisations looked at different aspects of the problem, and their combined results can be used to build up a fairly detailed picture of what was happening to the tanks and their crews. The first example here is from a report produced in North Africa.

On the 21st April 1943, Lt Peter Gudgin was commanding Churchill Mk IV T68605 of 4 Troop, A Squadron 48RTR in Tunisia. He described being knocked out, based on his recollections and also, unusually, the chance to examine the same tank later in workshops:

"I received 4 hits from German A/Tk guns of various calibres. Hits 2, 3 and 4 occurred practically simultaneously, about ten seconds after hit 1. The crew commenced to bale out immediately after the first hit, but were not clear before the last three. Hit 1. An 88mm shot hit the co-driver's MG mounting, penetrated and passed down the length of the tank into the engine. En route, it set off four rounds of 6-Pounder ammunition in unarmoured clips behind the driver and started a fire in the engine compartment. [This fire] was extinguished by the CO₂ bottle but later re-ignited by ammunition fire. The tank stopped; the driver and co-driver were the only members of the crew affected by this round, and commenced to bale out. Hit 2. A 75mm shot hit the left hand side of the turret at approximately 450 to normal, beside the Commander, but



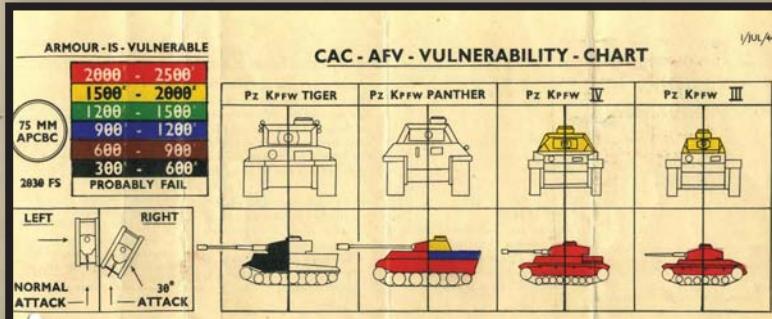
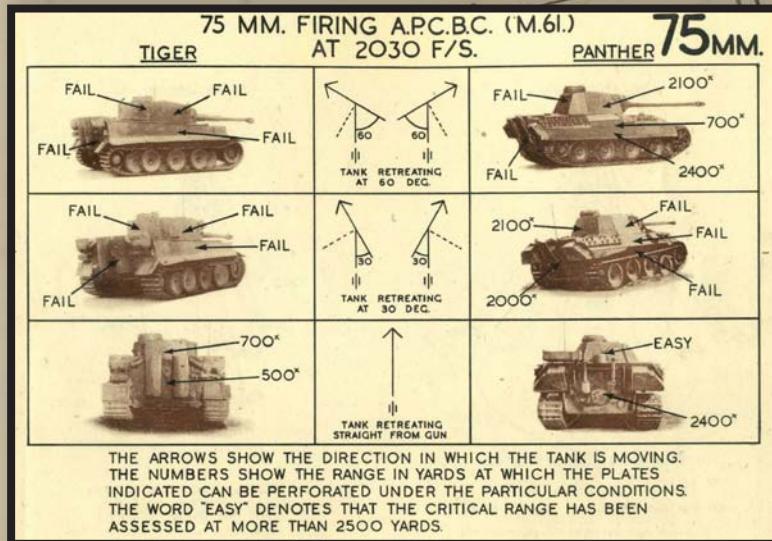
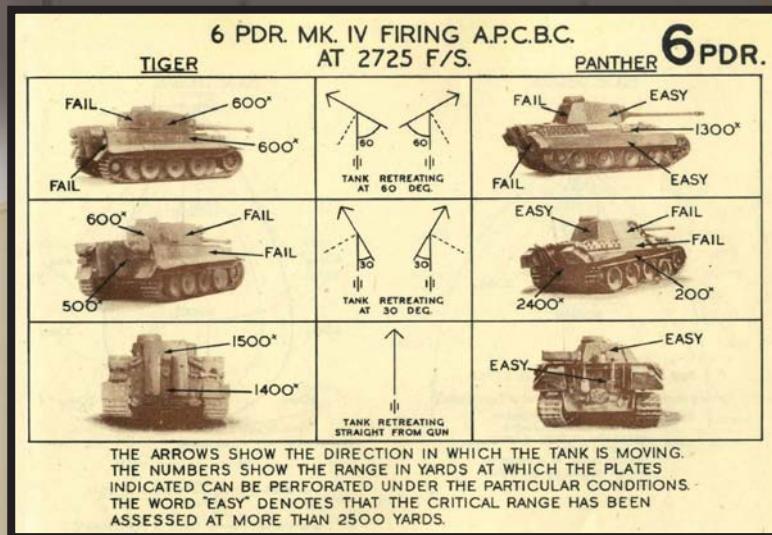
did not penetrate. Petals of armour, however, set off a 6-Pdr round, which had been placed in grenade rack (the grenades having been removed.) Of this I am certain because I was beside the round when it went off. Hit 3. One 50mm shot hit the right hand front of the turret ring, stuck in the armour with its nose just through, and set off the 2" smoke ammunition. I know this happened immediately after impact because I smelt the different smoke. Hit 4.

Another 50mm shot hit the right hand side plate behind the escape hatch at approximately 450 to normal,

did not completely penetrate, but flaking inside set off several rounds near the operator. Casualties: Driver – burned. Co-Driver – one arm and three ribs broken and burned. Operator – splinters in leg, one arm broken by hit on turret. Gunner – slightly burned on back, splinters in leg. Commander – blinded by flash, splinters in legs."

NORTH WEST EUROPE

As the war progressed, the scientists from the ORG devised ever more detailed guides to help the field researchers work out what had



ABOVE...

This Sherman with T34 Calliope rockets fitted also carries a significant weight of sandbags; which added absolutely no meaningful protection and just made the tank more vulnerable and liable to breakdown.
(Photo - Tank Museum)

LEFT...

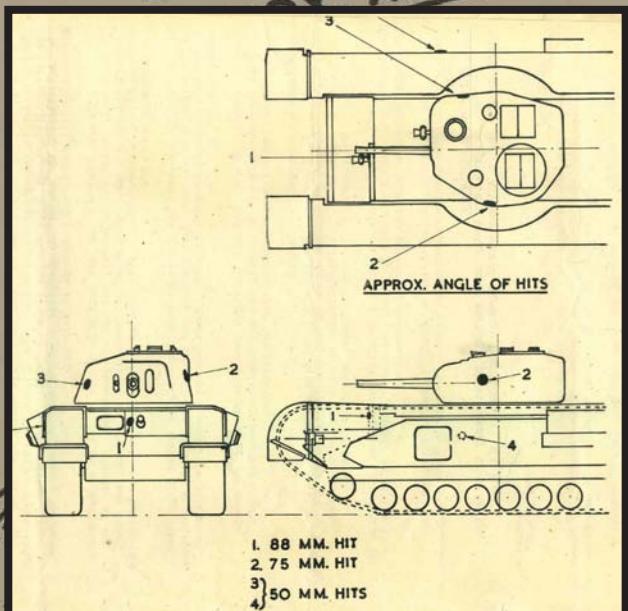
This is an extract from a School of Tank Technology pamphlet, and shows the pages comparing vulnerability of Tiger and Panther, when attacked with 6 Pounder APCBC (top), and 75mm APCBC (bottom).

BOTTOM LEFT...

This AFV vulnerability chart was issued by the Canadian Armoured Corps for use with tanks armed with the 75mm medium velocity gun firing APCBC ammunition.

BELOW...

As well as an unusually detailed account, some reports also provided diagrams showing the locations of the hits following attacks.



TANK V ANTI-TANK



RIGHT..

The Marder IIIM used the obsolete Czech 38T chassis to mount the 75mm Pak 40 AT gun, thus giving much needed mobility to this excellent weapon, which in the wheeled configuration was heavy and difficult to manoeuvre. This example is in the Aberdeen Proving Ground collection.

RIGHT..

The Germans routinely carried sections of spare track on their tanks, and in North Africa and Russia in 1941 these were being positioned to try to provide some additional protection. It is likely that allied crews adopted this practice having seen the Germans do it, although their efficiency was negligible and the negative effects on a tank so encumbered were great.

(Photo - Tank Museum)

RIGHT..

The Germans were the first nation to adopt skirting plates as additional armour; here the plates (Schurzen) are fitted to both turret and hull sides on this Pz.Kpw. IV. Their initial adoption appears to have been in an attempt to pre-detonate Soviet HE rounds away from the tank's main armour, rather than in anticipation of shaped-charge attack. This would help to explain why Tigers and Panthers, with their thicker armour, did not use them.

(Photo - Tank Museum)

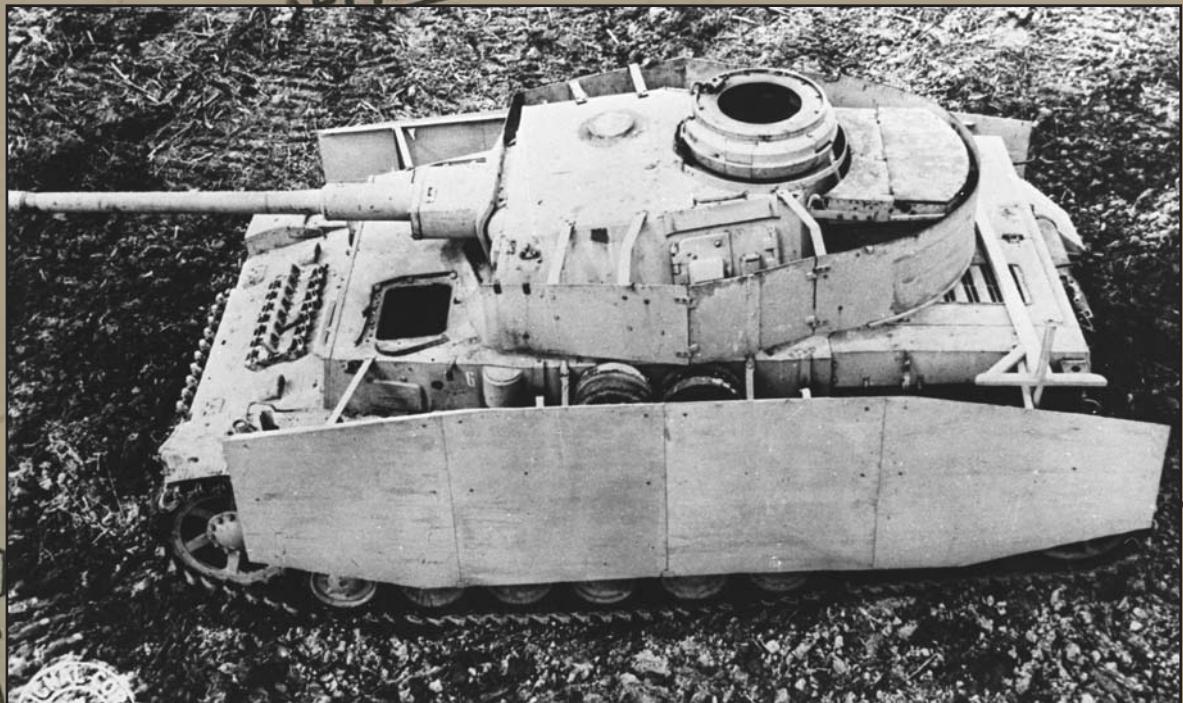


happened to the tank wrecks they were examining. This included a detailed questionnaire for the tank crews to answer; one such questionnaire dated July 1944 asked a huge number of detailed questions, a small number of which are included here: What are the most common German A/T guns in use in Normandy? Has the 105mm gun been used extensively as an A/T gun? At what range do enemy tanks open up on our tanks? How much tank v tank fighting has there been, and with what results? What cases have you seen of Panther front being holed? What by, from what range, and at what horizontal angle? What cases have you seen of Tigers being knocked out by Allied tanks equipped with 75mm?

Whilst such enquiries represent a laudable attempt by the researchers to gather useful data, one can only question how useful such opinion might be, not to mention the exasperated reaction of an exhausted tank commander or REME officer when asked these.

Of much more immediate use to the tank crews were attempts at educating them in the weaknesses of their German counterparts. Tactical aide memoirs stressed the importance of only firing at aspects and ranges where success might be achieved. Shown within this article are a couple of examples of documents produced with this in mind.

In the next part we shall go on to look at casualty figures, applique armour, and also the attempts to deal with the German Panzerfaust threat.



THE TANK MUSEUM PRESENTS

BRITAIN AT WAR™ SHOW

NEW
FOR
2013!

21.9.2013



The Tank Museum's new 'Britain At War' show-
Focussing on the Korean War & The National Service years.

- National Service era Tank Action display
- Displays from a range of privately owned military vehicles
- Vintage and Militaria trade stalls
- Special talks and tours

All included in the normal museum admission price!

SPECIAL DISCOUNTS FOR:
Britain At War magazine subscribers
Military Vehicle Trust Members
See website for terms & conditions

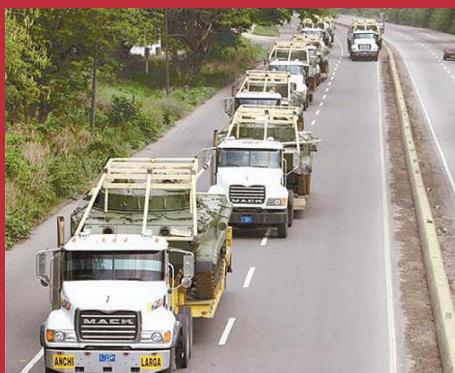
tankmuseum.org

Registered Charity no: 1102661

THE TANK MUSEUM
Bovington | Wool | Dorset | BH20 6JG | T: 01929 405096

Latin American News Bulletin...

Venezuela Continue To Receive BMP-3s



On last 24th March, the Ejercito Nacional Bolivariano de Venezuela (National Bolivarian Venezuelan Army) took receipt of the latest batch of thirteen, second-hand BMP-3 infantry fighting vehicles. The vehicles arrived at the port of Cabello, from Russia.

Free Gifts To The Peruvian Army

The Republic of China, according to different MOU, signed an agreement regarding Free Military Assistance with Peru and as part of the agreement the Latin American country began to receive military vehicles free of charge valued at US \$1.7M.

Previously, Peru had received a 100-patient Mobile Field Hospital, costing an estimated US \$ 2M, with previous donations including Dong Feng EQ-2100 trucks, cars and buses and 150 trucks of various types, such as Beiben 2528, Dong Feng EQ-1180/EQ-2100 nad Steyr/Shaanxi SX2190.



Chilean Marines Look To The AAV7A1



The Chilean Marines is negotiating the purchase of twelve AAV7A1 amphibious vehicles to FMC Corporation, to be used from the ship LSHD "Sargento Aldea", the firmer TCD "Foudre" of the French Navy. The intention is to buy ten assault vehicles, one command post and one recovery vehicle and the Chilean Navy has selected a group of personnel to learn their operation, as the intention is to have them ready by mid year 2014. The Global Combat Systems Company (BAE Systems) will help to put them in operations The AAV7s will form the Amphibious Brigade, which ceased operations in 1984 when the LVTP-5 were retired from service.

New Multiple Rocket Launchers For Venezuela

The Venezuelan Army took delivery of the new 12x300mm BM-30 mobile multiple rocket launcher system, twelve of which were purchased from Russia, together with other equipment. The first batch arrived in Venezuela in January and will form part of the 435 Field Artillery Group. A basic Smerch system is composed of a BM 9A52-2 launch vehicle, an Automatic Fire Control unit and Command Post, a TZM 9T234-2 transport and reload vehicle, and a PM-2-70 MTO-V maintenance vehicle. Each of the vehicles can launch twelve 300mm rockets, with a range of 90km.



More Armoured Vehicles For Chilean Army



A few weeks ago the Chilean Army received 28 Marder vehicles, 21 M109 family vehicles, 66 M113 variant, several of them mortar transport and Command post variants, 34 AIFV and 16 YPR-765, the same type of vehicles are currently in service with the Chilean Air Force, but these are destined for the Army.

A new batch of 18 Leopard 2A4 tanks also arrived, 12 of which are equipped with dozer system, and the receipt of these vehicles sees the completion of the combat groups of the three armoured brigades, located in the northern Chile, with 44 Leopard MBTs in each one. Talks to negotiate the purchase of 92 Leopard 2A5 tanks (probably ex-Dutch) are also advanced.

Others vehicles received included 38 Marder and 12 Leopard 2A4 MBTs, but these were demilitarized vehicles destined for use as spare parts, and not for combat.

Peruvian Army T-55 Modernization

The "Tifon 2" was the name given to the modernised T-55 M8A2 destined for service with the Peruvian Army. The upgrade of the tanks was completed and presented to officials two years ago by Kharkiv Morozov Machine Building and Desarrollos Industriales Casanave Perú with all the work performed in Peru using Russian and Ukrainian technology. Two prototypes were produced, and despite good results, the Peruvian Army decided not to continue with the project, opting instead for a more modern vehicle, which led to them evaluating the Leopard 2A6, and other models.



M109 Self Propelled Howitzer For Brazilian Army

The Brazilian Army, have purchased 36 M-109A5 self-propelled howitzers through the FMS plan, from the US Army, hoping to upgrade them with IMI (Israel Military Industries), to A5 Plus standard.

These improvements would include an AFCS (automatic fire control system) and GPS, providing greater mobility and accuracy, and an increase in firing rate. They would also be equipped with new communications equipment, including the AN/VIC-1 and AN/VIC-3 Intercom System. Once work on the M-109s is completed they will replace the older M-108, armed with the 105mm cannon.



New Special Vehicles For Argentine Army



The Agrupación de Comunicaciones 601, based at the City Bell, Buenos Aires Province, was the first unit in the Army, to receive the new Ford F-350 4x4 pickup. The Unit received four units, which will be used to transport the Unit Centro Troncalizador de Comunicaciones Móviles 1 and 2, and the Centro Troncalizador de Video Móvil, the fourth vehicle is to be used to transport the Centro Troncalizador de Comunicaciones Móviles 3, under construction in the unit. These Pick up will replace the Chevrolet M-1008 4x4 trucks.

Tyntesfield WW2 Weekend

MMI ATTENDED THE ANNUAL EVENT THAT REDISCOVERED THE WARTIME HISTORY OF THIS VICTORIAN HOUSE NEAR BRISTOL



d



SHOW REPORT 2013



The imposing Gothic Revival architecture of this Victorian country house and the sprawling gardens and estate surrounding it play host to a band of re-enactors each year and while at first glance it may seem an unusual choice of venue, the history behind the Tyntesfield estate soon reveals a connection. Now owned by the National Trust, Tyntesfield House once belonged to, and was indeed created by, one of England's richest commoners, William Gibbs. Gibbs made his fortune in fertiliser at a time when Victorian England was consumed by a passion for gardening, but during the wartime years the house and grounds were taken over by the American Army to create an army camp for use as a hospital for the injured American servicemen returning from Europe.

The 2013 Tyntesfield WW2 Weekend: Dig for Victory event was organised by the National Trust in conjunction with James Shopland of the Shopland Collection and the Invicta Military Vehicle Preservation Society (IMPS) and saw a fine collection of wartime era military vehicles invading the grounds of Tyntesfield, putting on displays for the visitors that harked back to the wartime period when these scenes would have been commonplace. It will come as no great surprise then that a large majority of the vehicles in attendance were of American origin,



and this year included Jim Clark's Sherman tank, albeit on the back of a trailer to prevent damage to the immaculately kept gardens.

The main entrance to the house itself was home to a group of Dodge Weapon Carriers marked up as Medical Corp vehicles in deference to the wartime American hospital connection, with the rest of the gravel driveway littered with all manner of vehicles, including a superb Humber Snipe staff car, a selection of Jeeps, GMC cargo trucks, a lovely Mack NO and the Diamond T transporter that hauled the Sherman tank to the show. As well as the vehicles there were a number of displays laid out on the grass verge, including a fine collection of wartime bayonets, radios, small arms and typical items, all of which helped the visitors to understand what life was like for the troops at this time.

Top Left..

The biggest exhibit at the event was Jim Clark's Sherman tank, brought along to the show on the back of a trailer towed by a Diamond T. The organisers wouldn't let it be unloaded for fear of damage - spoilsports!

Top Right..

An interesting pair of American WW2 trucks, namely a GMC 6x6 cargo truck beside a Ward LaFrance wrecker.

Above left..

There was a distinct medical theme in keeping with the wartime history of historic Tyntesfield House, which was used as a field hospital for American soldiers returning from Europe during the war.

Below...

The Land Army Girls were a friendly bunch, waving at the visitors as they arrived, they even waved at me!

ARTILLERY CORNER

Artillery Corner was home to a variety of military vehicles and related artillery pieces brought along to the show by the Shopland Collection and various private collectors, including Tobin Jones. It was also the site for the firing of the midday gun, which certainly woke people up!



Above..

The Canadian Fox armoured car brought along to the event by James Shopland and one of many vehicles from the Shopland Collection to be found at the show this year.

Left & Below...

A collection of Dodge Weapons Carrier medical trucks parked outside Tyntesfield House.

Bottom...

A beautifully restored Chevrolet staff car on display at Tyntesfield.



"Artillery Corner was home to a number of trucks and artillery pieces dating from WW2..."

ARTILLERY CORNER

Elsewhere in the grounds of Tyntesfield there were several other display areas, including one on the fields adjacent to the main entrance road into Tyntesfield that was home to a number of vehicles and artillery pieces from the Shopland Collection, alongside other privately owned vehicles in what was dubbed 'Artillery Corner' and the venue for the firing of the noon day gun.

Just across the road was a fine display of 'home front' exhibits that included a number of stationary engines, an AEC Matador timber tractor, again from the Shopland Collection and harking back to the family timber and saw mill business, and a very friendly bunch of Land Army girls greeting the visitors as they drove past.

The courtyard at the Home Farm Visitor Centre to the rear of the main entrance into the grounds was home to a number of civilian exhibits, including a steam road roller, several vintage tractors and a variety of farm implements, all harking back to the days when the gathering of crops was just as important as the production of weapons.

A flypast by the Battle of Britain Memorial Flight Dakota and the ongoing festivities in the victory marquee courtesy of the Blitz Buddies, DJ UXB and South Bristol Community Orchestra all added to the atmosphere

Left...

Re-enactors grab a cup of tea from the mobile canteen outside Tyntesfield House.

Top left...

Superb example of the Mack NO truck, just one of many American WW2 vehicles at the event.

Far left...

Jim Clark's fine Sherman is a regular at shows up and down the country. Interestingly the tank has been re-named, and while it once bore the name 'Sloppy but Safe', but at Tyntesfield it had the name 'America First' emblazoned on the side of the hull.

Far & bottom left...

There were plenty of Jeeps at the event, reinforcing the fact that the Jeep is still a popular vehicle with collectors.

SHOW REPORT 2013

Top right..

Bedford OY truck, one of a number of British WW2 vehicles to be found at the event.

Far right centre...

Amongst the exhibits was this superb replica 37mm gun, while elsewhere there were a number of home front displays, including various tractors and farming implements.

Far right...

Bedford QLR on display at 'Artillery Corner' together with a selection of wartime weapons.

Bottom right...

James Shopland pilots a T16 carrier during the setting up of 'Artillery Corner' at Tyntesfield. Although James owns a number of carriers, this one wasn't actually his, but belonged to friend and fellow exhibitor Tobin Jones.

Right...

A number of displays were set up around the show site to show visitors some of the equipment used by the military at the time.

Below...

A superb display of bayonets and assorted equipment laid on by exhibitors at the event. The exhibitors were only too happy to chat with visitors to the show and share their knowledge on the subject.

at the show, although it has to be said that some of the displays surrounding the house were a bit 'static' and lacked atmosphere normally provided by background music and audio displays, which sadly were curtailed thanks to 'Health & Safety' issues!

Overall it was a great show, bathed in sunshine and with lots of people in attendance. If there was a problem it was a lack of parking, with the regular parking staff swamped by huge numbers of people wanting to come in, and despite arriving just 20 minutes after opening, I found myself hunting for a parking spot, but many visitors queued for some time to be parked – maybe the show was a victim of its own success? My only other disappointment was the lack of easy access to the timeline vehicles display that flanked the road and greeted visitors as they entered the site, but was difficult to get to once on site, which was a shame because there were some interesting vehicles amongst those on display.

All in all I had a thoroughly enjoyable day and judging by the number of coaches in the car park and the many families at the event it was a very popular day out for young and old alike.





EASTNOR LAND ROVER SHOW

24TH & 25TH AUGUST 2013

ADVANCED
TICKETS
ONLY £10
KIDS GO FREE
(UNDER 15'S)

CELEBRATING 65 YEARS OF LAND ROVER
AT ITS ANCESTRAL HOME
JOIN US AT THE DEER PARK, EASTNOR CASTLE

LOADS TO SEE AND DO!!

LAND ROVER HERITAGE
LAND ROVER CLUBS
LAND ROVER 65TH
ANNIVERSARY DISPLAY
LIVE ACTION ARENA
RESTORATION ZONE

LAND ROVER EXPERIENCE
OFF ROAD DRIVING
RETAIL VILLAGE AND AUTOJUMBLE
WEEKEND CAMPING & FAMILY FUN
EVENING ENTERTAINMENT



BOOK YOUR TICKETS NOW!
VISIT WWW.EASTNORLANDROVERSHOW.COM
OR CALL OUR OFFICE ON 016974 51882 (OFFICE HOURS ONLY)

Venue Address: Deer Park, Eastnor Castle, Ledbury, Herefordshire, HR8 1RL

Into the Archives



James Payne delves into the photo album that once belonged to an American soldier serving in Korea in the early 1950s

Sergeant Howard C. Bristow served as 'Truckmaster, Ordnance, Main Army Motor Pool' with the US Army in Korea, in charge of a transport fleet of 85 heavy vehicles at the main headquarters of the 330th Ordnance Depot near Seoul. He was deployed to Korea in September 1951 and from the photos shown here, seemed to love his job and especially his White/Autocar U-7144-T truck, which appears in many of the photos in his album. Luckily for us Howard didn't just photograph his own truck, and captured a number of other US military vehicles in use at the time, which we have included here, and with current political developments in the region, is perhaps more topical than it might have been a few months ago.

The photos here are just a small selection of the many photo albums available from "Through Their Eyes", which cover subjects from the First and Second World Wars. For further details check out their website at: www.throughtheireyes2.co.uk

Top: an atmospheric photograph of the truck being loaded with stores via a tracked crane at the rear of the truck at the railhead while a steam train passes by.

Left: Howard C. Bristow, 'Truckmaster, Ordnance, Main Army Motor Pool' photographed here beside his favourite truck, a White/Autocar U-7144-T tractor truck. Note the cover lashed to the radiator grille, a sign of how cold it was in Korea.



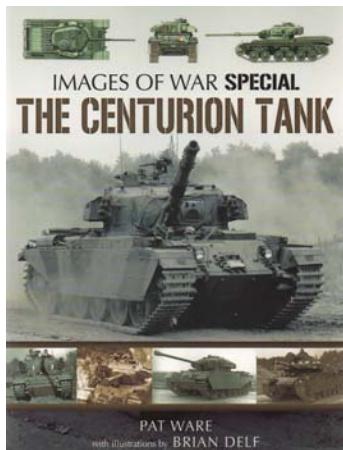
Above: local Korean labour braving the freezing temperatures to wash down Howard's truck in a stream in camp.

Below right: According to the caption with this photo this is Joe Hink in his bunker with one of the big artillery pieces deployed in Korea at the time, namely a 155mm. Note the M4 High Speed Tractor in the background.

Left: The M46 Medium Tank saw widespread service in Korea and this example is pictured as 'our latest tank' presumably taken shortly after they entered service in Korea in 1952. The snow is a reminder of the harsh conditions endured during the Korean campaign.

Another shot of Howard with his truck, this time showing it coupled to a standard single axle, flatbed semi-trailer. These trucks supplemented the many GMC 6x6 trucks and other wartime dated vehicles also serving in Korea in the early 50s.





The iconic British Centurion Tank in detail

The feature in this issue on the Centurion (see pages 32 - 38) is a good introduction to the subject of the Centurion tank, but if you find yourself wanting to find out more about the subject this excellent new book from Pen & Sword will fill in the gaps and offers a much more detailed look at this iconic British tank. The book follows the familiar pattern for the 'Images of War' series, being crammed with a fine selection of images, illustrations and

excerpts from the Centurion's driver manuals. The vast majority of the images contained within the book are of in-service vehicles, but there are a few relating to the various Centurions currently in private ownership. At 128-pages you get quite a lot for the modest retail price of £14.99, and it's a welcome addition to this popular series of books by Pen & Sword. The book is available from all good book stores.

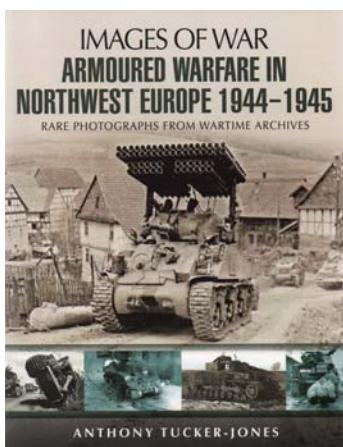
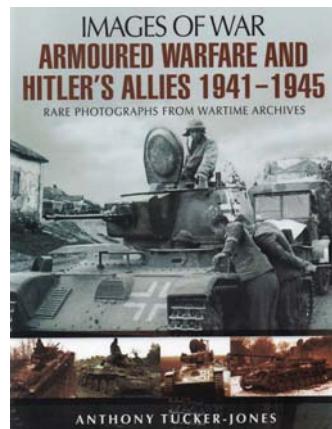
Title: Images of War
By: Pat Ware
ISBN: 9781781590119
Price: £14.99
Format: Softback
Available From: Pen & Sword Books Ltd. www.pen-and-sword.co.uk

Armoured Warfare & Hitler's Allies 1941-45 - Rare Wartime Archives

Title: Images of War
By: Anthony Tucker-Jones
ISBN: 9781781592588
Price: £14.99
Format: Softback
Available From: Pen & Sword Books Ltd. www.pen-and-sword.co.uk

The second new release in the Pen & Sword 'Images of War' series is this book looking at armoured warfare and Hitler's Allies in the period between 1941 and 1945. As the title suggests, the book is packed with wartime images showing a variety of tanks and armoured vehicles belonging to the various German allies, which includes details of the panzers deployed by Bulgaria, Finland, Slovakia and Hungary, plus a selection of Italian

armour. The combination of more than 200 fascinating wartime photographs and the informative text from the author, a former Defence Intelligence Officer, makes this an interesting read and definitely one to add to any enthusiasts' library if the subject is of interest to you. At £14.99 the 112-page book is hardly expensive and will be of interest to historians, vehicle collectors as well as military model makers.



Armoured Warfare & Hitler's Allies 1944-45 - Rare Wartime Archives

The second new release from author Antony Tucker-Jones in the Pen & Sword 'Images of War' series is this title that looks at armoured warfare in Northwest Europe in the period between 1944 and 1945 and this time covers a wide selection of armoured vehicles from all sides involved in the war in Europe at that time. While some of the photos will be familiar to those with large book collections, many are new to the market and offer a

fascinating insight into the fighting that took place in the region. The 144-page softback book is crammed with photos, and while many depict individual vehicles, others show them within settings that will no doubt interest model makers seeking inspiration for potential dioramas. Like all the books in this series it's excellent value for money and is widely available through most leading book stores and specialist military book sellers.

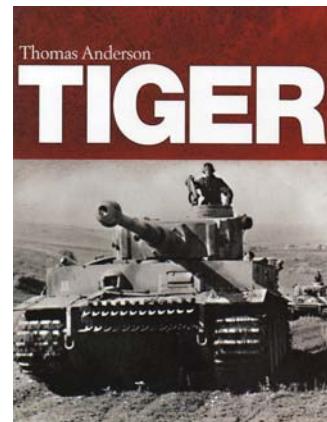
Title: Images of War
By: Anthony Tucker-Jones
ISBN: 9781781591758
Price: £14.99
Format: Softback
Available From: Pen & Sword Books Ltd. www.pen-and-sword.co.uk

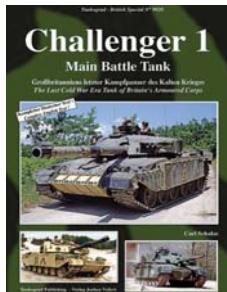
An illustrated history of the famous German Tiger tank

Title: Tiger
By: Thomas Anderson
ISBN: 9781780962016
Price: £25.00
Format: Hardback
Available From: Osprey Publishing Ltd. www.ospreypublishing.com

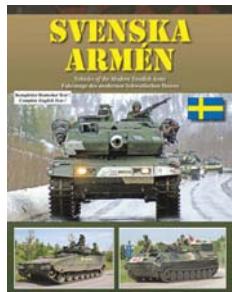
The final offering this month is on the ever-popular subject of the WW2 German Tiger tank, which never seems to lose popularity, and this new title from Thomas Anderson is sure to be hoovered up by all Tiger fans thanks to the quality of the images within the book. There's no doubt that some of the wartime photos within the book have been seen many times before, but many have not, being published for the

first time. The book looks at the design, development of the Tiger together with the service life of this most famous of German tanks. The 256-page hardback book may command a £25 cover price, but the quality of the book justifies the cover price and is definitely one for Tiger enthusiasts to check out. The book is available from all good book shops and from specialist military book sellers.

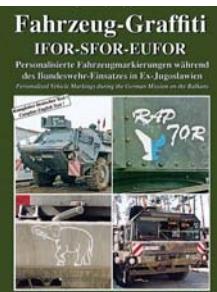




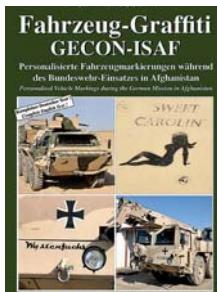
Tankograd 9020 Challenger 1
 The Last Cold War Era Tank of Britain's Armoured Corps. Illustrated with 128 colour photographs and 5 b&w photographs, 64 pages.
£13.99



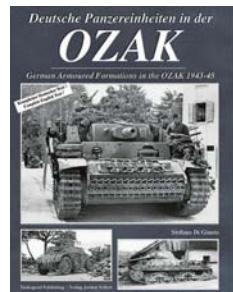
Tankograd 7027 Svenska Armén
 Vehicles of the Modern Swedish Army. Illustrated throughout with 135 colour photographs + graphics, 64 pages.
£13.99



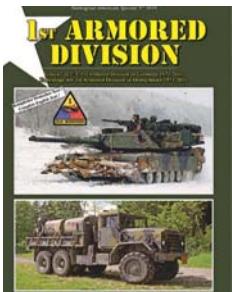
Tankograd 5042 Fahrzeug-Graffiti IFOR-SFOR-EUFOR
 Personalised Vehicle Markings during the Balkan Mission on the Balkans. Illustrated with 139 colour photographs, 64 pages.
£13.99



Tankograd 5041 Fahrzeug-Graffiti GECON-ISA
 Personalised Vehicle Markings during the German Mission in Afghanistan. Illustrated with 159 colour photographs, 64 pages.
£13.99



Tankograd 4019 Deutsche Panzereinheiten in der OZAK
 German Armoured Formations in the OZAK 1943-45. Illustrated throughout with 137 black & white photographs + graphics, 64 pages.
£13.99



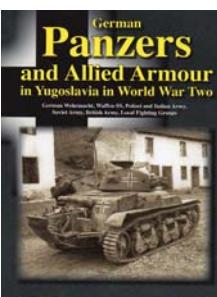
Tankograd 3019 1st Armored Division
 Vehicles of the 1st Armored Division in Germany 1971-2011. Illustrated with 101 colour photographs and 17 b&w photographs, 64 pages.
£13.99



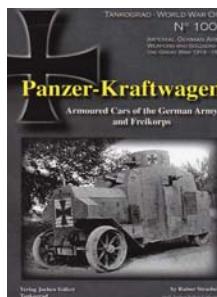
MILITÄRFAHRZEUG 2-2013 Neuer 5-Tonner Hauber, Leoparden im Waldkampf, Schienen-LKW der Wehrmacht, U.S. Army Military Police, British Warthog. Please note this is now full German Text only.
£9.99



LEOPARD 2 MAINTENANCE
 The pictorial walkarounds showing the tank in various stages of disassembly as carried out by units on company and battalion level. 222 colour photos & 1/35 scale drgs.
£19.99



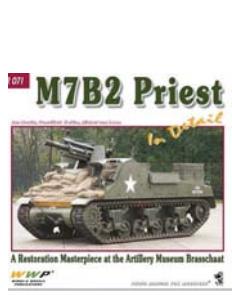
German Panzers and Allied Armour in Yugoslavia in World War Two
 200 pages, this book is illustrated with 358 black & white photographs, most of which are hitherto unpublished. Hardback.
£34.99



Tankograd 1007 Panzer-Kraftwagen
 This is the most comprehensive publication published on that subject so far. 96 pages this publication is illustrated with 152 black & white photographs.
£21.99



Super Model International No.3
 Published by Kagero, 78 pages containing hundreds of colour photos, including archival shots and current museum pieces and supporting colour profile artwork.
£10.99



M7B2 Priest in Detail
 A restoration masterpiece at the Artillery Museum, Brasschaat, covers history, Walkaround and restoration photos. 83 pages, full colour. Published by WWP Books.
£21.99



SS-Panzerkorps in battle for Kharkov
 First book from a new series on the history of the Waffen-SS. The book has 560 pages and 510 photos, 240 profiles, 65 maps, 200 drawings and 55 tables.
£94.99



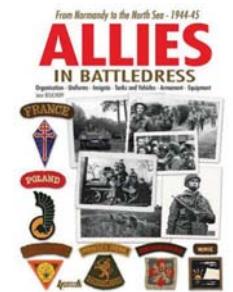
Tank Art Volume 1 WWII German Armor by Michael Rinaldi
 There are many "how-to" books in today's world of scale modeling, but none has covered the "why", as well as, the "how-to" - the modeler's artistic approach, until now. P/back, 208 pages, full colour.
£19.99



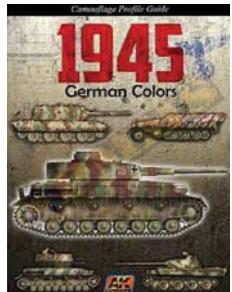
Tank Art Volume 2 WWII Allied Armor by Radek Pituch
 There are 5 models featured inside, 4 dedicated technique chapters, plus a special bonus figure modelling chapter. Over 500 colour photos, reproduced in a large format.
£20.99



Panzerwrecks Vol 15
 What naval forces were knocking out Panzers in Paris? Why would a Pz.Kpfw.IV wear T-34 tracks? How do you move a 70-ton Jagdtiger? Find out in the latest Panzerwrecks which features 132 rare photos.
£16.99



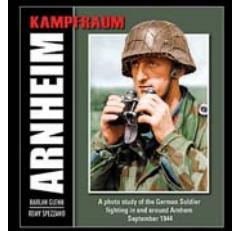
Allies in Battledress
 Organisation, Uniforms, Insignia, Tanks and Vehicles, Armament, Equipment. Hardback, 152 pages. Very well illustrated. Published by Histoire and Collections.
£32.50



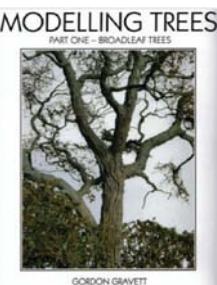
1945 German Colors, Camouflage Profile Guide 72 pages, more than 180 color renderings showing the many camouflage patterns used on common vehicles, and oddities used by the German forces.
£18.99



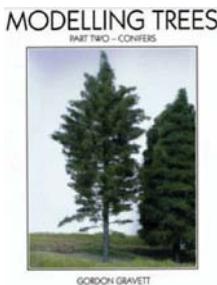
Sturmgeschütz II on the Battlefield
 WW2 photobook series, this book has over 100 photos of the Sturmgeschütz III on the battlefield. Hardback, 111 pages.
£23.99



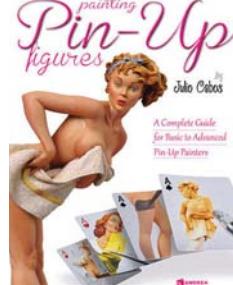
Kamfraum Arnhem
 Battlezone Arnhem, is a unique in-depth photographic documentation of the German ground forces that opposed the Allied Airborne landings in Holland. Hardback, 306-pages.
£60.00



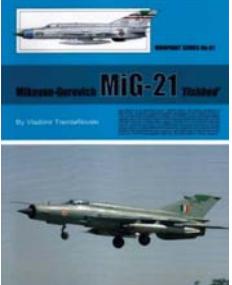
Modelling Trees Part One - Broadleaf Trees 92 pages, full colour.
£21.95



Modelling Trees Part Two - Conifers 92 pages, full colour.
£21.95



Painting Pin-Up Figures A complete Guide for Basic to Advanced Pin-Up Painters. Published by Andrea Press, 86 pages, full colour.
£21.99



Warpaint 91 - The MiG-21
 The Mikoyan-Gurevich MiG-21, also known by its NATO codename 'Fishbed' is undoubtedly a phenomenon in the field of military aviation.
£25.00

MISSION BRIEFING

DATES FOR YOUR DIARY

JULY 2013

New Venue...New Venue...

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

held at the new venue of RAF Westenhanger, Folkestone Racecourse, near Hythe in Kent, CT21 4HX. The world's largest military vehicle show that attracts thousands of military vehicles, re-enactors and living history displays and now at a brand new venue. For further details or to book in call: Tel: 01304 813337 or Tel: 01304 813945 www.thewarandpeacerevival.co.uk

Friday 26 to Sunday 28 July 2013: Festival of the Forties:

held at the Plough Event Site, Milk & Water Drover, Peterborough, PE7 3DR. Military vehicles and civilian vehicles, battle re-enactments, living history groups, 1940's performers, 40's vintage village and stalls. For details contact: Tel: 01733 204353 www.1940fest.org

AUGUST 2013

Friday 2 to Sunday 4 August 2013: Military & Flying Machines Show:

held at Damyns Hall, Aerodrome, Aveley Road, Upminster, Essex, RM14 2TN. Featuring military vehicles, tank rides, living history displays, tank parade, classic cars, military and collectors stalls, Battle of Britain Memorial Flight, flying displays and more. For details call Tracey Brew on: Tel: 07903 104102 Tracey.brew@mvt-essex.org.uk www.militaryandflyingmachines.org.uk



AUGUST 2013

Saturday 3 Sunday 4 August 2013: Woodhall Spa 40's Festival:

held at Jubilee Park, Stixwold Road and Woodhall Spa village hall, Lincolnshire, LN10 6QH. For details contact Stuart on: Tel: 01526 353215 www.woodhall-spa-40s-festival.com

Sunday 11 August 2013: Panshanger 1930 & 1940s Day:

held at Panshanger Airfield, Herts. This popular one-day show features classic military vehicles, classic cars, motorcycles and a classic aircraft fly in, plus live music. For details or to book in call: Tel: 01707 3971791 www.northlondonflyingschool.com

Saturday 17 Sunday 18 August 2013: Cobbaton Combat VJ Weekend:

military vehicle show, stalls, living history, held at Cobbaton Combat Collection. The museum is located in Chittlehampton, N. Devon, EX37 9RZ. For further details or to book in contact: Tel: 01769 540740 info@cobbatoncombat.co.uk www.cobbatoncombat.co.uk

Saturday 17 Sunday 18 August 2013: Wings & Wheels:

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

AUGUST 2013

Saturday 17 Sunday 18 August 2013: Lacock at War, Codename Bolero:

Military Vehicle & Re-Enactment Show, held in Lacock Village near Chippenham, Wiltshire, Sat Nav SN15 2LQ. For details contact, John Wardle on: Tel: 01373 300384 westwiltsmvt@yahoo.co.uk www.westwiltsmvt.co.uk

Saturday 17 Sunday 18 August 2013: Ramsey 1940s Weekend:

held at The Camp, Ramsey, Cambs, PE26 2XB. Attractions include living history displays, period re-enactors, vintage motor vehicles, BBMF, trade stands and tank rides. For details call: Tel: 07881 730047 Ramsey1940s@gmail.com www.ramsey1940sweekend.org

Saturday 24 to Monday 26 August 2013: Tanks, Trucks & Firepower:

organised by the Alvis Fighting Vehicle Society and the Birmingham & West Midlands Area MVT. Situated just 1 mile from Dunchurch in Warwickshire on the A426 Southam Rd and 5 miles from Rugby. Easy access from the A45 and M45. Show features static military vehicle and living history displays, arena driving. For details see: www.tankstrucksandfirepower.com

Saturday 24 to Monday 26 August 2013: Military Odyssey 2013:

held at the Kent County Showground, Detling, Kent, ME14 3JF. Now the world's largest multi-period history event, the closest you'll get to history short of a time machine! For details contact: Tel: 01268 772448 info@military-odyssey.com www.military-odyssey.com

Saturday 24 to Monday 26 August 2013: Cornwall Area MVT Show:

held at Mount Edgcumbe Country Park, Cremyll, Cornwall. Exhibitors are invited to bring along military vehicles (of any era), plus military or living history displays welcome. Free entry and camping for all exhibitors. For further information regarding vehicle and living history entries please call Gwen Jenkins: Tel: 01872 561653 gwenjen@falktalk.net

AUGUST 2013

Saturday 24 to Monday 26 August 2013: Rauceby War Years Weekend 2013:

The Mid Lincs Military Vehicle Trust is holding their 5th War Years Weekend. We are a non-profit making event so any monies raised after expenses will go to the Air Ambulance, Royal British Legion and Marie Curie Cancer Care. Tel: 01529 488354 www.raucebywarweekend.co.uk

Saturday 31 August Sunday 1 September 2013:

70th Anniversary of the Assault Training Center, held in Woolacombe, North Devon, living history displays, beach invasion re-enactment, vehicle run on beach, wreath laying. For further details see the website: www.assaulttrainingcenter.com

SEPTEMBER 2013

Sunday 1 September 2013: Jeep & Cheerful day:

this popular one-day vehicle show returns, offering a Free day out for anyone with a Military Jeep, or Military Vehicle, held at the regular venue of South Yorkshire Aircraft Museum 'AeroVenture'. For more call Mark Askew on: Tel: 01302 739000 info@jeepworld.co.uk www.jeepworld.co.uk

Friday 6 to Sunday 8 September 2013: The

Victory Show: the largest WWII experience extravaganza in the UK, held at Foxlands Farm, Cosby, Leicestershire, LE9 1SG. Featuring military vehicles, tanks and artillery, living history displays, trade stands and more. General contact Steve Pepper: Tel: 07711430472 Sjpepper229@btinternet.com Vehicles/Re-enactors call Dave Pratt on: Tel: 07954 620728 thevictoryshowreenactors@yahoo.co.uk www.thevictoryshow.co.uk

Saturday 7 September 2013: Peopleton Autumn Show:

held at Peopleton Village Playing Fields, Peopleton, Worcs. Featuring Classic Cars, Military Vehicles, stalls, food and entertainment throughout the day. Open from 12.00 noon till 6.00pm. For further details call the organiser John Sargeant: Tel: 01905 840155 sarg-37@outlook.com

SEPTEMBER 2013

Saturday 21 Sunday 22

September 2013: Bagillt Military Vehicle Show: a new late summer show on the Bettisfield Beacon Headland overlooking the Dee estuary, CH6 6HE. Vehicles limited to a 9ft 8" height restriction. For further details contact Jayne on: Tel: 01352 713560 jayneatvalkor@aol.com

Sunday 29 September

2013: Stoneleigh Mini Militaria 2013: Blackdown Buildings, The Exhibition Centre, Stoneleigh Park, Coventry, Warks. CV8 2LZ. Round off the show season with this new event and grab those bargains ready for the winter rebuilds. For details or to book in please contact Amanda on: Tel: 01743 762266 amanda@jeepparts.co.uk www.militaryconvention.com

Saturday 28 Sunday 29

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



OCTOBER 2013

Friday 4 to Sunday 6

October 2013: Military Revival: new show in alliance with Bunker Bash, and in collaboration with Old Buckenham Airfield and Battlefront; The East England Military Museum. In addition to military vehicles we will have military campsites presenting a variety of living history displays. The event will also include mock battles from conflicts throughout the 20th century, tank rides, militaria and other trade stalls and air displays from military aircraft. Contact Touchdown Aero Centre: Tel: 01953 860 806 airfield@oldbuck.com

Saturday 5 Sunday 6

October 2013: Holme 1940's Weekend: held in association with Holmewood Hall and Holme Village. Located near Peterborough, PE7 3PA. Featuring tank rides, vintage vehicles, vintage ploughing, stalls and displays. Re-enactors welcome. For details call: Tel: 07887 817031 chriscardell@googlemail.com www.holmewoodhall.co.uk

Sunday 6 October 2013:

Hack Green Secret Nuclear Bunker Rally: French Lane, Nantwich, Cheshire, CW5 8BL. Buy and sell your items of militaria and take in the fascinating Hack Green Secret Nuclear Bunker museum while you're there. For details call Rod: Tel: 01270 623353 coldwar@hackgreen.co.uk



OCTOBER 2013

Friday 11 to Sunday 13

October 2013: Wartime Weekend: held in Pickering, N.Yorks with steam trains, trade stands and re-enactors. For further details about the show visit the website at: www.nrrmr.co.uk details about the trading area at: www.jeepworld.co.uk/pickering_wartimeweekend.htm

NOVEMBER 2013

Sunday 3 November

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

Sunday 17 November

2013: Malvern Militaria Fair: large, indoor militaria event held at the Three Counties Showground, Wye Hall, Malvern, Worcs, WR13 6NW. For details contact Amanda at: Tel: 01743 762266 amanda@jeepparts.co.uk www.militaryconvention.com

NOVEMBER 2013

Sunday 15 December

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

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

ian.young@keypublishing.com or if you prefer you can post them to the Editorial Office - details can be found on page 3

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

VEHICLE PARTS

DROP ZONE

THE SOUTHS LARGEST MILITARY WAREHOUSE

One stop shop for military Land Rovers, new & used spares, deactivated guns, surplus & collectables

Trade & retail welcome
Official suppliers to the film & TV industry

Tel: 01798 831955 Fax: 01798 839009

Bury Mill Farm, Burygate, Pulborough, West Sussex, RH20 1NN

Email: info@dropzonemilitary.com

www.dropzonemilitary.com

VEHICLE MAINTENANCE

Matt Savage

We have moved to new premises.

Our new address is,

Matt Savage 4x4

Unit 3 Unity Complex

Dale Road North

Darley Dale

Derbyshire

DE4 2HX

Tel 01629 735555

www.mattsavage.com



Matt Savage is a friendly, family run business specializing in the servicing, repair, and rebuilding of four wheel drive vehicles.



We are the sole UK dealer for Viair 12 volt compressors.

HISTORIC VEHICLE SHOW



THE SHOWGROUND DRIFFIELD, EAST YORKSHIRE

DRIFFIELD STEAM AND VINTAGE RALLY



SUPPORTING LOCAL CHARITIES
10TH & 11TH AUGUST 2013 GATES OPEN 10.00AM

ADMISSION PRICES HELD

Adults £8, Accompanied Children (u16) FREE OAP £6, Unaccompanied Children £4
Trade Stand Enquiries: (01262) 601071 • Caravan & Camping available: 01347 848406

FOR FURTHER INFORMATION: 01377 254384
www.driffieldvintagerally.co.uk

FOOTWEAR



William Lennon & Co Ltd
Since 1899
Stoney Middleton
Derbyshire
England



www.thebootfactory.co.uk



Manufacturers of men's traditional boots including
WWI B5 Ammo External Toe Cap & Hob Nailed Boots
Tel. 01433 630451 for a brochure email. sales@williamlennon.co.uk

VEHICLE MAINTENANCE



RM SERVICES
SERVICE & REPAIRS

MAINTENANCE
ENGINE & GEARBOX REBUILDS
RESTORATION WORK

MOT WORK
GRIT BLASTING
PAINTING
TRANSPORT

VEHICLES FOR FILMWORK
DRIVING SERVICES

Tel: Barry 07747 466 296 or
Mike 07766 243 687
Email: ringmotors@yahoo.co.uk
Soberton, Hampshire
<http://www.facebook.com/militaryvehiclerepairs>

TRANSPORT



NEED YOUR MILITARY VEHICLE MOVING?
Call Dave Allen Transport on
01308868741 or 07798845112 Dorset.
Short notice, evening/weekends no problem, Fully insured, winch for non runners.

CLOTHING

MEANandGREEN.com

08458 991133

CALL FOR FREE CATALOGUE

87 DARLINGTON ST, WOLVERHAMPTON, WV1 4EX

VEHICLES FOR SALE

GK Jackson & Sons Ltd

Suppliers of ex MOD vehicles road registered & ready to drive away.

Stocking RB44s, Landrover 90 & 110s & Daf 4x4's.
Please phone 01670 787 393 for current stock or visit

www.jacksonsgarage.com

VEHICLE SALES

GreenMachineSurplus

Suppliers of

• Vehicle spares • Camping equipment
• Vehicle Manuals • Vehicle Accessories • Radio spares

Tel: 01782 729112 Email: enquiries@greenmachinesurplus.com

Visit our online shop

www.greenmachinesurplus.com

VEHICLE PARTS

JOHN WALKER

COMMERCIAL AND EX-MILITARY VEHICLE SPARES

Gaskets, King Pin Sets, Track Rod Ends.

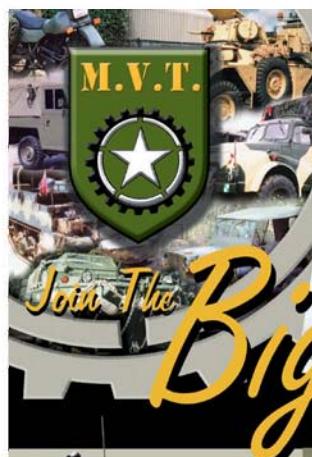
Spring Pins and Bushes, etc

Morris commercial spares.

Brake Cylinder repair kits.

TELEPHONE 01159 607860

See me at
War and Peace,
Stall Q.9



M.V.T.

The Club for Military Enthusiasts Worldwide

Join The Big One

Join over 7,000 like minded Military Vehicle Enthusiasts whose membership benefits include:

- Over 46 local Area groups.
- Incorporating the highly acclaimed **WINDSCREEN Magazine**.
- Regular **GREENSHEET Newsletter**.
- Organisation of European Tours.
- Numerous National and local shows throughout the year.
- Members Free vehicle verification for DVLA.
- The use of a large Technical Library.
- Discounts on Insurance through specialist schemes.

Tanks Trucks & Firepower 2013
45 years of the MVT
24th - 26th August
www.tankstrucksandfirepower.com

Visit us at Military Events though out the year, or at
or online at www.mvt.org.uk

For full details write to:-
THE MILITARY VEHICLE TRUST
The Membership Secretary
The MVT Shop,
24 Conway Avenue,
THORNTON-CLEVELEYS
FY5 3JH

Registered under the Charities Act No 327768



Join the

INVICTA MILITARY VEHICLE PRESERVATION SOCIETY

...and receive these benefits!

- A new-look, full-colour quarterly magazine and regular monthly newsletters.
- Cheaper insurance for your military vehicle.
- Entrance to the War and Peace Show.
- Free classified adverts for you to sell your vehicle, parts—or if you're looking to buy!
- Commemorative military vehicle tours to Normandy, Nord Pas De Calais, Arnhem and the Ardennes.
- Come to our own yearly club event—Combined Ops.
- Museum visits both in the UK and Europe.
- Club rallies and social events.
- Monthly club nights, plus area meetings and events.
- Vehicle validation for DLVA Registrations.

For lots more information either visit:

www.imps.org.uk

Or write to: IMPS Membership, Glyn Rosser, Hagars Hall
Sea View Gardens, Warden Bay, Sheerness, Kent ME12 4NG

Tel: 01795 510022 today!



The World's
Fastest Growing
Military Magazine for all
Military Vehicle Owners!




Who Will Protect Them? YOU... AND THE MVPA

SANDBLAST THE FRAME—REBUILD THE CARBURETOR
FIND AN ORIGINAL WHEEL—THE TIME—THE COST...
BUT YOU LOVE IT ANYWAY.



**MILITARY VEHICLE
PRESERVATION ASSOCIATION**
HISTORY IN MOTION

PO Box 520378 • Independence, MO 64052 USA • 800.365.5798 • www.MVPA.org

You've done the hard work to preserve your historic military vehicle.

Now, support the organization that works hard to preserve your continued access to vehicles and parts.

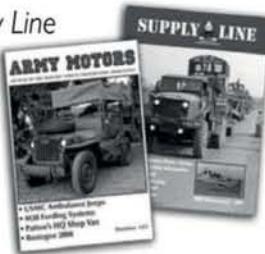
Monitoring municipal, state, and federal legislation to fight barriers to the hobby. And, assisting local MVPA affiliates facing these issues in their areas. Just part of what we do.

What else? Six issues of **Supply Line** and four **Army Motors** issues a year for vital information and resource contacts.

Discounts on ad rates and at the international convention.

Now, do your part to honor their service and continue the tradition.

Join today and keep history in motion!



Next Month...

On Sale 8th August



EXERCISE FIRST VIEW

Roland Groom was on Salisbury Plain to watch the tanks at play!

TANK VERSUS ANTI-TANK Pt.2

Dick Taylor looks at how British tanks fared against anti-tank weapons

RARE CENTURION

Michael K. Cecil looks at a recently restored Centurion Driver Training Tank



GREAT WAR RESTORATIONS Pt.2

Tim Gosling concludes his article on WW1 trucks under restoration



JEEP REBUILD Pt.1

We start a series of articles tracing the rebuild of a WW2 Jeep



Content may be subject to change



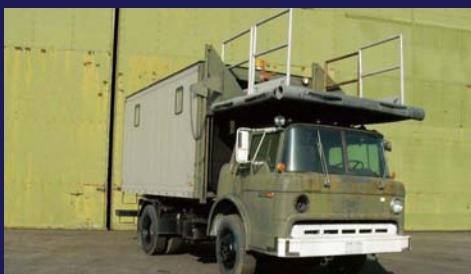
OSHKOSH 10X10 LHD Year 1989, 5 axle driving ,3 Axle Steering , Diesel Engine Detroit 8v92TA 500hp, Allison CLT755 Automatic Gearbox, Self Recovery Winch ,20ft Twist Locks, Michelin 16.00 R20 Tyres Vehicle Length 10.6 Metres Height 2.9 Metres Width 2.3 Metres Approx tare Weight 21tonnes Mileage 021025. Ex MOD Qty1 Guide Price £35,000



INTERNATIONAL 6X6 LHD PAY STAR 5000, Chassis Cab, Diesel Engine Detroit 6V92T, Allison HT750 Automatic Gearbox, Vehicle Length 9 Metres Height 3.1 Metres Width 2.4 Metres Approx Tare Weight 8.5 Tonnes Mileage 27,855. Ex MOD Qty1 Guide Price £15,000



International 6x4 LHD Tanker, 1500 gallon tank Diesel Engine DT466, Allison HT653 Gearbox , Hale pump powered by John Deere 4cyl Diesel power pack. Vehicle Length 7.1 Metres Height 2.5 Metres Width 2.4 Metres Approx Tare Weight 8 Tonnes Mileage 2286 Ex Mod Qty1 Guide Price £10,000



FORD 4X2 LHD TM 8000 Elevating Van Body Diesel Engine Caterpillar 3208 Allison AT545 Automatic Gearbox, Vehicle Length 7.3 Metres Height 3.8 Metres Width 2.4 Metres Mileage 7080, Ex Mod Qty1 Guide Price £7,500



SCAMMELL 6X4 R.H.D., Recovery Truck Year 1979, Diesel Engine Rolls Royce 305 hp, Fuller RTO 915 Gearbox, EKA UNDERLIFT EQUIPMENT, MAS32 20Ton Rear Winch, MR55 7Ton Front Winch Vehicle length 8.2 Metres Height 3.2 Metres, Width 2.4 Metres Approx Tare Weight 16 Ton Mileage 42727 All Documentation Ex Mod Qty1 Guide Price £15,000



BEDFORD TL860 TURBO with Access platform Diesel Engine Bedford 330T Access platform with Spencer Lift 13.3Metre height capacity 340Kg swl, Hydraulic 2 Man Access (Cherry Picker) Stabilizer Legs Vehicle Length 7.80metres Width 2.45Metres Height 3.20Metres. Mileage 13,330 Hours 1735. £7,500



ISUZU NQR 7.5 TON Year 2005 Mot June 2013 Flatbed With Atlas T20.2 Crane Bed Measurements Length 5.25Metres Width 2.33 Height 0.96metres Mileage 128,000 Excellent condition £7,500



LEYLAND ROAD TRAIN 4X4 R.H.D. Year 1989 Diesel Engine Cummins L10 Eminox exhaust, Front and rear Diff locks Snow plough frame fitted, Spicer Manual Gearbox. Vehicle Length 5.2 Metres Width 2.46Metres Height 3.37Metres Kilometres 156435 £5,500



TM 6X6 SET OF THREE AXLES and transfer box Reconditioned ex mod £3500 per set or Front leading Axle £1500 each Rear leading axle £1500 each Rear Rear Axle £1000 each Transfer box £1500 each



TANK COMBAT .120MM Chieftain Mk 2 type 1 Vehicle no: 01EB96 £10,000



A.E.C 760 MILLITANT and mandator Left hand and Right hand Factory reconditioned ex mod £1500 each

Landrover Engines Ex Mod £100 each

The Old Grainstores, Manby Middlegate, Manby Louth Lincolnshire LN11 8UT

Tel 00 44 (0) 1507 327 100 Fax 00 44 (0) 1507327 103

Email info@winchestermarine.net Email winchestermarine@btconnect.com

INTER MARKET FREIGHT SERVICES

a trading division of RSH Freight Masters Ltd
International Freight Forwarders

**SPECIALIST WORLDWIDE SHIPPING OF MILITARY
VEHICLES ARTILLERY AND EQUIPMENT**



Falcon House, Central Way
North Feltham Trading Estate
Feltham, Middlesex TW14 0UQ

Tel: +44 (0) 208 893 1006
Fax: +44 (0) 208 890 0704
Direct: +44 (0) 208 917 3244
Email: mike@rshfm.co.uk